OFFICERS

President
W. Marston Linehan, MD

Past President
Robert C. Flanigan, MD

President Elect
Ralph W. deVere White, MD

Secretary
Eric A. Klein, MD

Treasurer
David P. Wood, Jr., MD

STANDING COMMITTEE CHAIRS

Bylaws Committee Chair
Jeffrey Maxwell Holzbeierlein, MD

Fellowship Committee Chair
J. Brantley Thrasher, MD

YUO Representative
John W. Davis, MD

Long Range Planning Chair
Paul Henry Lange, MD

Membership Chair
Leonard G. Gomella, MD

NCI Liaison
W. Marston Linehan, MD

Nominating Committee Chair
Judd W. Moul, MD

Publications Committee Co-Chairs
Michael J. Droller, MD
James E. Montie, MD

Scientific Program Chair
Christopher P. Evans, MD

AUA Representative
Martin E. Gleave, MD

EXECUTIVE COMMITTEE

Members at Large
Gerald L. Andriole Jr., MD
Steven C. Campbell, MD
Robert E. Reiter, MD

Liaison Chair
Colin P.N. Dinney, MD

AJCC Representative
Sam S. Chang, MD

EXECUTIVE OFFICE

Executive Director
Wendy J. Weiser

PROGRAM COMMITTEE

Steering Committee
Eric A. Klein, MD
W. Marston Linehan, MD

Prostate Cancer
Eric A. Klein, MD
Ian Thompson, MD
Peter Scardino, MD
Bill Shipley, MD

Bladder Cancer
Colin P. N. Dinney, MD
Seth Lerner, MD
Yves Fradet, MD
Eila C. Skinner, MD
Rob Dreicer, MD
Bernard Bochner, MD

Kidney Cancer
W. Marston Linehan, MD
Arie Beldegrun, MD
Michael Atkins, MD
Robert G. Uzzo, MD
Peter Pinto, MD

Testis Cancer
Joel Sheinfeld, MD

Coop Groups
Martin Sanda, MD

Molecular Therapeutics
Philip Walther, MD
Abbott

Antigenics, Inc.

Bayer HealthCare Pharmaceuticals/Onyx Pharmaceuticals

Dendreon Corporation

Sanofi-Aventis

Steba Biotech/ Negma-Lerads

Wilex
GENERAL INFORMATION

NEEDS:
Urologic oncologists, medical researchers and others treating patients with prostate cancers and other malignant genitourinary diseases have a need to know of advancements, current treatments and techniques in the field. It is of critical importance that the experts in this field stay up to date with the latest surgical and treatment advances regarding prostate cancer and other malignant genitourinary disease states.

The goal of this program is to increase communication among urologic oncology researchers, the society’s members and others interested in urologic oncology. The SUO enables researchers and members whose primary interests lie in the care of patients with malignant genitourinary diseases to meet for the purpose of discussion, development and implementation of ideas to improve care. The SUO aims to do this by providing a discussion forum for problems related to malignant urologic disease, stimulating research and instruction in the field of urologic oncology, disseminating urologic oncology principles to the greater medical community and by establishing training guidelines and program oversight for the development of urologic oncologists.

The program will help urologic oncologists identify the best surgical approaches for prostate cancer; identify the appropriate timing of radiation following post-surgery recurrence and prepare a rationale for active surveillance in prostate cancer. The discussion will also provide urologic oncologists with the information necessary to recognize appropriate candidates for partial nephrectomy; integrate proper management techniques for individuals with high risk bladder cancer and recognize the role of translational science in prostate cancer and identify how it relates to both present and future therapy.

OBJECTIVES:
At the conclusion of this meeting, the attendee will be able to:
1) Identify and apply the best surgical approaches for localized prostate cancer.
2) Prepare a balanced opinion about, and describe the appropriate timing of, radiation following post-surgery recurrence.
3) Recognize and assess the rationale for active surveillance in prostate cancer.
4) Identify criteria to appropriately select patients for partial nephrectomy.
5) Evaluate and determine the proper management of individuals with high risk bladder cancer.
6) Recognize the role of translational science in prostate and bladder cancer and predict its relevance to present and future therapy.

MEALS:
A continental breakfast and mid-morning snack on both days of the meeting, and a lunch and afternoon snack on the first day are included in the registration fee.

SUO Dinner at the Hyatt Regency Bethesda
Friday, December 1, 2006
Time: 7:00 p.m. – 10:00 p.m.
Enjoy dinner with friends and colleagues at the Hyatt Regency Bethesda. Registration for this is an additional cost of $65.00 per person ($35.00 for fellows, nurses and residents). Please check at the Registration Desk for availability.
Attire: Business casual attire is appropriate
# Program Schedule

**7th Annual SUO Meeting to Discuss Current Topics and Strategies**  
Co-Sponsored by: Society of Urologic Oncology/National Cancer Institute  
Natcher Conference Center  
National Institutes of Health  
Bethesda, Maryland  
November 30 – December 2, 2006

## Thursday, November 30, 2006

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30 p.m. – 6:30 p.m.</td>
<td><strong>Complementary Pre-Course on Uro-Oncologic Agents</strong></td>
<td>Hyatt Bethesda – Chesapeake Suite</td>
</tr>
</tbody>
</table>

## Friday, December 1, 2006

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00 a.m. – 8:00 a.m.</td>
<td><strong>Continental Breakfast and Registration</strong></td>
<td></td>
</tr>
</tbody>
</table>
| 8:00 a.m. – 8:05 a.m. | **Introduction**          | W. Marston Linehan, MD, President, Society of Urologic Oncology  
                           | Eric A. Klein, MD, Secretary, SUO and Program Co-Director          |
| 8:05 a.m. – 8:50 a.m. | **Bladder Cancer 1: Importance and Management of the Prostate and Urethra in Bladder Cancer** | Eila C. Skinner, MD, USC Medical Center/Norris Cancer Center |
| 8:05 a.m. – 8:20 a.m. | **Pathologic Assessment and Clinical Significance of Prostatic Involvement by TCC/PCA** | Seth Lerner, MD, Baylor College of Medicine          |
| 8:20 a.m. – 8:35 a.m. | **Update on Prostate Sparing Procedures**                            | Stephen Charles Campbell, MD, Cleveland Clinic                       |
| 8:35 a.m. – 8:50 a.m. | **Update of Nerve Sparing Cystoprostatectomy Outcomes**               | Mark P. Schoenberg, MD, Johns Hopkins                 |
| 8:50 a.m. – 9:20 a.m. | **Bladder Cancer 2: Case Presentations and Panel Discussion:**        |                                                  |
| 8:50 a.m. – 9:15 a.m. | Management strategies in the patient with prostatic urethral involvement | John Stein, MD, USC Norris Cancer Center           |
| 8:50 a.m. – 9:15 a.m. | Management of the urethra in the orthotopically diverted patient     |                                                  |
| 9:20 a.m. – 9:35 a.m. | **State-of-the-Art Talk: Testis Cancer**                              | Joel Sheinfeld, MD, Memorial Kettering Cancer Center |
| 9:35 a.m. – 9:45 a.m. | **Break**                                                             |                                                  |
| 9:45 a.m. – 11:15 a.m. | **Prostate Cancer 1: Management of Clinically Localized Disease:**   |                                                  |
| 9:45 a.m. – 9:55 a.m. | **The Need for Randomized Clinical Trials**                          | Eric A. Klein, MD, Cleveland Clinic              |
| 9:45 a.m. – 9:55 a.m. | **AUA Guidelines**                                                    | Michael Cookson, MD, Vanderbilt University Medical Center |
9:55 a.m. – 10:05 a.m.  History of Randomized Trials in the US: Lessons Learned
Derek Raghaven, MD, Cleveland Clinic

What is the Best Approach for Screen-Detected Low Volume Cancers?

10:05 a.m. – 10:15 a.m.  The Case for Observation
Laurence Klotz, MD, University of Toronto

10:15 a.m. – 10:25 a.m.  The Case for Focal Therapy
Gary Onik, MD, Celebration Health

10:25 a.m. – 10:35 a.m.  The Case for Definitive Therapy
James E. Montie, MD, University of Michigan

10:35 a.m. – 10:45 a.m.  The Case for a Coin Flip: START and PROTECT
F. C. Hamdy, MD, University of Sheffield

10:45 a.m. – 11:15 a.m.  Panel Discussion: How Do We Advise Patients on Therapy in the Absence of Controlled Trials?
Moderator: Eric A. Klein, MD, Cleveland Clinic
Panel: James E. Montie, MD, University of Michigan - Ann Arbor
Anthony L. Zietman, MD, Massachusetts General Hospital
Mario A. Eisenberger, MD, Johns Hopkins Hospital
F. C. Hamdy, MD, University of Sheffield
Michael L. Blute, MD, Mayo Clinic

11:15 a.m. - 12:00 p.m.  Prostate Cancer 2: What is Locally Advanced Disease and How Should it Be Treated?
Moderator: Michael L. Blute, MD, Mayo Clinic

11:15 a.m. – 11:25 a.m.  What is Locally Advanced Disease?
Kenneth S. Koeneman, MD, University of Minnesota

11:25 a.m. – 11:35 a.m.  Why Do Hormones Work with XRT and Not Surgery?
Anthony L. Zietman, MD, Massachusetts General Hospital

11:35 a.m. – 11:45 a.m.  Is There a Role for Surgery, Are There Advantages to Surgery?
Michael L. Blute, MD, Mayo Clinic

11:45 a.m. – 12:00 p.m.  Panel Discussion
Moderator: Michael L. Blute, MD, Mayo Clinic
Panel: Kenneth S. Koeneman, MD, University of Minnesota
Anthony L. Zietman, MD, Massachusetts General Hospital

12:00 p.m. – 1:30 p.m.  Lunch

1:30 p.m. – 1:40 p.m.  Huggins Medal Presentation
Ralph de Vere White, MD, SUO Vice President

1:40 p.m. – 2:00 p.m.  Huggins Award Lecture
Fritz H. Schröder, MD, PhD, Erasmus University Rotterdam

2:00 p.m. – 3:00 p.m.  Kidney Cancer 1: Advanced Disease
Moderator: Michael Atkins, MD, PhD, Beth Israel Deaconess Medical Center

Continues on next page
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:00 p.m. – 2:15 p.m.</td>
<td>Recent Advances with Anti-Angiogenic and Targeted Therapeutics: Bevacizumab, Sorafenib, Sunitinib, AG13736 and CCI-779</td>
<td>Brian I. Rini, MD, Cleveland Clinic</td>
</tr>
<tr>
<td>2:15 p.m. – 2:30 p.m.</td>
<td>Current Status of Immunotherapy and Patient Selection Issues</td>
<td>Michael Atkins, MD, Beth Israel Deaconess Medical Center</td>
</tr>
<tr>
<td>2:30 p.m. – 2:45 p.m.</td>
<td>Future Directions—Combination Trials, Resistance Studies, Translational Endpoints</td>
<td>Keith T. Flaherty, MD, University of Pennsylvania</td>
</tr>
<tr>
<td>2:45 p.m. – 3:00 p.m.</td>
<td>Discussion</td>
<td>Moderator: Michael Atkins, MD, Beth Israel Deaconess Medical Center</td>
</tr>
<tr>
<td></td>
<td>Panel: Michael Atkins, MD, Beth Israel Deaconess Medical Center, Brian I. Rini, MD, Cleveland Clinic, Keith T. Flaherty, MD, University of Pennsylvania</td>
<td></td>
</tr>
<tr>
<td>3:00 p.m. – 4:00 p.m.</td>
<td>Kidney Cancer 2: Controversies in RCC Management</td>
<td>Moderator: Arie Beldegrun, MD, University of California - Los Angles</td>
</tr>
<tr>
<td></td>
<td>Panel: Michael Atkins, MD, Beth Israel Deaconess Medical Center, Michael L. Blute, MD, Mayo Clinic, Peter L. Choyke, MD, National Institutes of Health - NCI, Maria Merino, MD, National Institutes of Health - NCI, Peter Pinto, MD, National Institutes of Health - NCI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. 40 y.o. with 4 cm mass (Cryo, RFA, Lap partial Nx)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. 3 cm central mass (Open partial Nx vs. Lap?)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Bilateral renal masses (Surgery versus observation)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. 15 cm mass with small regional LN (Open vs Lap rad. Nx &amp; adjuvant)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. 9 cm Renal mass with Pulm. Mets (Role of Nx with targeted Trx)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Renal mass with IVC thrombus and pulmonary mets (Surgery versus systemic therapy)</td>
<td></td>
</tr>
<tr>
<td>4:00 p.m. – 6:00 p.m.</td>
<td>Poster Session/Reception</td>
<td></td>
</tr>
<tr>
<td>Poster #1</td>
<td>A PREOPERATIVE NOMOGRAM IDENTIFYING RISK OF SEMINAL VESICLE INVASION IN PATIENTS WITH PROSTATE CANCER: A MULTI-INSTITUTIONAL STUDY IN 6,40 PATIENTS</td>
<td>Angelo Baccala, MD, Cleveland Clinic, Alwyn Reuther, BS, Cleveland Clinic, Fernando Bianco, MD, Memorial Sloan Kettering, Peter Scardino, MD, Memorial Sloan Kettering, Eric Klein, MD, Cleveland Clinic and Michael Kattan, MD, Cleveland Clinic (Presented By: Angelo Baccala, MD, Cleveland Clinic)</td>
</tr>
<tr>
<td>Poster #2</td>
<td>PRESERVATION OF PENILE HEALTH AFTER RADICAL PROSTATECTOMY (RRP): EARLY INTERVENTION WITH A VACCUM ERECTION DEVICE (VED)</td>
<td>Bruce Dalkin, MD, Arizona Health Sciences Center (Presented By: Bruce Dalkin, MD, Arizona Health Sciences Center)</td>
</tr>
<tr>
<td>Poster #3</td>
<td>CLINICAL AND IMMUNE RESPONSES TO AUTOLOGOUS TUMOR LYSATE LOADED DENDRITIC CELL VACCINE IN COMBINATION WITH INTERLEUKIN-2 AND INTERFERON-A-2A IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA</td>
<td>Thomas Schwaab, MD PhD, The Immunotherapy Center, Norris Cotton Cancer Center, Dartmouth Hitchcock Medical Center, Lebanon, NH, Jan Fisher, BS, The Immunotherapy Center, Norris Cotton Cancer Center, Dartmouth Hitchcock Medical Center, Lebanon, NH, John Seigne, MD, Urology, DHMC, Lebanon, NH and Marc Ernstoff, MD, The Immunotherapy Center, Norris Cotton Cancer Center, Dartmouth Hitchcock Medical Center, Lebanon, NH. (Presented By: Thomas Schwaab, MD PhD, The Immunotherapy Center, Norris Cotton Cancer Center, Dartmouth Hitchcock Medical Center, Lebanon, NH)</td>
</tr>
</tbody>
</table>
Poster# 4  POLYMORPHISMS OF TGFBI AND PROSTATE CANCER PROGNOSIS
Timothy Brand, MD, Uthscsa, Carlos Bermejo, MD, Uthscsa, Dawn Garcia, MS, Uthscsa, Edith Canby-Hagino, MD, Thsca, Jacques Baillargeon, PhD, Uthscsa, Dean Troyer, MD, Uthscsa, Ian Thompson, MD, Uthscsa, Robin Leach, PhD, Uthscsa and Susan Naylor, PhD, Uthscsa
(Presented By: Timothy Brand, MD, Uthscsa)

Poster# 5  VIABLE TUMOR IN THE POST-CHEMOTHERAPY RPLND SPECIMEN: CAN IT BE PREDICTED?
Philippe Spiess, MD, MS, The University of Texas MD Anderson Cancer Center, Gordon A Brown, DO, The University of Texas MD Anderson Cancer Center, Nizar M Tannir, MD, The University of Texas MD Anderson Cancer Center, Ping Liu, MS, The University of Texas MD Anderson Cancer Center, Ashish M Kamat, MD, The University of Texas MD Anderson Cancer Center, Shi-Ming Tu, MD, The University of Texas MD Anderson Cancer Center and Louis L Pisters, MD, The University of Texas MD Anderson Cancer Center (Presented By: Philippe Spiess, MD, MS, The University of Texas MD Anderson Cancer Center)

Poster# 6  TIMING OF ANDROGEN DEPRIVATION THERAPY AND ITS IMPACT ON SURVIVAL AFTER RADICAL PROSTATECTOMY: A MATCHED COHORT SERIES
Sameer Siddiqui, MD, Mayo Clinic Rochester, Stephen Boorjian, MD, Mayo Clinic Rochester, Brant Inman, MD, Mayo Clinic Rochester, Jeffrey Slezak, MS, Mayo Clinic Rochester and Michael Blute, MD, Mayo Clinic Rochester (Presented By: Sameer Siddiqui, MD, Mayo Clinic Rochester)

Poster# 7  VASCULAR-TARGETED PHOTODYNAMIC THERAPY (VTP) WITH TOOKAD (WST-09) IN THE PRIMARY TREATMENT OF PROSTATE CANCER: INITIAL RESULTS
Douglas Pendsé, MB, ChB, MRCS, Urology Research Fellow, University College London, Caroline Moore, MB MRCS, University College London, Clare Allen, MB FRCR, University College London Hospital NHS Trust, Professor Stephen Bown, PhD FRCP, University College London and Mark Emberton, MD BS BSc FRCS, University College London (Presented By: Douglas Pendsé, MB ChB MRCS, Urology Research Fellow, University College London)

Poster# 8  ANDROGEN DEPENDENT REGULATION OF MEDIUM AND LONG CHAIN FATTY ACIDS UPTAKE IN PROSTATE CANCER
Jehonathan H. Pinthus, MD, PhD, McMaster University, Jiang-Ping Lu, MD, PhD, McMaster University, Laure A. Bidaisee, MSc, McMaster University, Helen Lin, McMaster University, Radhey S. Gupta, PhD, McMaster University and Gurmit Singh, PhD, McMaster University (Presented By: Jehonathan H. Pinthus, MD, PhD, McMaster University)

Poster# 9  MISCLASSIFICATION OF HOSPITAL VOLUME WITH SEER-MEDICARE DATA
Brent Hollenbeck, MD, MS, University of Michigan, Zaojun Ye, MS, University of Michigan, Hong Ji, MS, University of Michigan and John Birkmeyer, MD, University of Michigan (Presented By: Brent Hollenbeck, MD, MS, University of Michigan)
**Poster# 10**

**DIRECTED PROSTATE BIOPSIES UTILIZING MICROFLOW IMAGING DURING MICROBUBBLE CONTRAST-ENHANCED ULTRASOUND**

Robert A. Linden, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Paul R. Gittens, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Flemming Forsberg, Department of Radiology, Thomas Jefferson University, Edouard J. Trabulsi, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Leonard G. Gomella, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University and Ethan J. Halpern, MD, Department of Radiology, Thomas Jefferson University (Presented By: Robert A. Linden, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University)

**Poster# 11**

**COST-EFFECTIVENESS OF PROSTATE CANCER CHEMOPREVENTION: A QUALITY-OF-LIFE YEARS ANALYSIS**

Robert Svatek, MD, UT Southwestern Department of Urology, J. Jack Lee, PhD, The University of Texas M. D. Anderson Cancer Center, Claus Roehrborn, MD, UT Southwestern, Scott Lippman, MD, The University of Texas M. D. Anderson Cancer Center and Yair Lotan, MD, UT Southwestern (Presented By: Robert Svatek, MD, UT Southwestern Department of Urology)

**Poster# 12**

**PLURIPOTENT STEM CELLS DERIVED FROM TELOMERAZE-IMMORTALIZED HUMAN PROSTATE EPITHELIAL CELLS**

Hongzhen Li, MD, PhD, Center for Prostate Disease Research, Yongpeng Gu, MD, PhD, Center for Prostate Disease Research, Jun Miki, MD, Center for Prostate Disease Research, Shiv Srivastava, PhD, Center for Prostate Disease Research, David McLeod, MD, Center for Prostate Disease Research, JianJun Zhou, PhD, National Cancer Institute, Jonathan Vogel, MD, National Cancer Institute and Johng Rhim, MD, Center for Prostate Disease Research (Presented By: Hongzhen Li, MD, PhD, Center for Prostate Disease Research)

**Poster# 13**

**OUTCOMES OF PATIENTS WITH CLINICAL T1 GRADE 3 BLADDER UROTHELIAL CELL CARCINOMA TREATED WITH RADICAL CYSTECTOMY**

Amit Gupta, MD MPH, University of Texas Southwestern Medical Center, Shahrokh Shariat, MD, Dept of Urology, UT Southwestern Medical Center at Dallas, TX, Matthew Nielson, MD, James Buchanan Brady Urological Institute, The Johns Hopkins Hospital, Baltimore, MD, Patrick Bastian, MD, James Buchanan Brady Urological Institute, The Johns Hopkins Hospital, Baltimore, MD, Ganesh Palapattu, MD, James Buchanan Brady Urological Institute, The Johns Hopkins Hospital, Baltimore, MD, Craig Rogers, MD, James Buchanan Brady Urological Institute, The Johns Hopkins Hospital, Baltimore, MD, Amnon Vazina, MD, Scott Department of Urology, Baylor College of Medicine, Houston, TX, Pierre Karakiewicz, MD, Cancer Prognostics and Health Outcomes Unit, University of Montreal, Quebec, Canada, Mark Schoenberg, MD, James Buchanan Brady Urological Institute, The Johns Hopkins Hospital, Baltimore, MD, Seth Lerner, MD, Scott Department of Urology, Baylor College of Medicine, Houston, TX, Arthur Sagalowsky, MD, Dept of Urology, UT Southwestern Medical Center at Dallas, TX and Yair Lotan, MD, Dept of Urology, UT Southwestern Medical Center at Dallas, TX (Presented By: Amit Gupta, MD MPH, University of Texas Southwestern Medical Center)

**Poster# 14**

**ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL CYSTECTOMY: INITIAL EXPERIENCE AND OPERATIVE OUTCOMES**

Aaron Lentz, MD, University of North Carolina at Chapel Hill, Eric Wallen, MD and Raj Pruthi, MD (Presented By: Aaron Lentz, MD, University of North Carolina at Chapel Hill)
Poster# 15  PROSPECTIVE EVALUATION OF SHORT-TERM IMPACT AND RECOVERY OF HEALTH-RELATED QUALITY OF LIFE (HRQOL) IN MEN UNDERGOING ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY VS. OPEN RADICAL PROSTATECTOMY (ORP)
Javier Miller, MD, University of North Carolina at Chapel Hill, Erik Kouba, MD, Eric Wallen, MD and Raj Pruthi, MD (Presented By: Javier Miller, MD, University of North Carolina at Chapel Hill)

Poster# 16  INCIDENTAL CARCINOMA OF THE PROSTATE: WAIT-AND-SEE OR RADICAL PROSTATECTOMY?
Boris Hadaschik, MD, Johannes Gutenberg University Mainz, Germany, Sebastian Thueroff, MD, Johannes Gutenberg University Mainz, Sebastian Melchior, MD, Johannes Gutenberg University Mainz and Joachim Thueroff, MD, Johannes Gutenberg University Mainz (Presented By: Boris Hadaschik, MD, Johannes Gutenberg University Mainz, Germany)

Poster# 17  METACHRONOUS BILATERAL RENAL CELL CARCINOMA: RISK ASSESSMENT, PROGNOSIS AND RELEVANCE OF THE PRIMARY-FREE INTERVAL
Tobias Klatte, MD, UCLA, Jean-Jacques Patard, MD, University of Rennes, France, Heiko Wunderlich, MD, University of Jena, Germany, John Lam, MD, UCLA, Ernst Allhoff, MD, University of Magdeburg, Germany, Luca Cindolo, MD, Benevento Hospital, Italy, Alexandre De La Taille, MD, CHU Henri Mondor, Creteil, France, Jacques Toastin, MD, University of Saint-Etienne, France, Arnaud Mejean, MD, Necker Hospital, Paris, France, Michel Soulie, MD, University of Toulouse, France, Jean-Marie Ferriere, MD, University of Bordeaux, France, Christian Pfister, MD, University of Rouen, France, Marc Colombel, MD, University of Lyon, France, Arie Belldegrun, MD, UCLA and Allan Pantuck, MD, UCLA (Presented By: Tobias Klatte, MD, UCLA)

Poster# 18  15-YEAR DISEASE-SPECIFIC SURVIVAL FOLLOWING PARTIAL NEPHRECTOMY FOR RENAL CELL CARCINOMA: THE UCLA-EXPERIENCE
Tobias Klatte, MD, UCLA, Rakhee Goel, MS, UCLA, Allan Pantuck, MD, UCLA, Michael Aldridge, MS, UCLA, Stephen Riggs, MD, UCLA, Fairooz Kabbinavar, MD, UCLA and Arie Belldegrun, MD, UCLA (Presented By: Tobias Klatte, MD, UCLA)

Poster# 19  10 YEAR SURVIVAL OF RENAL CELL CARCINOMA WITH TUMOR THROMBUS EXTENSION: THE UCLA EXPERIENCE
Tobias Klatte, MD, UCLA, Allan Pantuck, MD, UCLA, Stephen Riggs, MD, UCLA, Fairooz Kabbinavar, MD, UCLA and Arie Belldegrun, MD, UCLA (Presented By: Tobias Klatte, MD, UCLA)

Poster# 20  TUMOR LATERALITY DOES NOT PREDICT BIOCHEMICAL PROSTATE CANCER RECURRENCE AFTER RADICAL PROSTATECTOMY
Vladimir Mouraviev, MD, PhD, Duke Medical University Center, Division of Urology, Department of Surgery, Leon Sun, MD, PhD, DUMC, John F Madden, MD, DUMC, Janice M Mayes, DUMC, Judd W Moul, MD, DUMC, Daniel George, MD, DUMC, Phillip Febbo, MD, DUMC and Thomas J Polascik, MD, DUMC (Presented By: Vladimir Mouraviev, MD, PhD, Duke Medical University Center, Division of Urology, Department of Surgery)
Poster# 21  THE IMPACT OF GLEASON SCORE ON THE PREDICTIVE VALUE OF PSA DOUBLING TIME
Stephen Boorjian, MD, Mayo Clinic Department of Urology, Sameer Siddiqui, MD, Department of Urology, Mayo Clinic, Rochester, MN, Brant Inman, MD, Department of Urology, Mayo Clinic, Rochester, MN, Jeffrey Slezak, Department of Health Sciences Research, Mayo Clinic, Rochester, MN, R. Jeffrey Karnes, MD, Department of Urology, Mayo Clinic, Rochester, MN, Michael Blute, MD, Department of Urology, Mayo Clinic, Rochester, MN, Michael Blute, MD, Department of Urology, Mayo Clinic, Rochester, MN and Bradley Leibovich, MD, Department of Urology, Mayo Clinic, Rochester, MN (Presented By: Stephen Boorjian, MD, Mayo Clinic Department of Urology)

Poster# 22  THE COMPLICATION RATE AFTER CRYOSURGICAL ABLATION FOR CLINICALLY LOCALIZED PROSTATE CANCER USING THIRD GENERATION CRYOTECHNOLOGY
Janice Mayes, BSc, Duke University Medical Center, Vladimir Mouravev, MD, PhD, DUMC, Israel Nosnik, BSc, DUMC and Thomas J Polascik, MD, DUMC (Presented By: Janice Mayes, BSc, Duke University Medical Center)

Poster# 23  THE HISTONE DEACETYLASE INHIBITOR FK228 IS AN EFFECTIVE TREATMENT IN A MOUSE MODEL OF HUMAN UROTHELIAL CARCINOMA (UC)
Jose Karam, MD, University of Texas Southwestern Medical Center at Dallas, Fan Jinhai, MD, University of Texas Southwestern Medical Center at Dallas, Stanfield Jennifer, University of Texas Southwestern Medical Center at Dallas, Richer Edmond, University of Texas Southwestern Medical Center at Dallas, Benaim Elie, MD, University of Texas Southwestern Medical Center at Dallas, Frenkel Eugene, MD, University of Texas Southwestern Medical Center at Dallas, Antich Peter, PhD, University of Texas Southwestern Medical Center at Dallas, Sagalowsky Arthur, MD, University of Texas Southwestern Medical Center at Dallas, Mason Ralph, PhD, University of Texas Southwestern Medical Center at Dallas and Hsieh Jer-Tsong, PhD, University of Texas Southwestern Medical Center at Dallas (Presented By: Jose Karam, MD, University of Texas Southwestern Medical Center at Dallas)

Poster# 24  THE MEN'S EATING AND LIVING (MEAL) STUDY: A MULTI-CENTER PILOT TRIAL OF DIETARY INTERVENTION FOR THE TREATMENT OF PROSTATE CANCER
Vicky Newman, MS, RD, UCSD/Moores Cancer Center, J Kellogg Parsons, MD, MHS, UCSD Moores Cancer Center, James Mohler, MD, Roswell Park Cancer Institute, John Pierce, PhD, UCSD/Moores Cancer Center, Electra Paskett, PhD, Ohio State University and James Marshall, PhD, Roswell Park Cancer Institute (Presented By: J. Kellogg Parsons, MD, MHS, UCSD Moores Cancer Center)

Poster# 25  INCIDENCE OF CLOSTRIDIUM DIFFICILE AFTER CYSTECTOMY
Lincoln Olsen, MD, University of Kansas, Department of Urology, Heidi Stephany, MD, KU Urology, Apostolos Evangelidis, MD, KU Urology, Michael Karellas, MD, KU Urology, J. Brantley Thrasher, MD, KU Urology and Jeffrey Holzbeierlein, MD, KU Urology (Presented By: Lincoln Olsen, MD, University of Kansas, Department of Urology)

Poster# 26  THE ASSOCIATION BETWEEN EXTENT OF LYMPHADENCTOMY AND SURVIVAL AMONG PATIENTS WITH LYMPH NODE METASTASES UNDERGOING RADICAL CYSTECTOMY
Jonathan L. Wright, MD, MS, University of Washington School of Medicine, Department of Urology, Daniel W. Lin, MD, University of Washington School of Medicine, Department of Urology and Michael Porter, MD, MS, University of Washington School of Medicine, Department of Urology (Presented By: Jonathan L. Wright, MD, MS, University of Washington School of Medicine, Department of Urology)
Poster# 27  CRUCIFEROUS VEGETABLE EXTRACTS FOR THE CHEMOPREVENTION AND TREATMENT OF PROSTATE CANCER: A PILOT STUDY
J. Kellogg Parsons, MD, MHS, UCSD Moores Cancer Center, Paul Talalay, MD, Johns Hopkins, Lingxiang Ye, MD, Johns Hopkins, William Nelson, MD, PhD, Johns Hopkins, Murray Kalish, MD, Johns Hopkins and Alan Partin, MD, PhD, Johns Hopkins
(Presented By: J. Kellogg Parsons, MD, MHS, UCSD Moores Cancer Center)

Poster# 28  REFINING THE FOCUS OF THE VOLUME-OUTCOME RELATIONSHIP FOR UROLOGIC MALIGNANCIES: THE IMPORTANCE OF NON-INDEX CASE VOLUME
Scott Gilbert, MD, University of Michigan, Rodney Dunn, MS, University of Michigan, David Miller, MD, MPH, University of Michigan, Stephanie Daignault, MS, University of Michigan, Zou Xu Ye, MS, University of Michigan and Brent Hollenbeck, MD, MS, University of Michigan (Presented By: Scott Gilbert, MD, University of Michigan)

Poster# 29  EVALUATION OF ADENOVIRAL GENE THERAPY WITH TRANSFORMING GROWTH FACTOR BETA RECEPTOR TYPE 3 IN CONVENTIONAL RENAL CELL CARCINOMA
Vitaly Margulis, MD, The University of Texas M.D. Anderson Cancer Center, Tapati Maity, The University of Texas M.D. Anderson Cancer Center, John Copeland, PhD, Mayo Clinic Jacksonville and Christopher Wood, MD, The University of Texas M.D. Anderson Cancer Center
(Presented By: Vitaly Margulis, MD, The University of Texas M.D. Anderson Cancer Center)

Poster# 30  WITHDRAWN

Poster# 31  LAPAROSCOPIC AND ROBOTIC ASSISTED LAPAROSCOPIC CYSTECTOMY AND URINARY DIVERSION: CITY OF HOPE EXPERIENCE
Clayton Lau, MD, City of Hope National Medical Center, David Josephson, MD, Fellow, Mark Kawachi, MD, Professor and Timothy Wilson, MD, Director
(Presented By: Clayton Lau, MD, City of Hope National Medical Center)

Poster# 32  ADDITION OF ROBOTIC SURGERY TO AN ESTABLISHED LAPAROSCOPIC RADICAL PROSTATECTOMY PROGRAM: INITIAL IMPACT ON POSITIVE SURGICAL MARGINS
Robert A. Linden, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Adeep Thumar, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Danny Haddad, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Steve N. Dong, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Leonard G. Gomella, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Costas D. Lallas, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University and Edouard J. Trabulsi, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University (Presented By: Robert A. Linden, MD, Kimmel Cancer Center, Department of Urology, Thomas Jefferson University)

Poster# 33  3D PROSTATE MODEL FORMATION-PARALLEL 2-DIMENSIONAL TRANSRECTAL ULTRASOUND BIOPSY IMAGES, MAPPING ORGAN SECTOTOMY CAN SMALL CINAR PROLIFERATION
Derek Cool, BSc, University of Western Ontario, Joseph Chin, MD, University of Western Ontario, Jonathan Izawa, MD, FRCSC, U.W.O. and Aaron Renster, PhD, U.W.O.
(Presented By: Joseph Chin, MD, University of Western Ontario)

Continues on next page
Poster# 34  **LONG-TERM OUTCOMES OF ADJUVANT RADIATION THERAPY AFTER RADICAL PROSTATECTOMY**
Stacy Loeb, MD, Georgetown University School of Medicine, Kimberly A. Roehl, MPH, Washington University School of Medicine and William J. Catalona, MD, Northwestern Feinberg School of Medicine (Presented By: Stacy Loeb, MD, Georgetown University School of Medicine)

Poster# 35  **PSA VELOCITY VERSUS PSA DOUBLING TIME FOR THE PREDICTION OF TREATMENT OUTCOMES**
Stacy Loeb, MD, Georgetown University School of Medicine, Kimberly A. Roehl, MPH, Washington University School of Medicine, Xiaoying Yu, MD, Northwestern Feinberg School of Medicine and William J. Catalona, MD, Northwestern Feinberg School of Medicine (Presented By: Stacy Loeb, MD, Georgetown University School of Medicine)

Poster# 36  **APOPTOSIS BIOMARKERS FOR PREDICTION OF RECURRENCE AND SURVIVAL AFTER RADICAL CYSTECTOMY FOR BLADDER UROTHELIAL CARCINOMA**
 Jose Karam, MD, University of Texas Southwestern Medical Center at Dallas, Shahrokh Shariat, MD, University of Texas Southwestern Medical Center at Dallas, Raheela Ashfaq, MD, University of Texas Southwestern Medical Center at Dallas, Arthur Sagalowsky, MD, University of Texas Southwestern Medical Center at Dallas, and Yair Lotan, MD, University of Texas Southwestern Medical Center at Dallas (Presented By: Jose Karam, MD, University of Texas Southwestern Medical Center at Dallas)

Poster# 37  **DIFFERENCES IN SURVIVAL BETWEEN PATIENTS WITH SARCOMATOID CARCINOMA, CARCINOSARCOMA AND TRANSITIONAL CELL CARCINOMA OF THE BLADDER.**
Peter Black, MD, The University of Texas, MD Anderson Cancer Center, Jonathan Wright, MD, University of Washington, Gordon Brown, DO, MD Anderson Cancer Center, Jose Gomez, MD, MD Anderson Cancer Center, Michael Porter, MD, University of Washington, Ashish Kamat, MD, MD Anderson Cancer Center, Colin Dinney, MD, MD Anderson Cancer Center and Daniel Lin, MD, University of Washington (Presented By: Peter Black, MD, The University of Texas, MD Anderson Cancer Center)

Poster# 38  **IMPACT OF PREOPERATIVE ENDORECTAL MAGNETIC RESONANCE IMAGING (MRI) STAGING RESULTS ON NEUROVASCULAR BUNDLE SPARING AGGRESSIVENESS AND PROSTATECTOMY POSITIVE SURGICAL MARGIN RATES**
James Brown, MD, Medical College of Georgia, David Rodin, MD, Massachusetts General Hospital, Mukesh Harisinghani, MD, Massachusetts General Hospital and Douglas Dahl, MD, Massachusetts General Hospital (Presented By: James Brown, MD, Medical College of Georgia)

Poster# 39  **TREATMENT PARADIGM SHIFT IMPROVES SURVIVAL OF PATIENTS WITH HIGH-RISK SUPERFICIAL BLADDER CANCER**
Ganesh Raj, MD, PhD, UT Southwestern Medical Center, Harry Herr, MD, MSKCC, Angel Serio, MS, MSKCC, Sherri Donat, MD, MSKCC, Bernie Bochner, MD, MSKCC, Andrew Vickers, PhD, MSKCC and Guido Dalbagni, MD, MSKCC (Presented By: Ganesh Raj, MD PhD, UT Southwestern Medical Center)
Poster# 40
ANALYSIS OF ERECTILE FUNCTION FOLLOWING PRIMARY TARGETED CRYOABLATION OF THE PROSTATE FOR CLINICALLY LOCALIZED PROSTATE CANCER IN A CONTEMPORARY SERIES
Christopher DiBlasio, MD, University of Tennessee, Dan Linn, BS, University of Tennessee, Sam Kuykendall, MD, University of Tennessee, Urology, Kimberly Lamar, PhD, University of Tennessee, Preventive Medicine, Ithaar Derweesh, MD, University of Tennessee, Urology and Robert Wake, MD, University of Tennessee, Urology (Presented By: Christopher DiBlasio, MD, University of Tennessee)

Poster# 41
COMPARISON OF POST-OPERATIVE PAIN MEDICATION USE AMONG PATIENTS AFTER RADICAL RETROPUBLIC AND PERINEAL PROSTATECTOMY
Gregory Horwitz, MD, University of Kansas, Tomas Griebing, MD, FACS, FGSA, KUMC, Peter Carter, MS2, KUMC and J. Brantley Thrasher, MD, FACS, KUMC (Presented By: Gregory Horwitz, MD, University of Kansas)

Poster# 42
RISK OF SURGICAL UNDERTREATMENT WITH PROSTATE SPARING CYSTECTOMY
Joseph Pettus, MD, Memorial Sloan Kettering Cancer Center, Hikmat Al-Ahmadie, MD, MSKCC, Daniel Barocas, MD, MSKCC, Theresa Koppie, MD, MSKCC, Harry Herr, MD, MSKCC, Machele Donat, MD, MSKCC, Guido Dalbagni, MD, MSKCC, Victor Reuter, MD, MSKCC, Semra Olgac, MD, MSKCC and Bernard Bochner, MD, MSKCC (Presented By: Joseph Pettus, MD, Memorial Sloan Kettering Cancer Center)

Poster# 43
OUTCOMES OF RADICAL RETROPUBLIC, LAPAROSCOPIC, AND ROBOTIC-ASSISTED PROSTATECTOMY: A QUANTITATIVE, EVIDENCE-BASED ANALYSIS
J Kellogg Parsons, MD, MHS, UCSD Moores Cancer Center and Lisette Bennett, MD (Presented By: J Kellogg Parsons, MD, MHS, UCSD Moores Cancer Center)

Poster# 44
STUDY RESULTS OF ACTIVE CELLULAR IMMUNOTHERAPY WITH SIPULEUCEL-T IN ANDROGEN INDEPENDENT PROSTATE CANCER SUGGEST SIGNIFICANT SURVIVAL BENEFIT WITH MINIMAL TOXICITY
David Penson, MD, MPH, University of Southern California, Jeffrey Holzbeierlein, MD, University of Kansas, Paul Schellhammer, MD, Urology of Virginia and Mark Frohlich, MD, Dendreon Corporation (Presented By: David Penson, MD, MPH, University of Southern California)

Poster# 45
LOWER PLASMA ADIPONECTIN LEVELS AS A POTENTIAL BIOMARKER FOR RENAL CELL CARCINOMA
Michael Chang, MD, MSc, McMaster university Department of Surgery, Tamika Hamlet, Dept of Surgery/Urology McMaster University, Jiang-Ping Lu, MD PhD, Dept of Surgery McMaster University, Britt Tisdale, MD, Dept of Surgery/Urology McMaster University, Aubrey Gills, MSc, Dept of Surgery/Urology McMaster University, Anil Kapoor, MD, Dept of Surgery/Urology McMaster University and Jehonathan H Pithus, MD PhD, Dept of Surgery/Urology McMaster University (Presented By: Michael Chang, MD, MSc, McMaster university Department of Surgery)

Poster# 46
DOES Cavernosal Nerve Sparring Affect Urinary Continence in Laparoscopic and Robotic-Assisted Laparoscopic Radical Prostatectomy?
Rosalia Viterbo, MD, City of Hope National Medical Center, Nelson Rebecca, PhD, Kawachi Mark, MD, Jeffrey Yoshida, MD, Crocito Laura, MD, Timothy Wilson, MD and Chan Kevin, MD (Presented By: Rosalia Viterbo, MD, City of Hope National Medical Center)
Poster# 47  THE IMPACT OF COMORBIDITY ON OVERALL SURVIVAL IN PATIENTS WITH RENAL CELL CARCINOMA
David Berger, MD, Washington University School of Medicine, Anna Vlahiotis, Washington University School of Medicine, Mohamed Radwan, MD, Washington University School of Medicine, Ifeanyi Megwulu, Washington University School of Medicine, Maria Serrano, MD, Washington University School of Medicine, Peter Humphrey, MD, Washington University School of Medicine, Jay Piccirillo, MD, Washington University School of Medicine and Adam Kibel, MD, Washington University School of Medicine (Presented By: David Berger, MD, Washington University School of Medicine)

Poster# 48  LAPAROSCOPIC VERSUS PERCUTANEOUS RENAL CRYOABLATION: SINGLE CENTER EXPERIENCE
Ithaar Derweesh, MD, University of Tennessee Health Science Center, John Malcolm, MD, University of Tennessee Health Science Center, Christopher DiBlasio, MD, University of Tennessee Health Science Center, Andrew Giem, MD, University of Tennessee Health Science Center, Robert Wake, MD, University of Tennessee Health Science Center, Anthony Patterson, MD, University of Tennessee Health Science Center and Robert Gold, MD, University of Tennessee Health Science Center (Presented By: Ithaar Derweesh, MD, University of Tennessee Health Science Center)

Poster# 49  ADVANCED AGE AT DIAGNOSIS IS ASSOCIATED WITH UNDERESTIMATION OF GLEASON SCORES AT BIOPSY IN MEN UNDERGOING RADICAL PROSTATECTOMY
Brandon Isariyawongse, BA, Duke University, Leon Sun, MD, PhD, MPH, Duke University, Lionel Banez, MD, Duke University, John Madden, MD, Duke University, Vladimir Mouraviev, MD, PhD, Duke University and Judd Moul, MD, FACS, Duke University (Presented By: Brandon Isariyawongse, BA, Duke University)

Poster# 50  PROSTATE CANCER DISEASE-FREE SURVIVAL AFTER RADICAL RETROPUBIC PROSTATECTOMY IN PATIENTS OLDER THAN 70 YEARS COMPARED TO YOUNGER COHORTS
Marklyn Jones, MD, University of Minnesota Department of Urology, Bahaa Malaeb, MD, University of Minnesota Department of Urology, Hani Rashid, MD, University of Rochester Department of Urology, Yair Lotan, MD, University of Texas Southwestern Department of Urology, Seyyed Khoddami, MD, University of Texas Southwestern Department of Urology, Shahrokh Shariat, MD, University of Texas Southwestern Department of Urology, Arthur Sagalowsky, MD, University of Texas Southwestern Department of Urology, John McConnell, MD, University of Texas Southwestern Department of Urology, Claus Roehrborn, MD, University of Texas Southwestern Department of Urology and Kenneth Koeneman, MD, University of Minnesota Department of Urology (Presented By: Marklyn Jones, MD, University of Minnesota Department of Urology)

Poster# 51  ABERRANT EXPRESSION OF SWI/SNF CATALYTIC SUBUNITS BRG1/BRM IS ASSOCIATED WITH TUMOR DEVELOPMENT AND INCREASED INVASIVENESS IN PROSTATE CANCERS
Aijing Sun, MD/PhD, Dept of Urology, KUMC, Ossama Tawfik, MD/PhD, Dept of Pathology & Laboratory Medicine, Kansas Masonic Cancer Research Institute, KUMC, Bishoy Gayed, MD, Department of Pathology, J. Brantley Thrasher, MD, Dept of Urology, Kansas Masonic Center Research Institute, KUMC, Sara Hoestje, MD, University of Kansas Medical Center, Chaoyang Li, MD/PhD/MPH, Center for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Atlanta, GA and Benyi Li, MD/PhD, Dept of Urology and Pathology & Laboratory Medicine, Kansas Masonic Center Research Institute (Presented By: Sara Hoestje, MD, University of Kansas Medical Center)
Poster# 52  ETHNIC DISPARITIES REMAIN IN PROSTATE CANCER—AN EPIDEMIOLOGIC ANALYSIS
Edward Rampersaud, MD, Duke University Medical Center, Leon Sun, MD, PhD, DUMC and Judd Moul, MD, DUMC (Presented By: Edward Rampersaud, MD, Duke University Medical Center)

Poster# 53  PHASE II TRIAL OF COMBINATION LOW-DOSE FLUTAMIDE PLUS FINASTERIDE VERSUS LOW-DOSE FLUTAMIDE MONOTHERAPY FOR BIOCHEMICAL RECURRENCE FOLLOWING DEFINITIVE THERAPY FOR PROSTATE CANCER: LONG-TERM FOLLOW-UP
Lionel L. Bañez, MD, Division of Urological Surgery and the Duke Prostate Center, Department of Urology, Duke University Medical Center, Gary W. Blake, CCRC, Center for Prostate Disease Research, Walter Reed Army Medical Center, Washington, DC, David G. McLeod, MD, Center for Prostate Disease Research, Walter Reed Army Medical Center, Washington, DC, E. David Crawford, MD, University of Colorado Cancer Center, University of Colorado Health Science Center, Denver, CO and Judd W. Moul, MD, FACS, Division of Urological Surgery and the Duke Prostate Center, Department of Surgery, Duke University Medical Center, Durham, NC (Presented By: Lionel L. Bañez, MD, Division of Urological Surgery and the Duke Prostate Center, Department of Surgery, Duke University Medical Center)

Poster# 54  WHAT IS THE VALUE OF TRANSITION ZONE (TZ) BIOPSY IN PATIENTS UNDERGOING REPEAT PROSTATE BIOPSY?
Mazen Abdelhady, MD, MSc, London Health Sciences Centre, University of Western Ontario, Ashraf Abusamra, MD, FRCS, LHSC, Donal Downey, MD, FRCP, LHSC, Jonathan Izawa, MD, FRCS, LHSC and Joseph Chin, MD, FRCS, LHSC (Presented By: Mazen Abdelhady, MD, MSc, London Health Sciences Centre, University of Western Ontario)

Poster# 55  SYSTEMATIC LATERAL PROSTATE BIOPSY: ARE THE BENEFITS WORTH THE COSTS?
Mischel Neill, BHB, MBChB, University Health Network, Ants Toi, MD, UHN, Gina Lockwood, PhD, UHN, Andrew Evans, MD, UHN, Lisa Tammsalu, UHN and Neil Fleshner, MD, UHN (Presented By: Mischel Neill, BHB, MBChB, University Health Network)

Poster# 56  HIGH TUMOR EXPRESSION OF KI-67 IS AN INDEPENDENT PREDICTOR OF POOR OUTCOME AMONG PATIENTS TREATED SURGICALLY FOR CLEAR CELL RENAL CELL CARCINOMA
Matthew Tollefson, MD, Mayo Clinic, Yuri Sheinin, MD, PhD, Mayo Clinic, John Cheville, MD, Mayo Clinic, Bradley Leibovich, MD, Mayo Clinic, Michael Blute, MD, Mayo Clinic, Christine Lohse, MS, Mayo Clinic and Eugene Kwon, MD, Mayo Clinic (Presented By: Matthew Tollefson, MD, Mayo Clinic)

Poster# 57  TNM NODEL STATUS VERSUS LYMPH NODE DENSITY FOR PREDICTION OF DISEASE-SPECIFIC SURVIVAL AFTER RADICAL CYSTECTOMY FOR BLADDER CANCER
Piyush Agarwal, MD, The University of Texas M.D. Anderson Cancer Center, Wassim Kassouf, MD, The University of Texas M.D. Anderson Cancer Center, Colin Dinney, MD, The University of Texas M.D. Anderson Cancer Center, Mark Munsell, PhD, The University of Texas M.D. Anderson Cancer Center, Philippe Spiess, MD, The University of Texas M.D. Anderson Cancer Center, Gordon Brown, MD, The University of Texas M.D. Anderson Cancer Center, H. Barton Grossman, MD, The University of Texas M.D. Anderson Cancer Center, Harry Herr, MD, Memorial Sloan-Kettering Cancer Center and Ashish Kamat, MD, The University of Texas M.D. Anderson Cancer Center (Presented By: Piyush Agarwal, MD, The University of Texas M.D. Anderson Cancer Center)
Poster# 58  TARGETED TREATMENT OF LOCALIZED REGIONS OF THE PROSTATE GLAND USING MRI-GUIDED TRANSURETHRAL ULTRASOUND THERAPY: DEMONSTRATION IN VIVO
Sree Appu, MD, FRACS, Sunnybrook Hospital, University Health Network, Toronto., Rajiv Chopra, PhD, Dept Imaging Research, Sunnybrook Hospital, Laurence Klotz, MD, FRACS, Dept. of Urology, Sunnybrook Hospital and Michael Bronskill, PhD, Dept. of Medical Imaging, Sunnybrook Hospital
(Presented By: Sree Appu, MD, FRACS, Sunnybrook Hospital, University Health Network, Toronto.)

Poster# 59   RENAL TUMOR LOCATION (CENTRAL VS. EXOPHYTIC) INFLUENCES POST-OPERATIVE COMPLICATIONS IN NEPHRON SPARING SURGERY.
Michael Karellas, MD, Memorial Sloan Kettering Cancer Center, Joseph Pettus, MD, MSKCC, David Sharp, MD, MSKCC, Mark Snyder, MSKCC, Ariadne Bach, MD, MSKCC and Paul Russo, MD, MSKCC
(Presented By: Michael Karellas, MD, Memorial Sloan Kettering Cancer Center)

Poster# 60   SALVAGE CRYOABLATION OF THE PROSTATE: SHORT TERM COMPLICATIONS AND RESULTS
Greg Lamberton, MD, Loma Linda University Medical Center, Tekisha Lindler, MD, Loma Linda University Medical Center and Herbert Ruckle, MD, Loma Linda University Medical Center
(Presented By: Greg Lamberton, MD, Loma Linda University Medical Center)

Poster# 61   THE OUTCOME OF RADIATION-INDUCED COMPLICATIONS TREATED WITH HYPERBARIC OXYGEN THERAPY: A RETROSPECTIVE REVIEW
Tekisha Lindler, MD, Loma Linda University Medical Center, Greg Lamberton, MD, Loma Linda University Medical Center and Herbert Ruckle, MD, Loma Linda University Medical Center
(Presented By: Tekisha Lindler, MD, Loma Linda University Medical Center)

Poster# 62   ASSOCIATION OF CEREBROVASCULAR ACCIDENT AND MYOCARDIAL INFARCTION WITH ANDROGEN DEPRIVATION THERAPY
John Malcolm, MD, University of Tennessee Health Sciences Center, Christopher DiBlasio, MD, University of Tennessee, Jamie Womack, MD, University of Tennessee, Matthew Kincade, MD, University of Tennessee, Mitchell Ogles, MD, University of Tennessee, John Mancini, MD, University of Tennessee, Kimberly Lamar, PhD, University of Tennessee, Anthony Patterson, MD, University of Tennessee, Robert Wake, MD, University of Tennessee and Ithaar Derweesh, MD, University of Tennessee
(Presented By: John Malcolm, MD, University of Tennessee Health Sciences Center)

Poster# 63   EFFECT OF ANDROGEN DEPRIVATION ON PSP94 EXPRESSION IN PROSTATE CANCER CELLS
Mazen Abdelhady, MD, MSc, London Health Sciences Centre, University of Western Ontario, Ahmed Elmaadawi, MD, LHSC, Ashraf Abusamra, MD, FRCS, LHSC, Jim Xuan, PhD, LHSC, Madelene Moussa, MD, FRCPC, LHSC, Jonathan Izawa, MD, FRCS, LHSC and Joseph Chin, MD, FRCS, LHSC (Presented By: Mazen Abdelhady, MD, MSc, London Health Sciences Centre, University of Western Ontario)

Poster# 64   FUNCTIONAL OUTCOME FOLLOWING NERVE SPARING POST-CHEMOTHERAPY RETROPERITONEAL LYMPH NODE DISSECTION FOR NONSEMINOMATOUS GERM CELL CARCINOMA
Joseph Pettus, MD, Memorial Sloan Kettering Cancer Center, Brett Carver, MD, Memorial Sloan Kettering Cancer Center and Joel Sheinfeld, MD, Memorial Sloan Kettering Cancer Center
(Presented By: Joseph Pettus, MD, Memorial Sloan Kettering Cancer Center)
<table>
<thead>
<tr>
<th>Poster#</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>65</td>
<td>NEOADJUVANT CHEMOTHERAPY IN PATIENTS WITH UROTHELIAL CARCINOMA: IMPACT OF VARIANT HISTOLOGY</td>
<td>Wassim Kassouf, MD, McGill University Health Center, Tony Luongo, MD, M.D. Anderson Cancer Center, Arif Rahman, MD, M.D. Anderson Cancer Center, Arlene Siefker-Radtke, MD, M.D. Anderson Cancer Center, Ashish Kamat, MD, M.D. Anderson Cancer Center, H.Barton Grossman, MD, M.D. Anderson Cancer Center and Colin Dinney, MD, M.D. Anderson Cancer Center (Presented By: Wassim Kassouf, MD, McGill University Health Center)</td>
</tr>
<tr>
<td>66</td>
<td>MAGNETIC RESONANCE MICROSCOPY OF RADICAL PROSTATECTOMIES AT 7 TESLA</td>
<td>Bungo Furusato, MD, PhD, Armed Forces Institute of Pathology, Kimberlee Potter, PhD, Armed Forces Institute of Pathology, Robert Becker, MD, PhD, Armed Forces Institute of Pathology, Shiv Srivastava, PhD, Center for Prostate Disease Research, David McLeod, MD, Walter Reed Army Medical Center and Isabell Sesterhenn, MD, Armed Forces Institute of Pathology (Presented By: Bungo Furusato, MD, PhD, Armed Forces Institute of Pathology)</td>
</tr>
<tr>
<td>67</td>
<td>BILATERAL HAND-ASSISTED LAPAROSCOPIC RENAL SURGERY IN THE SUPINE POSITION: AN ASSESSMENT OF EFFICACY</td>
<td>Kashif Siddiqi, MD, MS, Medical College of Georgia and James Brown, MD, MCG Urology Faculty (Presented By: Kashif Siddiqi, MD, MS, Medical College of Georgia)</td>
</tr>
<tr>
<td>68</td>
<td>INITIAL EXPERIENCE WITH SUTURELESS LAPAROSCOPIC PARTIAL NEPHRECTOMY FOR TUMORS WITH COLLECTING SYSTEM ENTRY—RESULTS AND TECHNIQUE</td>
<td>Ithaar Derweesh, MD, University of Tennessee Health Science Center, Ramsey Chichakli, MD, University of Tennessee Health Science Center, Christopher DiBlasio, MD, University of Tennessee Health Science Center and John Malcolm, MD, University of Tennessee Health Science Center (Presented By: Ithaar Derweesh, MD, University of Tennessee Health Science Center)</td>
</tr>
<tr>
<td>69</td>
<td>PARTIAL PENECTOMY FOR PATIENTS WITH SQUAMOUS CELL CARCINOMA OF THE PENIS: THE MEMORIAL SLOAN-KETTERING EXPERIENCE</td>
<td>Ruslan Korets, BA, Memorial Sloan-Kettering Cancer Center, Theresa Koppie, MD, Memorial Sloan-Kettering Cancer Center, Mark Snyder, BA, Memorial Sloan-Kettering Cancer Center and Paul Russo, MD, Memorial Sloan-Kettering Cancer Center (Presented By: Ruslan Korets, BA, Memorial Sloan-Kettering Cancer Center)</td>
</tr>
<tr>
<td>70</td>
<td>CHANGES IN SURGICAL MANAGEMENT OVER TIME FOR SOLID RENAL MASSES 7 CM OR LESS</td>
<td>Matthew Tollefson, MD, Mayo Clinic, Bradley Leibovich, MD, Mayo Clinic, Christine Lohse, MS, Mayo Clinic and Michael Blute, MD, Mayo Clinic (Presented By: Matthew Tollefson, MD, Mayo Clinic)</td>
</tr>
<tr>
<td>71</td>
<td>SIGNIFICANCE OF TERTIARY GLEASON GRADE 5 PATTERN IN PATIENTS WITH GLEASON SUM 7 PROSTATE CANCER FOLLOWING RADICAL PROSTATECTOMY</td>
<td>Whittemore Darren, MD, Wilford Hall USAF Medical Center, Hick Eric, DO, Wilford Hall USAF Medical Center, Carter Mark, MD, Wilford Hall USAF Medical Center, Moul Judd, MD, Center for Prostate Disease Research, Miranda-Sousa Alejandro, MD, H. Lee Moffitt Cancer Center and Research Institute and Wade Sexton, MD, H. Lee Moffitt Cancer Center and Research Institute (Presented By: Wade Sexton, MD, H. Lee Moffitt Cancer Center and Research Institute)</td>
</tr>
</tbody>
</table>
Program Schedule

Continued from previous page

**Poster# 72**

GENETIC VARIATION IN CPA4 IDENTIFIES MEN AT RISK FOR AGGRESSIVE PROSTATE
Phillip Ross, MD, University of California San Francisco, Iona Cheng, PhD, University of California San Francisco, Xin Liu, MD, PhD, University of California San Francisco, Peter Carroll, MD, University of California San Francisco, Sarah Plummer, BS, The Cleveland Clinic Foundation, Graham Casey, PhD, The Cleveland Clinic Foundation and John Witte, PhD, University of California San Francisco (Presented By: Phillip Ross, MD, University of California San Francisco)

**Poster# 73**

GALPHA PROTEINS ARE REQUIRED FOR ANDROGEN RECEPTOR TRANSACTIVATION IN PROSTATE CANCER
James McIntosh, MD, University of Kansas Medical Center, Hyewon Youn, Sandy Tang, Brantley Thrasher and Benyi Li (Presented By: James McIntosh, MD, University of Kansas Medical Center)

**Poster# 74**

CAN BLADDER WASH CYTOLOGY PREDICT PATHOLOGIC OUTCOMES AT REPEAT TURBT?
Alan Nieder, MD, University of Miami School of Medicine, Rajinikanth Ayyathurai, MD, University of Miami, Murugesan Manoharan, MD, University of Miami and Mark Soloway, MD, University of Miami (Presented By: Alan Nieder, MD, University of Miami School of Medicine)

**Poster# 75**

THE DISTRIBUTION OF RENAL MASSES USING AGE OF DIAGNOSIS AND TUMOR CELL TYPE UTILIZING THE UPDATED 2004 WHO HISTOLOGIC PARAMETERS
David Berger, MD, Washington University School of Medicine, Maria Serrano, MD, Washington University School of Medicine, Peter Humphrey, MD, Washington University School of Medicine, Yan Yan, PhD, Washington University School of Medicine, Travis Bullock, MD, Washington University School of Medicine and Adam Kibel, MD, Washington University School of Medicine (Presented By: David Berger, MD, Washington University School of Medicine)

**Poster# 76**

THE SENSITIVITY OF TRANSURETHRAL BIOPSY FOR DETECTING PROSTATIC INVOLVEMENT BY TRANSITIONAL CELL CARCINOMA IN PATIENTS WITH BLADDER CANCER
Steven Shen, MD, PhD, Department of Pathology, The Methodist Hospital, Houston, TX, Thomas Wheeler, MD, Department of Pathology, Baylor College of Medicine, Houston, TX, Gilad Amiel, MD, Baylor College of Medicine, LD Truang, MD, Department of Pathology, Baylor College of Medicine, Houston, TX and Seth Lerner, MD, Scott Department of Urology, Baylor College of Medicine, Houston, TX (Presented By: Gilad Amiel, MD, Baylor College of Medicine)

**Poster# 77**

RADICAL PROSTATECTOMY FOR CLINICALLY LOCALIZED HIGH-RISK PROSTATE CANCER: CRITICAL ANALYSIS OF RISK-ASSESSMENT METHODS
Ofer Yossepowitch, MD, Memorial Sloan Kettering Cancer Center, Scott Eggener, MD, Memorial Sloan Kettering Cancer Center, Fernando Bianco, MD, Memorial Sloan Kettering Cancer Center, Brett Carver, MD, Memorial Sloan Kettering Cancer Center, Angel Serio, MD, Memorial Sloan Kettering Cancer Center, Peter Scardino, MD, Memorial Sloan Kettering Cancer Center and James Eastham, MD, Memorial Sloan Kettering Cancer Center (Presented By: Ofer Yossepowitch, MD, Memorial Sloan Kettering Cancer Center)

**Poster# 78**

DETECTION AND ISOLATION OF DISSEMINATED TUMOR CELLS BY ENRICHMENT IN PATIENTS UNDERGOING RADICAL PROSTATECTOMY
Todd Morgan, MD, University of Washington, Daniel Lin, MD, University of Washington, William Ellis, MD, University of Washington, Ian Gallaher, BA, University of Washington, Marty Kinnunen, BA, University of Washington, Bryce Lakely, BA, University of Washington, Paul Lange, MD, University of Washington and Robert Vessella, PhD, University of Washington (Presented By: Todd Morgan, MD, University of Washington)
Poster# 79  ANALYSIS OF CASES WITH ABNORMAL URINE CYTOLOGY AND NORMAL HISTOLOGIC FINDINGS OVER A FIVE YEAR PERIOD
Alex Gorbonos, MD, Loyola University Medical Center, Eva M. Wojcik, MD, Loyola University Medical Center, JoAnn Jensen, the Edward J. Hines VA Medical Center, Robert C. Flanigan, MD, Loyola University Medical Center and Marcus L. Quek, MD, Loyola University Medical Center
(Presented By: Alex Gorbonos, MD, Loyola University Medical Center)

Poster# 80  IMPACT OF EXTENDED PROSTATE BIOPSY ON MINIMIZATION OF THE VOLUME-GRSDE BIAS IN PROSTATE CANCER DETECTION
Abdullah Alghamdi, MD, University of Toronto, Gina Lockwood, PhD, University of Toronto, Antis Toi, MD, University of Toronto, Getta Kulkarni, MD, University of Toronto, Antonio Finelli, MD, University of Toronto, Alexandre Zlotta, MD, University of Toronto And Neil Fleshner, MD, University of Toronto
(Presented By: Abdullah Alghamdi, MD, University of Toronto)

Poster# 81  RADICAL PROSTATECTOMY WITHOUT THE USE OF A PELVIC DRAIN
David Hepps, MD, University of Illinois at Chicago and Roohollah Sharifi, MD, University of Illinois at Chicago
(Presented By: David Hepps, MD, University of Illinois at Chicago)

Poster# 82  PROSPECTIVE COMPARISON OF ‘CLAMPLESS, SUTURELESS’ NEPHRON SPARING SURGERY VS. ‘CONVENTIONAL’ OPEN NEPHRON SPARING SURGERY FOR RENAL TUMORS INVOLVING COLLECTING SYSTEM ENTRY: INITIAL EXPERIENCE
Ithaar Derweesh, MD, University of Tennessee Health Science Center, Christopher DiBlasio, MD, University of Tennessee Health Science Center and Anthony Patterson, MD, University of Tennessee Health Science Center
(Presented By: Ithaar Derweesh, MD, University of Tennessee Health Science Center)

Poster# 83  RADIOFREQUENCY ABLATION OF RENAL TUMORS BETWEEN 3 AND 5 CENTIMETERS USING DIRECT, REAL-TIME TEMPERATURE MONITORING
Robert Carey, MD PhD, Urology Treatment Center, Scott Wingo, MD, Vincent Bird, MD and Raymond Leveille, MD (Presented By: Robert Carey, MD PhD, Urology Treatment Center)

Poster# 84  IDENTIFYING CANDIDATE TUMOR GENES ASSOCIATED WITH BLADDER CANCER INVASION AND HISTOLOGIC SUBTYPES USING OLIGONUCLEOTIDE MICROARRAYS
Theresa Koppie, MD, Memorial Sloan Kettering Cancer Center, Semra Olgac, MD, Nicholas Socci, PhD, Bernard Bochner, MD and Carlos Cordon-Cardo, MD, PhD (Presented By: Theresa Koppie, MD, Memorial Sloan Kettering Cancer Center)

Poster# 85  LAPAROSCOPIC NEPHRECTOMY FOR LARGE RENAL MASSES
Kristian Novakovic, MD, National Cancer Institute/ Urologic Oncology Branch, Mille Pevzner, MD, NCI, Bart Radolinski, MD, NCI, Paul Albert, PhD, NCI, Peter Pinto, MD, NCI and Jonathan Coleman, MD, NCI
(Presented By: Kristian Novakovic, MD, National Cancer Institute/ Urologic Oncology Branch)

Poster# 86  GROWTH RATES OF HEREDITARY CLEAR CELL RENAL CARCINOMAS: INFLUENCE OF GERM LINE MUTATIONS AND BODY MASS INDEX
Gennady Bratslavsky, MD, National Cancer Institute, National Institutes of Health, Paul Albert, PhD, NCI, Jack Liu, MS, NCI, Rabindra Gautam, MS, NCI, Craig Rogers, MD, NCI, James Peterson, MS, NCI, Lynda Choyke, DPM, NCI, Peter Choyke, MD, NCI, Peter Pinto, MD, NCI and W. Marston Linehan, MD, NCI
(Presented By: Gennady Bratslavsky, MD, National Cancer Institute, National Institutes of Health)
### Poster# 87
AGE OF INDEPENDENT PREDICTOR OF CLINICALLY SIGNIFICANT PROSTATE CANCER IN A REFERRAL POPULATION

Gregory Hanson, MD, Virginia Mason Medical Center, Jonathan Wright, MD and Christopher Porter, MD
(Presented By: Gregory Hanson, MD, Virginia Mason Medical Center)

### Poster# 88
PARTIAL ADRENALECTOMY FOR THE TUMOR OF A SOLITARY ADRENAL GLAND: OPTIMAL TUMOR SIZE FOR INTERVENTION

Craig Rogers, MD, National Cancer Institute, Urologic Oncology Branch, Sunil Sudarshan, MD, National Cancer Institute, Urologic Oncology Branch, Amar Singh, MD, National Cancer Institute, Urologic Oncology Branch, National Cancer Institute, Urologic Oncology Branch, Marston Linehan, MD, National Cancer Institute, Urologic Oncology Branch, Jonathan Coleman, MD, National Cancer Institute, Urologic Oncology Branch and Peter Pinto, MD, National Cancer Institute, Urologic Oncology Branch
(Presented By: Craig Rogers, MD, National Cancer Institute, Urologic Oncology Branch)

### Poster# 89
SURGICAL ISCHEMIA EFFECT ON NON-MALIGNANT PROSTATIC URETHRA DURING RADICAL PROSTATECTOMY

John Josephson, BA, Manish Vira, MD, National Cancer Institute, Urologic Oncology Branch, John Gillespie, MD, Jaime Rodriguez, MD, Peter Pinto, MD, W. Marston Linehan, MD, Rodrigo Chuaqui, MD, Michael Emmert-Buck, MD, PhD, Heidi Erickson, PhD and Jonathan Coleman, MD
(Presented By: Manish Vira, MD, National Cancer Institute, Urologic Oncology Branch)

### Poster# 90
UPDATED NOMOGRAM TO PREDICT PATHOLOGIC STAGE OF PROSTATE CANCER GIVEN PSA, CLINICAL STAGE, AND BIOPSY GLEASON SCORE (PARTIN TABLES) BASED ON CASES FROM 2000-2005

Danil Makarov, MD, Johns Hopkins University School of Medicine, Bruce Trock, PhD, Johns Hopkins University School of Medicine, Elizabeth Humphreys, BS, Johns Hopkins University School of Medicine, Leslie Mangold, MS, Johns Hopkins University School of Medicine, Patrick Walsh, MD, Johns Hopkins University School of Medicine, Jonathan Epstein, MD, Johns Hopkins University School of Medicine and Alan Partin, MD, Johns Hopkins University School of Medicine
(Presented By: Danil Makarov, MD, Johns Hopkins University School of Medicine)

### Poster# 91
PD-L1 (B7-H1) EXPRESSION BY UROTHELIAL CARCINOMA OF THE BLADDER AND BCG-INDUCED GRANULOMATA: ASSOCIATIONS WITH LOCAL STAGE PROGRESSION AND

Brant Inman, MD, Mayo Clinic College of Medicine, Rochester, MN, Thomas Sebo, Mayo Clinic College of Medicine, Rochester, MN, Haidong Dong, Mayo Clinic College of Medicine, Rochester, MN, Eric Bergstrahl, Mayo Clinic College of Medicine, Rochester, MN, Yves Fradet, MD, Universite Laval, Quebec, QC, Louis Lacombe, MD, Universite Laval, Quebec, QC and Eugene Kwon, MD, Universite Laval, Quebec, QC, Rochester, MN (Presented By: Brant Inman, MD, Mayo Clinic College of Medicine)

### Poster# 92
VARIATION IN MORTALITY BY ETHNICITY AMONG PATIENTS WITH RENAL CANCER IN THE UNITED STATES

Stephen H. Culp, MD, PhD; Daniel W. Lin, MD; Christopher I. Li*, MD, MPH; Anneclaire J. De Roos*, PhD; Michael P. Porter, MD, MS: University of Washington Seattle, WA (Presented by Stephen H. Culp, MD)

---

**7:00 p.m. – 7:30 p.m.**

**SUO Reception at Hyatt Bethesda**

Location: Cabinet/Judiciary

**7:30 p.m. – 10:00 p.m.**

**SUO Dinner at Hyatt Bethesda**

Location: Concourse Terrace
SATURDAY, DECEMBER 2, 2006

7:45 a.m. – 8:30 a.m. Continental Breakfast

8:30 a.m. – 8:50 a.m. 

Young Urologic Oncologists (YUO)

Moderator: John W. Davis, MD, MD Anderson Cancer Center

8:30 a.m. – 8:40 a.m. Effects of Short-Term Finasteride on Apoptotic Factors and Androgen Receptors in Prostate Cancer Cells
Robert Bass, MD, J. Brantley Thrasher, MD, Billy Perry, MD, Osama Tawfik, MD, Jeffrey Holzbeierlein, MD University of Kansas Medical Center

8:40 a.m. – 8:50 a.m. Active Surveillance of Enhancing Renal Tumors: Risk of Disease Progression
Paul L. Crispen, MD, Richard E. Greenberg, MD, David Y.T. Chen, MD, Robert G. Uzzo, MD, Fox Chase Cancer Center

8:50 a.m. – 9:00 a.m. Fellow/Resident Poster Session Awards
John Lynch, MD, University of Georgetown

9:00 a.m. – 9:45 a.m. Bladder Cancer 3: Assessment and Management of High Risk Bladder Cancer

Moderator: Bernard Bochner, MD, Memorial Sloan Kettering Cancer Center

9:00 a.m. – 9:15 a.m. Morphologic High Risk Tumor Characteristics
Victor Reuter, MD, Memorial Sloan Kettering Cancer Center

9:15 a.m. – 9:30 a.m. Clinical Importance of Aberrant Differentiation Patterns in Bladder Cancer
Colin P.N. Dinney, MD, MD Anderson Cancer Center

9:30 a.m. – 9:45 a.m. Current Status of High Risk Molecular Features of TCC
Dan Theodorescu, MD, University of Virginia

9:45 a.m. – 10:15 a.m. Bladder Cancer 4: Case Presentations and Panel Discussion: How to Optimaly Manage High Risk Bladder Cancer Patients

Moderator: Bernard Bochner, MD, Memorial Sloan-Kettering Cancer Center
Panel: Harry W. Herr, MD, Memorial Sloan-Kettering Cancer Center
Seth Lerner, MD, Baylor College of Medicine
Edward M. Messing, MD, University of Rochester Medical Center
Dan P. Petrylak, MD, Columbia University

10:15 a.m. – 10:25 a.m. Prostate Cancer Surgery Outcomes: Surgeon Dependent Factors
Peter Scardino, MD, Memorial Sloan Kettering Cancer Center

10:25 a.m. – 10:35 a.m. Discussion and Questions and Answers

10:35 a.m. – 11:45 a.m. Late Breaking Developments

Moderator: J. Brantley Thrasher, MD, University of Kansas

Continues on next page
10:35 a.m. PROSPECTIVE EVALUATION OF PROTEOMICS TO DISCRIMINATE BETWEEN BENIGN AND MALIGNANT PROSTATE IN MEN WITH PSA LESS THAN 10
Yair Lotan, MD, University of Texas Southwestern Medical Center, Robert S. Svatek, MD, UT Southwestern Medical Center, Animesh Nandi, PhD, UT Southwestern Medical Center, Prem Gurnani, PhD, UT Southwestern Medical Center and Kevin Rosenblatt, MD, UT Southwestern Medical Center (Presented By: Yair Lotan, MD, University of Texas Southwestern Medical Center)

10:45 a.m. QUANTITATIVE FEATURES OF A COMMON TMPRSS2-ERG FUSION TRANSCRIPT IN PROSTATE CANCER
Gyorgy Petrovics, PhD, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Taduru Reenath, PhD, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Syed Shaheduzzaman, PhD, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Bungo Furusato, PhD, Dept of Genitourinary Pathology, Armed Forces Institute of Pathology, Albert Dobi, PhD, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Lakshmi Ravindranath, BS, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Christopher Cook, BS, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Yongmei Chen, MPH, MD, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Vasantha Srikanthan, DVM, PhD, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Jennifer Cullen, MPH, PhD, Center for Prostate Disease Research, Dept. of Surgery, USUHS, Isabell A Sesterhenn, MD, Dept of Genitourinary Pathology, Armed Forces Institute of Pathology, David G McLeod, JD, MD, Urology Service, Walter Reed Army Medical Center and Shiv Srivastava, PhD, Center for Prostate Disease Research, Dept. of Surgery, USUHS (Presented By: Gyorgy Petrovics, PhD, Center for Prostate Disease Research, Dept. of Surgery, USUHS)

10:55 a.m. THE UTILITY OF TRANSPERINEAL 3-DIMENSIONAL PATHOLOGICAL MAPPING IN COUNSELING PATIENTS SEEKING EXPECTANT MANAGEMENT FOR LOW VOLUME PROSTATE
Winston Barzell, MD, Urology Treatment Center, Robert Carey, MD PhD, Urology Treatment Center, Sarasota, Florida and Myron Melamed, MD, Valhalla, New York (Presented By: Winston Barzell, MD, Urology Treatment Center)

11:05 a.m. PROSTATE CANCER LATERALITY AS A RATIONALE FOR THE CLINICAL APPLICATION OF FOCALABLATIVE THERAPY: AN ANALYSIS OF 1184 PROSTATECTOMY SPECIMENS
Thomas J. Polascik, MD, Duke Medical University Center, Vladimir Mouraviev, MD, PhD, DUMC, Leon Sun, MD, PhD, DUMC, John F Madden, MD, DUMC, Janice M. Mayes, DUMC, Daniel George, MD, DUMC, Phillip G. Febbo, MD, DUMC and Judd W. Moul, MD, DUMC (Presented By: Thomas J. Polascik, MD, Duke Medical University Center)

11:15 a.m. CRYOABLATION AS A PRIMARY TREATMENT OPTION FOR LOCALIZED PROSTATE CANCER: RESULTS FROM THE COLD REGISTRY
J. Stephen Jones, MD, Glickman Urological Institute (Presented By: J. Stephen Jones, MD, Glickman Urological Institute)

11:25 a.m. EVALUATION OF β-CATENIN AS A FIELD MARKER FOR PROSTATE CANCER, BY QUANTITATIVE FLUORESCENCE IMAGING ANALYSIS (QFIA) OF ARCHIVED PROSTATE BIOPSIES
George P. Hemstreet, III, MD, PhD, University of Nebraska Medical Center, George P Casale, PhD, UNMC, Dali Huang, MD, UNMC, Jennifer Tian, MD, UNMC, Nizar K Wehbi, MD, UNMC, Niel Abrahams, MD, UNMC, Z. Kaleemz, MD, UNMC, L.M. Smith, MD, UNMC, S.L. Johansson, MD, UNMC and Johny E. Elkahwaji, PhD, UNMC (Presented By: George P. Hemstreet, III, MD, PhD, University of Nebraska Medical Center)
11:35 a.m.  NOX4 NADP(H) OXIDASE EXPRESSION IS CRITICAL FOR TUMOR GROWTH OF VHL-DEFICIENT KIDNEY CANCER CELLS
Jodi Maranchie, MD, University of Pittsburgh Medical Center and Ye Zhan, University of Massachusetts
(Presented By: Jodi Maranchie, MD, University of Pittsburgh Medical Center)

11:45 a.m. – 12:15 p.m.  Prostate Cancer 3: Debate: What is the Optimum Timing of Systemic Therapy in Conjunction with Radical Prostatectomy for Locally Advanced Disease?
Moderator: Eric A. Klein, MD, Cleveland Clinic

11:45 a.m. – 12:00 p.m.  Neoadjuvant
James A. Eastham, MD, Memorial Sloan Kettering Cancer Center

12:00 p.m. – 12:15 p.m.  Adjuvant
Mario A. Eisenberger, MD, Johns Hopkins

12:15 p.m. – 1:00 p.m.  Kidney Cancer 3: Recent Advances in Kidney Cancer
Moderator: Robert G. Uzzo, MD, Fox Chase Cancer Center

12:20 p.m. – 12:30 p.m.  Prognostic Markers and Nomograms in RCC
Bradley Leibovich, MD, Mayo Clinic

12:30 p.m. – 12:40 p.m.  Patterns of Recurrence in RCC: Where and When
Allan Pantuck, MD, University of California - Los Angeles

12:40 p.m. – 12:50 p.m.  Diagnostic and Prognostic Markers in RCC
Paul Cairns, PhD, Fox Chase Cancer Center

12:50 p.m. – 1:00 p.m.  Current Status of Adjuvant Trials in RCC
Robert G. Uzzo, MD, Fox Chase Cancer Center

1:00 p.m.  Adjourn
Committee
Peter Earl Clark, MD; Wake Forest University Baptist Medical Center, Winston-Salem, NC
Jonathan Andrew Coleman, MD; National Cancer Institute, Bethesda, MD
John Warren Davis, MD; Eastern Virginia Medical School, Norfolk, VA
Jeffrey Maxwell Holzbeierlein, MD; Kansas University Medical Center, Kansas City, KS
Daniel Wei Lin, MD; University of Washington, Seattle, WA
Douglas S. Scherr, MD; Cornell University, New York, NY
John Francis Ward III, MD; Nevada Cancer Center, Las Vegas, NV

THURSDAY, NOVEMBER 30, 2006

6:00 p.m. – 9:30 p.m. Young Urologic Oncologist (Y.U.O.) Podium Presentations
Location: Hyatt-Bethesda - Haverford/Baccarat
Discussant(s): Peter Earl Clark, MD, Nashville, TN
Jonathan Andrew Coleman, MD, Bethesda, MD
Jeffrey Maxwell Holzbeierlein, MD, Kansas City, KS
Daniel Wei Lin, MD, Seattle, WA
John Francis Ward III, MD

6:30 p.m. – 7:00 p.m. Update on SUO long-range planning activities
Speaker: Paul Lange, MD, University of Washington

7:00 p.m. – 7:30 p.m. Young Urologic Oncologists (Y.U.O.) Investigator Award Presentation
Adam Kibel, MD, Washington University Medical School

7:30 p.m. – 8:45 p.m. Young Urologic Oncologists (Y.U.O.) Podium Presentations
Moderator: John W. Davis, MD – Eastern Virginia Medical School

7:30 p.m.
THE HISTONE DEACETYLASE INHIBITOR FK228 IS AN EFFECTIVE TREATMENT IN A MOUSE MODEL OF HUMAN UROTHELIAL CARCINOMA (UC)
Jose Karam, MD, University of Texas Southwestern Medical Center at Dallas, Fan Jinhai, MD, University of Texas Southwestern Medical Center at Dallas, Stanfield Jennifer, University of Texas Southwestern Medical Center at Dallas, Richer Edmond, University of Texas Southwestern Medical Center at Dallas, Benaim Elie, MD, University of Texas Southwestern Medical Center at Dallas, Frenkel Eugene, MD, University of Texas Southwestern Medical Center at Dallas, Mason Ralph, PhD, University of Texas Southwestern Medical Center at Dallas and Hsieh Jer-Tsong, PhD, University of Texas Southwestern Medical Center at Dallas (Presented By: Jose Karam, MD, University of Texas Southwestern Medical Center at Dallas)

7:45 p.m.
POLYMORPHISMS OF TGFB1 AND PROSTATE CANCER PROGNOSIS
Timothy Brand, MD, Uthscsa, Carlos Bermejo, MD, Uthscsa, Dawn Garcia, MS, Uthscsa, Edith Canby-Hagino, MD, Uthscsa, Jacques Baillargeon, PhD, Uthscsa, Dean Troyer, MD, Uthscsa, Ian Thompson, MD, Uthscsa, Robin Leach, PhD, Uthscsa And Susan Naylor, PhD, Uthscsa (Presented By: Timothy Brand, MD, Uthscsa)
8:00 p.m. IDENTIFYING CANDIDATE TUMOR GENES ASSOCIATED WITH BLADDER CANCER INVASION AND HISTOLOGIC SUBTYPES USING OLIGONUCLEOTIDE MICROARRAYS.
Theresa Koppie, MD, Memorial Sloan Kettering Cancer Center, Semra Olgac, MD, Nicholas Socci, PhD, Bernard Bochner, MD and Carlos Cordon-Cardo, MD, PhD (Presented By: Theresa Koppie, MD, Memorial Sloan Kettering Cancer Center)

8:15 p.m. VASCULAR-TARGETED PHOTODYNAMIC THERAPY (VTP) WITH TOOKAD (WST-09) IN THE PRIMARY TREATMENT OF PROSTATE CANCER: INITIAL RESULTS
Douglas Pendsé, MB ChB MRCS, Urology Research Fellow, University College London, Caroline Moore, MB MRCS, University College London, Clare Allen, MB FRCS, University College London Hospital NHS Trust, Professor Stephen Bown, PhD FRCP, University College London and Mark Emberton, MD BS, BSc FRCS, University College London (Presented By: Douglas Pendsé, MB ChB MRCS, Urology Research Fellow, University College London)

8:30 p.m. TARGETED TREATMENT OF LOCALIZED REGIONS OF THE PROSTATE GLAND USING MRI-GUIDED TRANSURETHRAL ULTRASOUND THERAPY: DEMONSTRATION IN VIVO
Sree Appu, MD,FRACS, Sunnybrook Hospital, University Health Network, Toronto., Rajiv Chopra, PhD, Dept Imaging Research,Sunnybrook Hospital, Laurence Klotz, MD,FRACS, Dept.Urology,Sunnybrook Hospital and Michael Bronskill, PhD, Dept Medical Imaging, Sunnybrook Hospital (Presented By: Sree Appu, MD,FRACS, Sunnybrook Hospital, University Health Network, Toronto)

8:45 p.m. – 9:30 p.m. Y.U.O. Business Meeting

SATURDAY, DECEMBER 02, 2006

8:30 a.m. – 9:00 a.m. Session 6 - Young Urologic Oncologists (Y.U.O.)
Moderator: John Warren Davis, MD, Houston, TX
Discussant(s): Jonathan Andrew Coleman, MD, Bethesda, MD
John Francis Ward III, MD

8:30 a.m. EFFECTS OF SHORT-TERM FINASTERIDE ON APOPTOTIC FACTORS AND ANDROGEN RECEPTORS IN PROSTATE CANCER CELLS
Robert Bass, MD, University of Kansas Medical Center, J. Brantley Thrasher, MD, Billy Perry, MD, Kattie Dennis, MD, Osama Tawfik, MD and Jeffrey Holzbeierlein, MD (Presented By: Robert Bass, MD, University of Kansas Medical Center)

8:40 a.m. ACTIVE SURVEILLANCE OF ENHANCING RENAL TUMORS: RISK OF DISEASE PROGRESSION
Paul Crispen, MD, Fox Chase Cancer Center, Richard Greenberg, MD, Fox Chase Cancer Center, David Chen, MD, Fox Chase Cancer Center and Robert Uzzo, MD, Fox Chase Cancer Center (Presented By: Paul Crispen, MD, Fox Chase Cancer Center)
**Introduction and Objective:** To develop a nomogram that will predict seminal vesicle invasion (SVI) in men with prostate cancer. The presence of SVI by prostate cancer is a well-defined adverse prognostic factor. However, PSA-induced stage migration has resulted in a higher likelihood of organ-confined disease for any given grade, stage or PSA. Furthermore, the risk of SV invasion has diminished, especially in patients with favorable pre-treatment tumor characteristics. As a consequence, the need for complete removal of the SV in every patient has been questioned, especially in light of several reports suggesting improved functional outcomes with SV-sparing approaches. Since SVI is often occult and difficult to predict for an individual patient by digital rectal examination, imaging techniques or seminal vesicle biopsy in patients with clinically localized prostate cancer we undertook a study of a large, multi-institutional database to determine the pretreatment factors that are associated with SV invasion and developed a preoperative nomogram to predict SVI prior to surgery.

**Materials and Methods:** A retrospective analysis of 6740 patients with clinical stage T1a-T3b NxMo prostate cancer who had a RP including complete removal of the seminal vesicles at three institutions between 1983 and 2004 with prospective follow-up was performed. Pathological analysis was performed by serial step-sectioning. No patient received adjuvant radiation or neoadjuvant androgen deprivation therapy. Preoperative predictors of SVI consisted of age, iPSA, Gleason score, and clinical stage. These predictors were used in a logistic regression analysis based nomogram to predict the probability of seminal vesicle invasion. To accommodate potential nonlinear effects, restricted cubic splines were used for continuous variables. The nomogram model was subjected to bootstrapping with 200 resamples, as a means of calculating a relatively unbiased measure of its ability to discriminate among patients as quantified by the area under the ROC curve (0.80).

**Results:** Median age was 61.0 years (range: 36.6 to 81.4). Median preoperative PSA (iPSA) was 6.6 ng/mL (range: 0.1 to 108.5). Of the 6740 patients, 566 (8.4%) had positive SV. Median follow-up time was 33.4 months (range: 1 to 239), with patients censored at the time of biochemical failure. Age, iPSA, Gleason score, and clinical stage represented predictors of seminal vesicle invasion (p<0.001).

**Conclusion:** Using clinical information, we produced a postoperative nomogram that can accurately predict seminal vesicle invasion in men with prostate cancer. This information is useful in deciding on the necessity of removing seminal vesicles at the time of surgery for those surgeons who do not routinely do this.
**Poster #2**

**PRESERVATION OF PENILE HEALTH AFTER RADICAL PROSTATECTOMY (RRP): EARLY INTERVENTION WITH A VACCUUM ERECTION DEVICE (VED)**

Bruce L. Dalkin M.D. FACS Tucson, Arizona

**Introduction and Objective**: RRP has been shown to have a potential negative impact on penile health. In two studies of men undergoing RRP, stretched penile length (SPL), which most closely correlates with erect penile length, was decreased in the vast majority of men at 3 months after surgery (1,2). In one study (1), defining a decrease of > 1cm as significant, 48% of men were found to have such a change. The purpose of this study was to test whether early intervention after surgery with a VED could prevent the changes in penile health, as defined by SPL, found in prior studies.

**Methods**: To date, 36 men undergoing nerve-sparing RRP, who had erections adequate for sexual intercourse prior to surgery without the use of any medications / devices, have enrolled in our IRB approved study. SPL was measured pre-op, and at 3-months after catheter removal. A single investigator performed all measurements. Duplicate measurements were performed each time, and the average of the two used as the final length. A decrease in SPL of > 1 cm was considered significant. Prior to surgery, men were provided a VED*, and instructed in its daily use to begin the day after their urethral catheter was removed (10-14 days post-op). The VED was used to provide a total of 10 minutes of maximal engorgement of the penis per daily session.

**Results**: At present, 21 men have completed the 3-month study, with 14 still < 3 months post-op. One man was dropped from the study due to early use of androgen ablation therapy for poor prognosis cancer. There was no significant change in SPL in 20 of the 21 men (95%). In one man SPL decreased by 1.4 cm (9.2% of total length).

**Conclusion**: Early intervention after RRP with a VED reduces the likelihood of significant penile shortening from 48% in historical controls to 5% in the present study (p < 0.01). Therefore, early intervention with a VED should be recommended in all potent men undergoing nerve-sparing RRP to preserve penile length. Whether this preservation of penile length/health improves the likelihood of future return in overall sexual function is the subject of an ongoing study.


* The VED were provided by a grant from Osbon Inc.

**Poster #3**

**CLINICAL AND IMMUNE RESPONSES TO AUTOLOGOUS TUMOR LYSATE LOADED DENDRITIC CELL VACCINE IN COMBINATION WITH INTERLEUKIN-2 AND INTERFERON-Α-2A IN PATIENTS WITH METASTATIC RENAL CELL CARCINOMA**

Thomas Schwaab, MD PhD, The Immunotherapy Center, Norris Cotton Cancer Center, Dartmouth Hitchcock Medical Center, Lebanon, NH., Jan Fisher, BS, The Immunotherapy Center, Norris Cotton Cancer Center, Dartmouth Hitchcock Medical Center, Lebanon, NH., John Seigne, MD, Urology, DHMC, Lebanon, NH and Marc Ernstoff, MD, The Immunotherapy Center, Norris Cotton Cancer Center, Dartmouth Hitchcock Medical Center, Lebanon, NH. (Presented By: Thomas Schwaab, MD PhD, The Immunotherapy Center, Norris Cotton Cancer Center, Dartmouth Hitchcock Medical Center, Lebanon, NH.)

**Background**: Immunotherapeutic trials using Dendritic Cells (DC) have produced disappointing clinical results. Yet, their immunologic potential is intriguing. We hypothesized that intranodal DC vaccine and IL-2/IFN-α therapy decreases immune inhibition and increases tumor-specific immune activation in renal cell carcinoma (RCC) patients. We now present updated clinical data and immunologic results from a Phase II trial using an intranodal DC vaccine.

**Material and Methods**: DC are isolated from peripheral blood mononuclear cells obtained via leukapheresis from consented patients with metastatic RCC. DC are grown in our cell-processing laboratory using IL-4 and GM-CSF. DC are pulsed with autologous tumor lysate and...
matured with TNF-α. A treatment cycle consists of pulsed and matured DC injected into inguinal lymphnodes at 1x10^7/ml, followed the next day by intravenous IL-2 (18MIU/m^2) for 5 days and 3 subcutaneous injections of IFN-α (6MIU) every other day for a total of 5 cycles. Biological responses are determined using tumor-specific T cell precursor-frequency assays and redirected cytotoxicity assays.

**Results:** Between 01/2004 and 08/2006, 18 patients with metastatic RCC have been enrolled into this phase II trial. All patients are injected with 1x10^7 pulsed DC. Patients received between 2 and 5 vaccine injections. Inguinal lymph node injection was very well tolerated with only minor local swelling and discomfort. At this point, 2 patients (11%) exhibit a complete response, 8 patients (44.4%) exhibit a partial response (2 of which show a near complete remission after the second vaccine), 5 patients (27.8%) show stable disease and 3 patients (16.7%) have progressed. This results in an overall clinical response rate of 54.4%. Clinical responses are persistent up to 17 months. Clinical responses were seen in both visceral (lung, liver, adrenal) and lymph node based disease sites. Responses were even observed in sites of bone involvement. Early immunologic data is presented on patients who received at least 3 vaccinations. All 4 evaluated patients showed treatment-related increases in tumor-specific CD4+ T cell precursors. Three of these 4 patients showed partial clinical responses. In a redirected cytotoxicity assay, a treatment-related increase in CD8+ T cell lytic activity was observed in 3 out of 6 patients (50%). Two of these patients showed partial clinical responses, the third patient showed stable disease.

**Conclusions:** As previously reported, autologous intranodal DC-vaccine holds great promise. We now present immunologic data supporting these clinical results. These encouraging preliminary results raise the possibility of enhancing objective response rate and suggest durable clinical responses.

*This trial is supported in part by grants from the NIH (RO1 CA5648) and Berlex Inc.*

**Poster #4**

**POLYMORPHISMS OF TGFB1 AND PROSTATE CANCER PROGNOSIS**

Timothy C. Brand, MD, Carlos Bermejo MD, Dawn Garcia MS, Edith D. Canby-Hagino MD, Jacques Baillargeon PhD, Dean A. Troyer MD, Ian M. Thompson MD, Robin J. Leach PhD, Susan L. Naylor PhD

University of Texas Health Science Center at San Antonio

**Introduction and Objective:** In normal cells, TGFβ is associated with tumor suppression by promoting differentiation and growth inhibition. In tumor cells, increased expression of TGFβ may result in promotion of tumorigenesis. Several single nucleotide polymorphisms (SNPs) in TGFB1 have been identified, and two variants C-509T and T+29C may be associated with prostate cancer risk. Because of the potential role of TGFB1 variants in prostate cancer risk and progression, we hypothesized that polymorphisms of TGFB1 at C-509T may be associated with prostate cancer risk and/or more aggressive tumors.

**Methods:** This is a case-control study where prostate cancer patients were enrolled regardless of stage, grade or treatment rendered. Ascertainment of case status was determined by review of pathology reports and/or medical records in all cases obtained from the various health care facilities in the San Antonio area. The control group consisted of male volunteers of at least 40 years of age who had a normal digital rectal examination (DRE) and a prostate specific antigen (PSA) < 2.5 ng/ml. The definition of bad outcome used in this study was any Gleason sum 8-10, pT3A (if Gleason is 7 or greater), pT3B or higher (all Gleason), any N1 or higher, any M1 or higher, or any documented PSA recurrence. Lymphocyte DNA was isolated from blood samples using a QIAamp blood kit. Single nucleotide polymorphisms were genotyped using TaqMan allelic discrimination assays. Statistical analyses were performed using SPSS software. Logistic regression models were used to estimate odds ratios with corresponding 95% confidence intervals. All odds ratios were adjusted for age.

**Results:** There were 653 cases and 1476 controls available for genotyping with complete records. The polymorphisms did not demonstrate a statistically significant association with prostate cancer risk. There was a trend towards a protective effect with the CT polymorphism and risk of high-grade prostate cancer (Gleason score = 7) with an odds ratio of 0.65 (95% C.I. 0.41-1.04). The TT polymorphism did show a statistically significant protective effect with high grade prostate cancer with an odds ratio of 0.48 (95% C.I. 0.15-0.68). There was a trend towards a protective effect with the CT polymorphism and risk of bad outcome prostate cancer with an odds ratio of 0.61 (95% C.I. 0.37-1.00). The TT polymorphism did show a statistically significant protective effect with bad outcome prostate cancer with an odds ratio of 0.30 (95% C.I. 0.10-0.89).

**Conclusions:** We have not demonstrated an association with SNPs of TGFB1 at C-509T with prostate cancer risk. The TT polymorphism of TGFB1 at C-509T demonstrates a protective effect against high-grade prostate cancer and cases with a bad prognosis.
Poster #5

VIABLE TUMOR IN THE POST-CHEMOTHERAPY RPLND SPECIMEN: CAN IT BE PREDICTED?
Philippe Spiess, MD, MS, The University of Texas MD Anderson Cancer Center, Gordon A Brown, DO, The University of Texas MD Anderson Cancer Center, Nizar M Tannir, MD, The University of Texas MD Anderson Cancer Center, Ping Liu, MS, The University of Texas MD Anderson Cancer Center, Ashish M Kamat, MD, The University of Texas MD Anderson Cancer Center, Shi-Ming Tu, MD, The University of Texas MD Anderson Cancer Center and Louis L Pisters, MD, The University of Texas MD Anderson Cancer Center (Presented By: Philippe Spiess, MD, MS, The University of Texas MD Anderson Cancer Center)

Background: The presence of viable tumor in the surgical specimen following post-chemotherapy retroperitoneal lymph node dissection (PC-RPLND) is associated with an increased risk of disease progression. The aim of this study was to determine whether the presence of viable tumor in the surgical specimen could be predicted.

Methods: Between 1980 and 2003, 236 patients underwent PC-RPLND for clinical stage IIA-III non-seminomatous germ cell tumors (NSGCT). We retrospectively reviewed their medical records for pertinent clinical and treatment-related outcomes. A multivariate logistic regression analysis was used to evaluate whether clinical parameters can predict the presence of viable tumor in the surgical specimen.

Results: International Germ Cell Consensus Classification (IGCCC) risk categories could be assigned to 218 patients, with 101 in the good, 32 in the intermediate, and 85 in the poor prognosis categories. The incidence of viable tumor in the good-, intermediate-, and poor-risk prognosis categories was similar (17.8%, 15.6%, and 15.3%, respectively); however, the risk categories predicted disease-specific and recurrence-free survival (P = 0.022 and P < 0.0001, respectively). On multivariate analysis, an elevated serum alpha fetoprotein (AFP) level prior to PC-RPLND (P = 0.05) and the size of the retroperitoneal mass on pathology review (P = 0.02) were predictive of viable tumor in the surgical specimen.

Conclusions: Although IGCCC risk categories correlated with disease-related outcomes, the risk groups had similar incidences of viable tumor. Elevated serum AFP prior to surgery and size of the retroperitoneal mass in the resected specimen may help predict viable tumor in the PC-RPLND specimen.

Poster #6

TIMING OF ANDROGEN DEPRIVATION THERAPY AND ITS IMPACT ON SURVIVAL AFTER RADICAL PROSTATECTOMY: A MATCHED COHORT SERIES
Sameer A. Siddiqui, Stephen Boorjian, Brant Inman, Jeffrey Slezak, Michael L. Blute, Department of Urology (SS, SB, BI, MLB) and Division of Biostatistics, Department of Health Sciences Research (JS), Mayo Clinic, Rochester, MN

Objective: Adjuvant androgen deprivation therapy (ADT) has been shown to improve survival after radiation therapy and following radical prostatectomy (RP) in node-positive patients. It is unknown if initiation of ADT therapy at any other stage, such as PSA progression and systemic progression, can impact survival. The goal of our study was to assess the impact of ADT initiated at specific intervals of disease progression after RP.

Methods: We identified 6401 patients who underwent RP between 1990 and 1999 with node-negative prostate cancer. Patients were separated into 5 groups: 1) patients who underwent ADT in the adjuvant setting, 2) ADT initiated at PSA = 0.4, 3) ADT initiated at PSA = 1.0, 4) ADT initiated at PSA = 2.0, and 5) ADT at systemic progression. The first 4 groups were matched by clinical and pathologic features to control groups who did not undergo ADT, using a nested matched cohort design. Median follow-up for the entire cohort was 10 years. Clinical endpoints included systemic progression-free survival (sPFS) and cancer-specific survival (CSS).

Results: After matching for all relevant clinical and pathologic features, patients who underwent adjuvant ADT experienced improved 10 year sPFS (95% vs. 90%, p<0.001) and 10 year CSS (98% vs. 95%, p=0.009) compared to patients who did not undergo adjuvant ADT. In contrast, patients who underwent ADT at PSAs of 0.4, 1.0, and 2.0 all suffered worse sPFS and CSS, although this only reached statistical significance in one group (ADT in patients PSA>2.0 10-year CSS of 66% vs. 73%, p=0.021). Multivariate analysis demonstrated ADT had no impact on survival (HR 0.509, p=0.3001) at systemic progression.

Conclusions: Adjuvant ADT improves CSS and sPFS after RP. This survival advantage appears to disappear if ADT is administered farther in the disease process (ie. PSA recurrence or systemic progression). All risk groups in the adjuvantly treated cohort appear to benefit from ADT. These findings support the immediate use of ADT in high-risk RP patients while demonstrating the limitations of ADT in enhancing survival after PSA recurrence.

Financial Funding: None
**VASCULAR-TARGETED PHOTODYNAMIC THERAPY (VTP) WITH TOOKAD (WST-09) IN THE PRIMARY TREATMENT OF PROSTATE CANCER: INITIAL RESULTS**

Mr D Pendsé (MRCS), Mrs C Moore (MRCS), Dr C Allen (FRCR), Professor S Bown (FRCP), Mr M Emberton (FRCS): 1 National Medical Laser Centre, University College London, London, UK. 2 Institute of Urology, University College London, London, UK. 3 Dept of Radiology, University College London Hospital, London, UK

**Introduction and Objectives:** Photodynamic therapy (PDT) uses a photosensitising drug, activated by low power laser light to produce tissue damage. WST-09 is a novel photosensitiser which is delivered intravenously and activated whilst in the vasculature of the target organ, causing small-vessel thrombosis and subsequent necrosis of the target tissue. Clinical trials have investigated its use as a salvage treatment for recurrent prostate cancer following radiotherapy failure. A phase I/II clinical trial is underway to investigate the safety and tolerability of using WST-09 VTP as a primary treatment in prostate cancer. We report our experience in 24 patients.

**Methods:** Men on a programme of active surveillance following a diagnosis of prostate adenocarcinoma were recruited. Patients with prior prostate surgery, radiotherapy or hormonal treatments were excluded. A dynamic contrast-enhanced (DCE) MRI was performed on enrolment. VTP procedures used a trans-rectal ultrasound and brachytherapy template to guide the insertion of cannulae into the prostate. Procedure was performed under general anaesthesia and took 120-150 minutes. Light was delivered from a 763nm diode laser, via cylindrical diffusers in the prostate. The 14 patients in part A received a maximum of 1 illumination fibre per lobe, at varying light doses. The 10 patients in Part B received multiple illumination fibres, the configurations of which were based on previous experience and the position of tumour on biopsy and MRI.

**Results:** Evidence of confluent necrosis of up to 60% of the prostate was seen on DCE-MRI. Urinary toxicity was low. 2 patients required a urinary catheter for up to 7 days and 3 more performed intermittent catheterisation for up to 3 weeks. There was no urinary incontinence. Erectile function was preserved in previously potent men. Intra-operative hypotension related to drug infusion was seen in 7/24 patients. 1 case of deep vein thrombosis and 2 cases of superficial thrombosis were seen. A transient, asymptomatic rise in hepatic enzymes was seen in almost all patients. No skin photosensitivity was seen.

**Conclusions:** WST-09 VTP in primary prostate cancer is a safe and well tolerated procedure which can produce targeted lesions of necrosis within the prostate. It has possible utility in focal and whole-gland therapy. Further studies are required to assess its oncological efficacy.

**Declarations:** Research supported by Steba-Biotech and Negma-Lerads, France. (Mr D Pendsé)
Poster #9

**MISCLASSIFICATION OF HOSPITAL VOLUME WITH SEER-MEDICARE DATA**

Brent K. Hollenbeck, MD, MS, Hong Ji, MS, Zaojun Ye, MS, and John D. Birkmeyer, MD, University of Michigan, Ann Arbor, MI

**Introduction:** SEER-Medicare data are frequently used for studying relationships between volume and outcomes following cancer surgery. However, because patients often cross SEER boundaries, SEER-Medicare data may misclassify hospital volume. For this reason, we undertook a study to measure the agreement of hospital volume as determined by SEER-Medicare and 100% national Medicare data, and to determine the extent to which misclassification alters the apparent relationship between volume and operative mortality.

**Methods:** This is a retrospective cohort study of SEER-Medicare patients undergoing a major cancer surgery for colon, lung, bladder and esophageal cancers between 1994 and 1999. Hospital procedure volumes were assessed with both SEER-Medicare and 100% national Medicare data and sorted into terciles. Logistic regression was used to assess associations between mortality and volume, as determined from each data source.

**Results:** SEER-Medicare data placed 13% (colectomy) to 36% (esophagectomy) of patients into different volume terciles than 100% Medicare data. However, less than 3% of patients were misclassified by more than one volume stratum. For radical cystectomy, 24.7% of patients and 25.69% of hospitals were misclassified according to volume, and the apparent association between volume and mortality was relatively weak and not statistically significant based on SEER-Medicare data (adjusted odds ratio, low vs. high volume 1.41, 95% CI 0.89-2.23 1.82). However, when volume was obtained from 100% Medicare data, the observed relationship was stronger and significant (OR 1.82, 95% CI 1.17-2.84). For the other 3 procedures, apparent volume-outcome relationships were similar when volume was assessed from the two data sources.

**Conclusion:** Hospital volumes are frequently misclassified with SEER-Medicare data. Such misclassification generally biases volume-outcome associations toward the null, but this effect seems to be small for many procedures. As SEER-Medicare data become an increasingly popular substrate for cancer-related health services research, investigators must consider volume misclassification as a potential threat to validity.

**Funding:** This study was supported by the National Cancer Institute (1 R01 CA098481-01A1)

---

Poster #10

**DIRECTED PROSTATE BIOPSIES UTILIZING MICROFLOW IMAGING DURING MICROBUBBLE CONTRAST-ENHANCED ULTRASOUND**

Robert A. Linden, MD, Paul R. Gittens, MD, Flemming Forsberg, PhD, Edouard J. Trabulsi, MD, Leonard G. Gomella, MD and Ethan J. Halpern, MD
Departments of Urology and Radiology, Thomas Jefferson University, Philadelphia, PA

**Objective:** To compare the sensitivity of directed prostate biopsies with MicroFlow Imaging (MFI) to our standard ten core systematic biopsy protocol in detecting prostate cancer during contrast-enhanced ultrasound (US) of the prostate.

**Methods:** Forty-seven patients referred for prostate biopsy were evaluated by transrectal US using the PVT-661 VT end-fire endocavitary probe with the Aplio scanner (Toshiba America Medical Systems; Tustin, CA). The microbubble agent Definity (Bristol-Myers Squibb; Billerica, MA) was diluted into 50 ml of normal saline (concentration = 49.4uL/mL) and infused at a rate of 4 mL/min. Pre-contrast Doppler and then contrast-enhanced CHI and MFI were performed to evaluate the prostate on sequential axial images. MFI is a flash-replenishment technique that uses high power flash pulses to destroy bubbles, followed by low power pulses to demonstrate contrast replenishment. A composite image depicting vascular architecture is constructed through maximum intensity capture of temporal data in consecutive low power images. Utilizing MFI, up to 5 directed biopsy cores were obtained from areas of abnormal vascular enhancement or morphology, followed by a systematic ten core biopsy protocol.

**Results:** Enhancement of capsular and intraprostatic vessels was observed in all patients. Intravascular flow was visible with CHI, but individual vessels were more clearly defined with MFI. A radial pattern of perforating vessels extending into the prostate from the capsular arteries was demonstrated in normal prostate with MFI. A positive biopsy for cancer was found in 76 cores from 16 of the 47 subjects. Positive biopsies were obtained in 48 of the 470 (10%) systematic core biopsies and 28 of the 180 (16%) directed cores (OR=2.1, p=0.032). Among the 16 patients diagnosed with cancer, 1 patient was identified only by targeted biopsy with MFI.

**Conclusion:** Contrast-enhanced MFI imaging of the prostate provides a clear depiction of the vascular flow pattern within the prostate. This increased vascular detail allows for directed biopsies of these areas and leads to an increased detection of prostate cancer.
**POSTER SESSION**

**Poster #11**

**COST-EFFECTIVENESS OF PROSTATE CANCER CHEMOPREVENTION: A QUALITY-OF-LIFE YEARS ANALYSIS**
Robert Svatek, MD, UT Southwestern Department of Urology, J. Jack Lee, PhD, The University of Texas M. D. Anderson Cancer Center, Claus Roehrborn, MD, UT Southwestern, Scott Lippman, MD, The University of Texas M. D. Anderson Cancer Center and Yair Lotan, MD, UT Southwestern (Presented By: Robert Svatek, MD, UT Southwestern Department of Urology)

**Background:** The Prostate Cancer Prevention Trial found that finasteride reduces the prevalence of prostate cancer but questions remain regarding the cost-effectiveness of widespread utilization. The benefits of prevention are not limited to survival but also result in decreased patient morbidity. The goal of the present analysis is to evaluate the cost-effectiveness of chemoprevention with finasteride utilizing a quality-of-life adjustment.

**Methods:** A Markov decision analysis model with Monte Carlo simulations and probabilistic sensitivity analysis was designed to determine the lifetime prostate-health-related cost-effectiveness, beginning at age 50, for men treated with finasteride compared with placebo. Model assumptions were based on data from the PCPT, Surveillance, Epidemiology, and End-Results program, literature review of costs, utilities, and transition rates among various prostate cancer health states, and local institutional cost data.

**Results:** The discounted quality-adjusted cost-effectiveness ratio for finasteride compared to men not receiving chemoprevention was $138,767 per quality-adjusted life-years saved (QALYs). If finasteride is assumed to not increase the incidence of high-grade tumors, the discounted quality-adjusted cost-effectiveness ratio was $100,298 per QALYs. Sensitivity analysis indicates that if finasteride is reduced by 50% from its current cost ($60 per month) a willingness-to-pay threshold of $50,000 per QALYs could be attained (figure 1).

**Conclusions:** Finasteride is unlikely to be cost effective when considering the impact on survival differences among treated versus untreated groups. However, quality adjustment analysis revealed a significant improvement in the cost-benefit ratio and even approaches a willingness-to-pay threshold of $100,000 per QALYs (figure 2).

**Figure 1:** Two-way sensitivity analysis. Cost per QALYs when relaxing assumptions regarding monthly cost of finasteride and prevalence. (assuming similar grade distribution between Finasteride and Placebo Arms and a risk reduction 25%).

* Represents prevalence of prostate cancer = 50 years of age.

**Continues on next page**
Figure 2. One-way sensitivity analysis. Logarithmic graph demonstrating the incremental cost/effectiveness ($ per QALYs) as a function of model termination in years. The willingness-to-pay threshold of $100,000 is drawn on the y-axis.

Poster #12

PLURIPOTENT STEM CELLS DERIVED FROM TELOMERASE-IMMORTALIZED HUMAN PROSTATE EPITHELIAL CELLS
Hongzhen Li, Yongpeng Gu, Jun Miki, Shiv Srivastava, David G. McLeod, JianJun Zhou, Jonathan C. Vogel and John S. Rhim
Center for Prostate Disease Research, Uniformed Services University of the Health Sciences, Bethesda, MD; Dermatology Branch, National Cancer Institute, NIH, Bethesda, MD

Introduction and Objectives: Understanding prostate stem cells may provide insight into the origin of prostate cancer and new therapeutics for prostate cancer. A stem cell model for prostate organization and prostate cancer has been postulated and verified by using mouse model, human embryonic cell and adult prostate normal and cancer tissues. The human prostate is composed of ducts and acini embedded in a stromal matrix of fibroblastic and myofibroblastic cells. Stem cells are normally quiescent in normal prostate tissue and senescent in vitro primary culture. Therefore, the properties of stem cells are not known. Primary cells have been cultured from human prostate tissue but they usually survive only 15-20 population doublings before undergoing senescence. We report here for the first time that pluripotent stem cells (RC170N/h/clone 7 cells) that resist senescence were developed by transduction of the cells with telomerase. We describe a detailed characterization of the putative stem cell properties of the hTERT immortalized human prostate epithelial cells.

Materials and Methods: RC-170N/h/clone 7 cells was cloned from RC-170N/h cells that were derived from benign prostate tissue of a 70-year old Caucasian patient and immortalized by ectopic expression of human telomerase. The cells were subjected to culture-condition based selection and then immunohistochemically characterized with antibodies against presumptive stem cell markers (Oct 4, CK5, integrinâ₁â₂, p63, involuclin, chromogranin A, vimentin and desmin). The cell proliferation and differentiation were examined by monolayer, suspension, soft agar and Matrigel culture in vitro. To test the ability of the cells to induce differentiation in vivo, RC-170N/h/clone 7 cells were injected into renal capsule of NOD-SCID mice.

Continues on next page
### Posters Session

**Continued from previous page**

**Results:** RC-170N/h/clone 7 cells express a human embryonic stem cell marker, Oct-4 and potential prostate epithelial stem cell markers, including integrin α2β1 and cytokeratin 5. The pluripotent stem cells are self-renewing in KGM and Dulbecco’s Modified Eagle Medium with 10% fetal bovine serum and 5μg/ml insulin (DMEM+10% FBS+Ins.) medium, and differentiate into epithelial stem cells that express epithelial cell markers including CK5/14, CD44, p63 and cytokeratin 18 (CK18); as well as the mesenchymal cell markers, vimentin, desmin; the neuron and neuroendocrine cell marker, chromogranin A. These stem cells undergo self-renewal and differentiation in vitro culture condition. RC-170N/h/clone 7 cells proliferate symmetrically and asymmetrically and differentiated into progenitors of all cell lineages within prostate glands. Further, RC-170N/h/clone 7 cells differentiated into multiple tissues in the engrafted tissues following renal capsule inoculation into NOD-SCID mice.

**Conclusions:** Our results indicate that RC-170N/h/clone 7 cells retain the properties of pluripotent stem cells and will be useful as a novel cell line to study human prostate stem cells.

**Poster #13**

**OUTCOMES OF PATIENTS WITH CLINICAL T1 GRADE 3 BLADDER UROTHELIAL CELL CARCINOMA TREATED WITH RADICAL CYSTECTOMY**

Amit Gupta,1 Shahrokh F Shariat,1 Matthew Nielsen,2 Patrick J Bastian,2 Ganesh S Palapattu,2 Craig G Rogers,2 Amnon Vazina,1 Pierre I Karakiewicz,1 Mark P Schoenberg,3 Seth P Lerner,1 Arthur I Sagalowsky,1 and Yair Lotan1

1Dept of Urology, UT-Southwestern Medical Center, Dallas, TX, USA; 2James Buchanan Brady Urological Institute, The Johns Hopkins Hospital, Baltimore, MD, USA; 3Scott Department of Urology, Baylor College of Medicine, Houston, TX, USA; 4Cancer Prognostics and Health Outcomes Unit, University of Montreal, Quebec, Canada

**Introduction and objectives:** Urothelial tumors that invade the lamina propria but not the muscularis propria are a particularly problematic clinical entity. The aim of the present study was to assess the pathologic features and clinical outcomes of patients with clinical T1 grade 3 urothelial cell bladder carcinoma (UCBC) who were treated with radical cystectomy.

**Methods:** The records of 958 consecutive patients who underwent radical cystectomy and pelvic lymphadenectomy for bladder cancer at three US academic centers were reviewed. 171 of these patients (median age: 66.7 years) underwent radical cystectomy for clinical stage T1 grade 3 UCBC. Patients were categorized into those who were pathologically down-staged (lower pathologic than clinical stage and negative lymph nodes), those who had the same stage (same clinical and pathologic stage and negative lymph nodes), and those who were pathologically up-staged (higher pathologic than clinical stage or positive lymph nodes).

**Results:** Median follow up period was 31.9 months (range: 0.5-177.1). Disease recurred in 48/171 (28.1%) of patients and 17.5% patients died due to bladder cancer. Actuarial recurrence-free estimates were 69.1% (SE: 4.1%) at 3 years, 65.9% (SE: 4.5%) at 5 years, and 57.6% (SE: 6.1%) at 7 years after cystectomy. 17.1% patients had metastases to regional lymph nodes. 51% of patients were pathologically upstaged and 27.5% had extravesical disease. Patients with disease upstaging were more likely to die of bladder cancer. Delay of more than three months between the last trans-urethral resection and radical cystectomy resulted in upstaging of 71% of patients compared to 52% for those in whom radical cystectomy was performed within three months of the last TUR (p=0.07). Pre-cystectomy CIS was associated with a higher risk of bladder cancer recurrence and mortality (p = 0.026 and 0.016 respectively). On pre-operative multivariable analysis, pre-cystectomy CIS was the only independent predictor of disease recurrence (HR: 2.5, 95%CI: 1.2-5.0) and survival (HR:3.0, 95%CI:1.2-7.8).

**Conclusion:** A large proportion of patients undergoing cystectomy for clinically T1 grade 3 UCBC were upstaged at cystectomy. The recurrence and survival outcomes in this group are sub-optimal. Pre-cystectomy CIS is the best predictor of clinical outcomes after cystectomy and may help in making decisions about early cystectomy in these patients.

**Financial Funding:** Departmental
**Poster #14**

**ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL CYSTECTOMY: INITIAL EXPERIENCE AND OPERATIVE OUTCOMES**

Aaron Lentz, Eric M. Wallen, and Raj S. Pruthi. Chapel Hill, North Carolina

**Purpose:** Radical cystectomy remains one of the most effective treatments for patients with localized, invasive bladder cancer. However, little study has been undertaken to evaluate less-invasive surgical approaches to this disease. We report our initial experience with robotic-assisted laparoscopic radical cystoprostatectomy (RALRCP) with regard to operative outcomes and complications.

**Methods:** 14 men underwent RALRCP and urinary diversion at our institution from 1-06 – 8/06 for clinically-localized bladder cancer (<=cT2).

Operative outcomes, pathological results, and complications are reported.

**Results:** Mean age of this cohort was 62.3 years (range 53-76 years). Nine patients underwent ileal conduit diversion and 5 patients underwent an orthotopic ileal neobladder. In all cases the urinary diversion was performed extracorporeally. Mean OR time of all patients was 6.1 hours (most recent 5 cases 5.3 hours). In 12 cases a nerve-sparing procedure was performed in an attempt to preserve erectile function.

Mean surgical blood loss was 313 ml. On surgical pathology, 9 patients were <=pT2, 3 patients pT3, and 2 patients N+. In no case was there inadvertent entry into the bladder or positive surgical margins. Mean number of lymph nodes removed was 19 (range 9 – 29). Mean time to flatus was 2.1 days, bowel movement 2.8 days. 12 patients were discharged on POD#4 and 2 patients on POD#5.

There were 2 post-operative complications (14%). One patient experienced post-operative bleeding requiring re-exploration on POD#1 (no significant source was found). Another patient experienced herniation of a small portion of his omentum at the urostomy site requiring re-exploration and excision 17 days after surgery.

**Conclusions:** Our initial experience with robotic-assisted laparoscopic radical cystoprostatectomy (RALRCP) appears to be favorable with acceptable operative outcomes. As our experience increases, we should expect to continue to refine our surgical technique and reduce operating room times.

**Poster #15**

**PROSPECTIVE EVALUATION OF SHORT-TERM IMPACT AND RECOVERY OF HEALTH-RELATED QUALITY OF LIFE (HRQOL) IN MEN UNDERGOING ROBOTIC-ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY VS. OPEN RADICAL PROSTATECTOMY (ORP)**

Javier Miller, Erik Kouba, Eric M. Wallen, and Raj S. Pruthi, Chapel Hill, NC

**Purpose:** There has been increasing discussion as to the potential for robotic-assisted laparoscopic radical prostatectomy (RALRP) to potentially reduce short-term morbidity of patients undergoing surgical treatment for prostate cancer. However, to date there is little objective information to support this notion. We undertook a prospective evaluation of HRQOL of men undergoing RALRP with regard to pre-op and short-term post-op assessments utilizing a validated HRQOL instrument, and compared the these results to patients undergoing ORP.

**Methods:** 152 men undergoing radical prostatectomy for clinically-localized prostate cancer were prospectively evaluated for short-term HRQOL utilizing an acute SF-12 v-2 Physical and Mental Health Survey Acute Form pre-operatively and each week post-operatively (week 1 - week 6). Physical Component Score (PCS) and Mental Component Score (MCS) were calculated from the questionnaires at each time point. Of these men, 121 underwent ORP and 31 underwent RALRP. Comparisons between the two surgical approaches were made at each time point.

**Results:** There were no significant differences between the 2 groups (ORP vs. RALRP) with regard to mean age (60.6 years vs. 61.3 years) or mean pre-op PSA (8.4 vs. 7.0). Mean surgical blood loss (ebl) was higher in the ORP vs. RALRP group (492cc vs. 248 cc). The table shows the mean physical (PCS) and mental (MCS) scores for all patients at each time point. PCS scores were significantly higher at each post-operative time point between in RALRP group (vs. ORP). In RALRP group, PCS scores were not significantly different from baseline by week 5. In the open group, PCS scores remained below baseline throughout the 6 week post-operative study period.
Conclusions: This study helps to prospectively define the short-term HRQOL in patients undergoing RALRP and ORP. Utilizing a validated HRQOL instrument, patients undergoing RALRP have higher physical scores than patients undergoing ORP beginning at post-operative week 1 and continuing throughout the 6-week post-op study period. PCS scores reached baseline by week 5 in RALRP group, but did not return to baseline in the open group.

Poster #16

INCIDENTAL CARCINOMA OF THE PROSTATE: WAIT-AND-SEE OR RADICAL PROSTATECTOMY?
Boris Hadaschik, S. Thüroff, S. W. Melchior, J. W. Thüroff
Johannes Gutenberg University Mainz

Introduction and Objective: In the past up to 15% of patients undergoing transurethral resection of the prostate (TURP) for benign prostatic hyperplasia (BPH) were diagnosed stage T1a or T1b prostate cancer (CaP). The prognosis and proper treatment of incidental prostate cancer remain debatable. To rule out CaP in patients with bladder outlet obstruction we take random prostatic biopsies prior to TURP if the serum PSA level is 4-10 ng/ml and the free to total PSA ratio is below 23%, or if the PSA level is 2-4 ng/ml and the PSA ratio <15%. In this study we evaluated those patients in whom incidental prostate cancer was detected by TURP.

Methods: Between 1998 and 2004 we performed 1931 TURPs on patients with obstructive voiding symptoms and suspected BPH. Incidental prostate cancer was found in 104 cases (5.4%). 26 of those patients underwent radical prostatectomy. The clinical follow-up, pathological staging and treatment of these patients were reviewed.

Results: 17 of the 25 prostatectomy patients had T1a and 9 T1b carcinoma of the prostate. Postoperatively, 35% in the T1a group showed no residual tumor and 65% pT2 cancer, respectively 22% and 78% of the T1b cases. Extraprostatic pT3 CaP was not found. The preoperative Gleason grading did not allow prediction of postoperative grading. 30% of the prostatectomy patients showed an upgrading in Gleason scores and 42% a downgrading or no residual tumor. 81% had Gleason scores below seven. One patient is receiving hormonal therapy because of rising PSA. Of the 78 patients managed conservatively, there were 65 T1a and 13 T1b tumors. Nine patients were recommended prophylactic hormones and in 2 hormonal therapies were started because of PSA relapse. To date none of the 104 patients in the study group has metastatic disease progression.

Conclusions: The rate of incidentally detected CaP by TURP can be greatly reduced by an aggressive biopsy strategy. Incidental cancer found thereafter is mostly organ confined and well differentiated. Patients with stage T1a CaP and Gleason scores less than seven can be managed conservatively.
POSTER SESSION

Poster #17

METACHRONOUS BILATERAL RENAL CELL CARCINOMA: RISK ASSESSMENT, PROGNOSIS AND RELEVANCE OF THE PRIMARY-FREE INTERVAL

Tobias Klatte1, Jean-Jacques Patard2, Heiko Wunderlich3, Rakhee H. Goel1, John S. Lam1, Kerstin Junker3, Jörg Schubert3, Malte Böhm4, Ernst P. Allhoff3, Fairooz F. Kabbinavar5, Maxime Crepel2, Luca Cindolo6, Alexandre De La Taille7, Jacques Tostain8, Arnaud Mejean9, Michel Soulie10, Laurent Bellec10, Jean Christophe Bernhard11, Jean-Marie Ferriere11, Christian Pfister12, Baptiste Albouy12, Marc Colombel13, Amnon Zisman14, Arie S. Belldegrun1, Allan J. Pantuck1

1Department of Urology, University of California, Los Angeles, California, 2Department of Urology, University of Rennes, France, 3Department of Urology, University of Jena, Germany, 4Department of Urology, University of Magdeburg, Germany, 5Department of Medicine, University of California, Los Angeles, California, 6Department of Urology, Benevento, Italy, 7Department of Urology, CHU Henri Mondor, Creteil, France, 8Department of Urology, University of Saint-Etienne, France, 9Department of Urology, Necker Hospital, Paris, France, 10Department of Urology, University of Toulouse, France, 11Department of Urology, University of Bordeaux, France, 12Department of Urology, University of Rouen, France, 13Department of Urology, University of Lyon, France, 14Department of Urology, Tel-Aviv University, Tel-Aviv, Israel

Purpose:
To evaluate prognosis, risk factors and the relevance of the primary-free interval (interval between the first and second primary RCC) on the largest patient cohort to date with metachronous bilateral renal cell carcinoma (RCC).

Patients and Methods:
We retrospectively studied 10,337 patients with solid renal tumors treated at 12 international academic centers, of whom 120 had metachronous, bilateral RCC. Logistic regression was performed to evaluate risk factors for developing a contralateral metachronous RCC during follow-up. Disease-specific survival (DSS) was evaluated with univariate and multivariate analysis.

Results:
Median age at diagnosis of the first and second RCC was 54 and 62 years, respectively. The most common histological sub-type was bilateral clear cell RCC (89%). Familial RCC was found in 14%, VHL disease in 4% and non-familial RCC in 81%. Logistic regression revealed the presence of VHL disease (RR 7.2, p=0.04), family history for RCC (RR 8.4, p<0.001), multifocal first RCC (RR 2.9, p=0.01) and young age (RR 0.96, p=0.01) as independent risk factors for developing a contralateral RCC after undergoing surgery for unilateral RCC. The second primary RCC was associated with higher TNM stages and lower ECOG PS which led to worse prognosis compared with the first primary RCC (15-year DSS rates: first RCC 66%, second RCC 44%, p<0.0001, Figure). The median primary-free interval was 72 months (range, 8-277). A longer primary-free interval (cut-off 30 months) was associated with a better prognosis (Figure). When calculating DSS from the diagnosis of the first RCC, the primary-free interval was an independent prognostic factor.

Conclusion:
Long-term survival rates of metachronous bilateral RCC are moderate. Presence of VHL disease, family history for RCC, multifocal first RCC and young age are independent risk factors for developing a contralateral RCC. The presence of these risk factors supports a closer abdominal surveillance program following nephrectomy. Patients with longer a primary-free interval have a more favorable prognosis.
**Poster #18**

**15-YEAR DISEASE-SPECIFIC SURVIVAL FOLLOWING PARTIAL NEPHRECTOMY FOR RENAL CELL CARCINOMA: THE UCLA EXPERIENCE**

Tobias Klatte, Rakhee H. Goel, Allan J. Pantuck, Michael E. Aldridge, Stephen B. Riggs, Fairooz F. Kabbinavar, Arie S. Belldegrun

1Department of Urology and 2Medicine, University of California, Los Angeles, CA

**Introduction and Objective:** Partial nephrectomy is the standard treatment for small renal masses. Here, we address the 15-year UCLA experience.

**Methods:** The clinical and pathological data of 421 patients, who underwent partial nephrectomy for a solid renal mass from 1989 to 2005, were reviewed. Disease-specific survival (DSS) and recurrence-free survival (RFS) were calculated from the date of nephrectomy. The Kaplan-Meier method was used to generate the survival functions, which were compared using the log-rank test.

**Results:** Of the 421 patients, 321 (76%) had renal cell carcinoma (RCC) and 100 (24%) had benign tumors. There were 222 men (69%) and 99 women (31%) with a mean age of 61.0 years (SD, 12.7). The mean tumor size was 3.5 cm (SD, 2.0). T stage was T1a in 218 (68%), T1b in 60 (19%), T2 in 11 (3%), and T3a in 32 (10%). Lymph node metastasis and distant metastases were present in 2 (1%) and 24 (7%) patients, respectively. Fuhrman grade was 1 in 79 (25%), 2 in 183 (57%), 3 in 55 (17%) and 4 in 4 patients (1%). Mean intraoperative blood loss was 568 ml (SD, 494). The perioperative blood transfusion rate was 26%. Overall, there were 19 major complications and 20 minor complications. Median follow-up was 37 months (range, 1-216). The 5-, 10- and 15-year DSS rates (± SE) were 98% (± 1%), 96% (± 2%) and 96% (± 2%), respectively. The 5-, 10- and 15-year RFS rates (± SE) were 93% (± 2%), 87% (± 5%) and 87% (± 5%), respectively. Among the 32 patients who received partial nephrectomy for pT3a RCC, 5 (16%) developed recurrence (3 systemic, 2 local). A positive surgical margin (n=21) increased the risk of local recurrence and led to significantly lower RFS (10-year rate: 67% versus 88%, p=0.01), although DSS was similar to patients with negative surgical margin (p=0.53) as the majority were amenable to salvage surgical procedures.

**Conclusions:** 15-year data suggests that long-term outcome following partial nephrectomy for RCC is excellent. Perioperative complication rates are low. Positive surgical margins increase the risk of local recurrence but do not significantly diminish DSS. The role of partial nephrectomy in pT3a warrants further study.

**Poster #19**

**10 YEAR SURVIVAL OF RENAL CELL CARCINOMA WITH TUMOR THROMBUS EXTENSION: THE UCLA EXPERIENCE**

Tobias Klatte1, Allan J. Pantuck1, Stephen B. Riggs1, Fairooz F. Kabbinavar2, Arie S. Belldegrun1

1Department of Urology and 2Medicine, University of California, Los Angeles, CA

**Introduction and Objective:** We report on the impact of the tumor thrombus level on clinicopathological data, complications and disease-specific survival (DSS).

**Methods:** We retrospectively studied 321 consecutive patients who underwent surgical therapy for RCC with tumor thrombus extension from 1991 to 2005. Clinical and pathological data were collected for each patient. The data was analyzed using standard statistical methods.

**Results:** Tumor thrombus extending to the renal vein (RV) occurred in 166 (52%), inferior vena cava (IVC) in 137 (43%) and to the atrium in 18 (6%) patients. Concomitant lymph node and/or distant metastases were found in 198 patients (62%). The distribution of age (p=0.57), ECOG PS (p=0.84), Fuhrman grade (p=0.57), lymph-node metastases (p=0.33) and distant metastases (p=0.50) was similar among the three levels. The histological subtype did not impact the thrombus level, although patients with clear cell sub-type tended to have lower levels and patients with papillary subtype tended to have higher levels. Complication rates increased with the cranial extension of the tumor thrombus. The perioperative mortality rate for thrombus extending to the RV, IVC and atrium was 2%, 7% and 11%, respectively. Mean follow-up for the surviving patients was 33.3 months (SD, 42.5). No survival difference was noted regarding thrombus level (p=0.58, Table, Figure). The 5- and 10-year DSS rates for the entire cohort were 36% (SE, 3%) and 24% (SE, 3%). Patients with non-metastatic RCC had 5- and 10-year DSS rates of 68% (SE, 6%) and 50% (SE, 7%), respectively. For patients who presented with metastatic disease, the median survival time was 16.4 months (95% CI, 12.0-20.7) and the 1-, 2-, 5-, and 10-year DSS rates were 58% (SE, 4%), 36% (SE, 4%), 19% (SE, 3%) and 12% (SE, 3%), respectively. Among the 144 patients who received immunotherapy, 77 (54%) had PD, 39 SD (27%), 17 PR (12%) and 11 CR (8%). In multivariate analysis, ECOG PS (HR 1.5, p=0.002), N stage (HR 1.3, p=0.01), M stage (HR 2.6, p=0.001) and grade (HR 1.7, p<0.001), but not thrombus level (p=0.78), significantly impacted DSS.

**Conclusions:** The thrombus level does not impact DSS, but is associated with higher perioperative morbidity/mortality. Readjustment of the current TNM classification is warranted.

Continues on next page
TUMOR LATERALITY DOES NOT PREDICT BIOCHEMICAL PROSTATE CANCER RECURRENCE AFTER RADICAL PROSTATECTOMY

Vladimir Mouraviev, Leon Sun, John F. Madden, Janice M. Mayes, Judd W. Moul, Daniel George, Phillip Febbo and Thomas J. Polascik, Division of Urology, Department of Surgery, Pathology, and Medicine, Duke Institute for Genome Science and Policy Duke Prostate Center, Duke University Medical Center, Durham, NC

Introduction and Objective: The introduction of minimally invasive ablative procedures such as cryotherapy or HIFU for the treatment of prostate cancer (PCa) challenges urologic oncologists to define clinical and pathologic criteria to select candidates for focal therapy. From this standpoint, we evaluated distinctions between the biological behavior of uni- vs. bilateral tumors in order to better select patients for unilateral ablation.

Methods: Analysis included demographic, clinical and pathologic parameters of 1184 men who underwent radical prostatectomy for early stage localized prostate cancer at our institution between 2002 and 2006. Final pathology assessment was done with particular attention to laterality and percentage of tumor involvement (PTI) along with other routine parameters. Based on PTI all cancer foci were ranked as ≤5, 6-10, 11-15 and >15%. Statistical analysis was done using univariate (Chi-square test) and multivariate methods (Cox regression model) using SPSS program, version 12 (Chicago, IL).

Results: Biochemical recurrence was diagnosed in 164 (13.9%) of 1184 patients. The distribution of recurrent patients between unilateral and bilateral tumors was 26 (15.9%) versus 138 (84.1%), respectively (p=0.25). The most common characteristics associated with unilateral tumors in Cox model were a diagnostic PSA level, prostate weight and pathologic Gleason Score (pGS) (p<0.0005). Statistical analysis was done using univariate (Chi-square test) and multivariate methods (Cox regression model) using SPSS program, version 12 (Chicago, IL).

Conclusions: Uni- or bilateral tumors within the prostate did not predict biochemical recurrence after radical prostatectomy. In contrast, baseline PSA level and pGS strongly predicted PSA recurrence. Therefore, a diagnostic PSA level may be clinically used to select patients for focal thermoablation.
THE IMPACT OF GLEASON SCORE ON THE PREDICTIVE VALUE OF PSA DOUBLING TIME

Stephen Boorjian, Sameer Siddiqui, Brant Inman, Jeffrey M. Slezak, R. Jeffrey Karnes, Michael L. Blute, and Bradley C. Leibovich
Departments of Urology (SB, SS, BI, RJK, MLB, BCL) and Health Sciences Research (JMS), Mayo Clinic, Rochester, MN

Introduction and Objectives: PSA doubling time (DT) has been identified as a valuable predictor to help stratify patients’ risk of disease progression following radical prostatectomy (RP) for prostate cancer. Meanwhile, an inverse correlation has been demonstrated between the degree of histological differentiation in prostate cancer, as reflected by Gleason score (GS), and PSA production. The impact of GS on PSA kinetics, however, has not been well defined to date. Here, then, we evaluated the impact of pathologic GS on the predictive value of pre- and post-RP PSA DT.

Methods: We evaluated all men treated with RP between 1990 and 1999 who did not receive neoadjuvant therapy. The impact of GS on the ability of preoperative PSA DT to predict systemic progression-free survival (sPFS) was assessed in patients who had multiple preoperative PSA values available. The impact of postoperative PSA DT on sPFS was analyzed for all patients who experienced biochemical recurrence (defined as a PSA = 0.4 ng/ml) and had at least two post-RP PSA values available prior to the initiation of secondary therapy. PSA DT was calculated by log linear regression. GS was determined from the RP specimen. sPFS was estimated using the Kaplan-Meier method and analyzed using Cox proportional hazard regression models. The impact of GS on the ability of PSA DT to predict sPFS was tested using an interaction term in a Cox model.

Results: We identified 2,296 men with a pre-RP PSA DT available (median follow-up = 8.5 years, range 0.01-15.7) and 1323 men with a post-RP PSA DT available (median follow-up = 6.6 years, range 0.1-15.2). Pre-RP PSA DT < 18 months versus > 18 months predicted decreased 10-year sPFS for patients with GS<7 (98% vs. 99%, p=0.005), GS=7 (82% vs. 91%, p=0.003), and GS 8-10 (57% vs. 73%, p=0.042) tumors. Post-RP PSA DT < 12 months (versus > 12 months) was significantly associated with decreased 10-year sPFS for patients with GS<7 (77% vs. 94%, p<0.001) and GS=7 tumors (61% vs. 86%, p<0.001), but not in GS 8-10 disease (61% vs. 75%, p=0.11). The ability of both pre- and post-RP PSA DT to predict sPFS decreased with increasing GS (see table).

Conclusions: PSA DT remains predictive of systemic progression across increasing pathologic GS, although the ability of PSA DT to predict sPFS is diminished in GS 8-10 cancers. These findings may be important to consider when evaluating these high-risk patients for adjuvant therapy, as PSA DT often plays a critical role in the assessment of patients’ risk of progression.

Source of Funding = None

<table>
<thead>
<tr>
<th>Event</th>
<th>Group</th>
<th>N</th>
<th>HR for pre-RP PSA DT &lt; 18 mo vs &gt; 18 mo</th>
<th>HR 95% CI for pre-op PSA DT</th>
<th>Interaction p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic progression</td>
<td>GS &lt; 7</td>
<td>1581</td>
<td>3.87</td>
<td>1.40</td>
<td>10.68</td>
</tr>
<tr>
<td></td>
<td>GS = 7</td>
<td>590</td>
<td>2.32</td>
<td>1.31</td>
<td>4.10</td>
</tr>
<tr>
<td></td>
<td>GS 8-10</td>
<td>109</td>
<td>1.97</td>
<td>1.01</td>
<td>3.83</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Event</th>
<th>Group</th>
<th>N</th>
<th>HR for post-RP PSA DT &lt;12 mo vs &gt;12 mo</th>
<th>HR 95% CI for post-op PSA DT</th>
<th>Interaction p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systemic progression</td>
<td>GS &lt; 7</td>
<td>669</td>
<td>5.08</td>
<td>2.94</td>
<td>8.80</td>
</tr>
<tr>
<td></td>
<td>GS = 7</td>
<td>535</td>
<td>4.65</td>
<td>2.94</td>
<td>7.38</td>
</tr>
<tr>
<td></td>
<td>GS 8-10</td>
<td>199</td>
<td>1.88</td>
<td>0.97</td>
<td>3.68</td>
</tr>
</tbody>
</table>
Poster #22

THE COMPLICATION RATE AFTER CRYOSURGICAL ABLATION FOR CLINICALLY LOCALIZED PROSTATE CANCER USING THIRD GENERATION CRYOTECHNOLOGY
Janice Mayes, Vladimir Mouraviev, Israel Nosnik, and Thomas J. Polascik
Division of Urology, Department of Surgery, and Duke Prostate Center, Duke University Medical Center, Durham, NC

Objectives: One of the important factors in assessing the treatment outcome for prostate cancer is quality of life, which may be greatly jeopardized by complications after cryosurgery. In this study we present our experience with complications after primary and salvage cryotherapy of the prostate.

Methods: Between January 2002 and July 2005, 62 men with biopsy-proven prostate cancer underwent primary cryosurgery for clinically localized prostate carcinoma and 10 patients – salvage cryoablation for radiorecurrent prostate cancer, respectively. All men had a negative bone scan prior to treatment. Complications were prospectively entered into a database. All procedure but 5 were done on an outpatient basis.

Results: In 10 preoperatively potent patients 4 patients recovered with ability to achieve the same level of erection to their preoperative level. An incontinence rate was low (3.3%) as a mild degree (1-2 pads per day) that did not impair significantly a quality of life. No artificial sphincters were required. Three patients developed acute urine retention after removal of the catheter Foley 1 week after surgery and were catheterized again for 5-7 days with subsequent reconstitution of their voiding pattern. One patient had experienced urethral slough without clinical sequelae. One patient had transient penoscrotal edema that had spontaneously resolved. In one case a perineal abscess was drained in the postoperative period. As an usual complication, one patient developed a prostatic abscess 5 months after primary cryotherapy that was percutaneously drained and successfully treated with Trimetoprim. Generally patients selected for salvage cryoprocedure were more susceptible to development of complications than men with primary treatment. There were no cases of chronic pain, need to TURP, rectourethral fistula. Mean follow-up was 21 months (±8.3).

Conclusions: The presented data of the clinical application of third generation cryotherapy suggest a safe clinical application of cryoablation. From the point of an excellent control of quality of life, this procedure may be considered as a feasible treatment option. Further accumulation of long-term outcomes, however, is needed to draw conclusions in order to delineate the role of cryotherapy in the primary and salvage setting.

Poster #23

THE HISTONE DEACETYLASE INHIBITOR FK228 IS AN EFFECTIVE TREATMENT IN A MOUSE MODEL OF HUMAN UROTHELIAL CARCINOMA (UC)
Jose A. Karam1, Jinhai Fan1, Jennifer Stanfield1, Edmond Richer2, Elie A. Benaim1, Eugene Frenkel3, Peter Antich2, Arthur I. Sagalowsky1, Ralph P. Mason2, and Jer-Tsong Hsieh1
1 Department of Urology, 2 Department of Radiology, 3 Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, Texas

Objectives: Bladder cancer results in 13,000 deaths each year. The long term disease-free survival in patients with metastatic bladder cancer is still considerably low. Novel chemotherapeutic agents are needed to decrease the morbidity and mortality of UC.

Methods: T24 bladder cancer cell line was used. Cell treatment was done with the histone deacetylase inhibitor FK228. Cell viability was measured using crystal violet assay after drug treatment. Western blot and flow cytometry were used to assess for apoptosis and alterations in cell cycle. Subcutaneous model was obtained with subcutaneous implantation of T24 cells in nude mice and measurement of tumor size with caliper. Orthotopic model was obtained by injection of T24-luciferase cells into nude mice bladders and assessment of tumor size with quantitation of bioluminescence with an intensified charge-coupled camera.

Results: FK228 results in decreased T24 cell viability starting 3 days after treatment with a low dose (0.25ng/ml). This effect is dose-dependent and time-dependent. FK228 results in apoptosis as evidenced by cleavage of PARP on western blot. Apoptosis effect is corroborated by flow cytometry as the pre-G1/G0 phase is 37% with treatment, compared to 1.6% in control. In addition, FK228 causes arrest in G2 phase (G2 content 21.2% in treatment versus 11.7% in control). Cyclin B, level was unchanged. Cyclin E, on the other hand, was increased after treatment with FK228. Wild-type p53 could not be detected in T24 cell line, before and after treatment. p21 levels were increased in FK228-treated cells, in a p53-independent fashion. In the subcutaneous model, tumors were equal in size at start (21 vs. 16 mm3) and 7 days after treatment (46 vs. 58 mm3). On
days 14 and 21 after treatment, tumors were significantly smaller in the FK228-treated group as compared to control group (63 vs. 132 mm³, and 69 vs. 240 mm³, respectively). In the orthotopic model, bioluminescence imaging of the bladder region showed 1.6, 5.8, 5.2, 3.1 million photon counts in the FK228-treated group, compared to 0.9, 2.6, 9.2, 17.5 million photon counts in the control group, at 0, 7, 14, and 21 days of treatment, respectively.

Conclusions: FK228 results in a dose and time dependent cytotoxic effect on UC in vitro. FK228 causes apoptosis and G₁ arrest in UC. p21 levels are increased in a p53-independent fashion. FK228 results in tumor shrinkage in a subcutaneous model as well as an orthotopic bladder cancer model as measured by reproducible, non-invasive novel bioluminescence imaging techniques.

Funding source: NIH grant CA95730 (to J.T.H.)

Poster #24

THE MEN’S EATING AND LIVING (MEAL) STUDY: A MULTI-CENTER PILOT TRIAL OF DIETARY INTERVENTION FOR THE TREATMENT OF PROSTATE CANCER

Vicky Newman, MS, RD,¹ J. Kellogg Parsons, MD, MHS,¹ James Mohler, MD,² John P. Pierce, PhD,¹ Electra Paskett, PhD,³ and James Marshall, PhD²

¹ Moores Cancer Center, University of California San Diego, La Jolla, CA
² Roswell Park Cancer Institute, Buffalo, New York
³ Comprehensive Cancer Center, Ohio State University, Columbus, Ohio

Objective: To evaluate the feasibility of implementing dietary interventions in men with prostate cancer.

Methods: Seventy-four men aged 50 to 80 years with biopsy-proven, clinically localized prostate adenocarcinoma treated with surgery or expectant management at 4 institutions were randomized to receive either telephone dietary counseling or standardized, written nutritional information. Telephone dietary counseling targets included increased intakes of vegetables (particularly cruciferous vegetables and tomato products), whole grains, and beans/legumes. Dietary intakes and plasma carotenoid levels were assessed at baseline and at 6 months follow-up. Cancer and Leukemia Group B provided funding for this study.

Results: Data reported here include all participants (n=39) who had completed baseline and 6-month follow-up as of May 2006. In the intervention arm, mean daily intakes of total vegetables, crucifers, tomato products, and beans/legumes increased by 44%, 157%, 129%, and 200%, respectively, while fat intake decreased by 17% (p=0.02). In contrast, in the control arm, there were no significant changes in mean intakes of total vegetables, tomato products, crucifers, beans/legumes, or fat. Similarly, in the intervention arm, mean plasma levels of beta carotene, lutein, lycopene, and total carotenoids increased by 43%, 32%, 20%, and 26%, respectively (p<0.01). In the control arm, there were no significant changes in plasma levels of beta carotene, lutein, lycopene, or total carotenoids.

Conclusions: Telephone-based dietary counseling induces beneficial diet changes and significantly increases plasma levels of potentially anti-carcinogenic carotenoids in men with prostate cancer. These data support the feasibility of implementing clinical trials of dietary interventions in men with prostate cancer.

Poster #25

INCIDENCE OF CLOSTRIDIUM DIFFICILE AFTER CYSTECTOMY

Lincoln T. Olsen, MD, Heidi Stephany, J. Brantley Thrasher, MD, and Jeffrey M. Holzbeierlein
University of Kansas Department of Urology, Kansas City, KS

Introduction: Clostridium difficile colitis (CDC) is an increasingly prevalent nosocomial infection that can prolong hospital stay and increase patient morbidity and mortality. Several risk factors for this condition exist including: treatment with broad-spectrum antibiotics (especially cephalosporins), bowel resection, and surgical intervention. CDC is typically treated with oral metronidazole or vancomycin, however, operative intervention is necessary in a minority of patients. This study was performed to determine the rate of CDC in our cystectomy population, risk factors for it, and to determine its effects on hospital course.

Methods: We performed a retrospective review of hospital charts for all patients undergoing cystectomy and urinary diversion for all indications at the University of Kansas from September of 1996 to January of 2005. We identified all patients who were diagnosed with CDC during
their initial hospital stay and compared the hospital courses for those patients that were and were not diagnosed with CDC. We routinely treat cystectomy patients with a combination of ceftriaxone and metronidazole perioperatively. Additionally, we reviewed a cohort of radical retropubic prostatectomies for comparison.

**Results:** Complete records were available for 192 patients who underwent cystectomy and urinary diversion for the specified study period. Seventy nine percent of these were performed for bladder cancer, 11% for neurogenic bladder, 5.2% for interstitial cystitis, and 4.6% for various other indications. Fourteen patients (7.3%) developed CDC. Of those 50% were treated perioperatively with ceftriaxone and metronidazole combination of antibiotics. There was no statistically significant difference in the incidence of CDC in those treated with this combination than those treated with other antibiotics (p=0.57). Although the length of hospital stay (13.4 vs 12.6 days), length of ICU stay (3.0 vs 3.59), and days to tolerating a regular diet (10.9 vs 10.0) were longer for those with CDC none of these reached statistical significance. In addition, the indication for cystectomy was not a predictor of those patients that would develop CDC. We also found that CDC is much more common after cystectomy than after radical retropubic prostatectomy (p<0.05)

**Conclusions:** CDC is an infection that is not uncommon in patients undergoing cystectomy and urinary diversion. However, this infection does not significantly effect patient’s hospital course in terms of length of stay, length of ICU stay, or days to tolerating a regular diet. In addition, our routine use of a ceftriaxone/metronidazole antibiotic combination does not affect the incidence of CDC in our population.

**Poster #26**

**THE ASSOCIATION BETWEEN EXTENT OF LYMPHADENECTOMY AND SURVIVAL AMONG PATIENTS WITH LYMPH NODE METASTASES UNDERGOING RADICAL CYSTECTOMY**

Jonathan L Wright, MD, MS, Daniel W Lin, MD, Michael P Porter, MD, MS, University of Washington School of Medicine, Seattle, WA

**Introduction and Objective:** Long term survival in lymph node positive patients with bladder cancer undergoing cystectomy suggests a therapeutic role for lymphadenectomy, but the relationship between extent of lymphadenectomy and survival in this subset of patients has not been adequately defined. The purpose of this study was to describe the association between extent of lymphadenectomy and survival in node-positive patients undergoing radical cystectomy for transitional cell carcinoma of the bladder in a population based cohort.

**Methods:** Data from 17 SEER registries (1988 – 2003) were obtained. The cohort consisted of patients with transitional cell carcinoma who underwent cystectomy with lymphadenectomy and had at least one positive lymph node. Patients with visceral and skeletal metastases were excluded. Kaplan-Meier methods and multivariate Cox proportional hazards regression were used to quantitate differences in survival among different lymph node quartile categories of number of positive nodes, total nodes removed, and lymph node ratio/density.

**Results:** A total of 5201 patients underwent cystectomy with lymphadenectomy, and 24.3% (n = 1260) had at least one positive lymph node metastasis and comprised the study cohort. The median number of lymph nodes removed was 9 (range 1 – 48) with a median of 2 positive nodes (range 1 – 18) and a median lymph node density of 22%. In multivariate analysis controlling for patient demographics, T-stage, and year of diagnosis, the number of positive and total nodes removed remained independent predictors of survival. There was an inverse association between number of nodes removed and risk of death for all quartiles. Removal of more than ten nodes was associated with increased overall survival (HR = 0.52, 95%CI 0.43 – 0.64). In addition, with a lymph node density of < 12.5% as the referent group, each higher quartile experienced worse survival including a HR = 1.33 (95% CI 1.09 – 1.62) for those with a node density of 12.6 – 25%.

**Conclusions:** An increased number of lymph nodes removed at time of cystectomy is associated with improved survival in node-positive bladder cancer patients. Improved survival was observed at a lower lymph node density threshold than has been previously reported (12.5%). These findings support a more extensive lymphadenectomy at the time of cystectomy in patients with nodal metastases.
CRUCIFEROUS VEGETABLE EXTRACTS FOR THE CHEMOPREVENTION AND TREATMENT OF PROSTATE CANCER: A PILOT STUDY
J. Kellogg Parsons, MD, MHS,1 Paul Talalay, MD,2 Lingxiang Ye, MD,2 William G. Nelson, MD, PhD,3 Murray Kalish, MD, 4 and Alan W. Partin, MD, PhD 1

1Moores Cancer Center, University of California San Diego, La Jolla CA
2Department of Biochemistry, 3Brady Urological Institute, and 4Department of Anesthesia, The Johns Hopkins Medical Institutions, Baltimore, MD

Objective: Epidemiological and pre-clinical data indicate that glucosinolates and isothiocyanates, compounds found in cruciferous vegetables, induce phase 2 enzyme expression and are potentially protective against prostate cancer. However, it is unclear whether these compounds are absorbed into the prostate after oral ingestion. Therefore, we determined whether ingestion of sulforaphane, an isothiocyanate derived from broccoli sprouts, results in isothiocyanate activity in the prostate.

Methods: Four men undergoing radical prostatectomy for localized prostate cancer were placed on a crucifer-restricted diet beginning 7 days prior to surgery. Two hours prior to prostate removal, each participant ingested a 200 µmol oral dose of sulforaphane. Urine and plasma levels of isothiocyanates were measured prior to sulforaphane ingestion and at the time of prostate removal. After removal, prostate tissue was assayed for isothiocyanate levels, quinone reductase activity, glutathione levels, and expression of NQ01, HMOX1, and glutamate-cysteine ligase mRNA.

Results: Prior to sulforaphane ingestion, all participants had undetectable urine and plasma isothiocyanate levels, consistent with crucifer dietary restriction. Within 120 minutes of ingestion, all participants had detectable plasma isothiocyanate levels, ranging from 0.59 µM to 1.45 µM. Prostate tissue analysis revealed detectable levels of isothiocyanates (ranging from 1.31 nmol/mg to 3.03 nmol/mg of tissue), quinone reductase activity, glutathiones, and NQ01, HMOX1, and glutamate-cysteine ligase mRNA.

Conclusions: Isothiocyanates and phase 2 enzyme activity are detectable in human prostate tissue following sulforaphane ingestion. These data support the feasibility of implementing clinical trials of cruciferous vegetables and their extracts in prostate cancer chemoprevention and treatment.

REFINING THE FOCUS OF THE VOLUME-OUTCOME RELATIONSHIP FOR UROLOGIC MALIGNANCIES: THE IMPORTANCE OF NON-INDEX CASE VOLUME
Scott M Gilbert, Rodney L Dunn, David C Miller, Stephanie Daignault, Zou Xu Ye, Brent K Hollenbeck

Introduction: Although better outcomes have been observed at higher volume hospitals, the source of this variation remains elusive. As part of our search for determinants of the volume effect (i.e., structural measures and processes of care), we hypothesized that centers with a high overall urologic cancer volume may be particularly lucrative targets for in-depth quality assessments. In this study, we test this hypothesis by quantifying the degree to which overall urologic cancer volume either masks or enhances the effect of single procedure volume on short term outcomes following urological cancer surgery.

Methods: 280,099 patients treated surgically for prostate (n=179,224), kidney (n=73,346), and bladder (n=27,529) cancers between 1988 and 2003 were identified in the Nationwide Inpatient Sample using ICD-9 procedure and diagnostic codes. Two distinct volume variables were developed at the hospital level: 1) procedure specific volume (index case volume) and 2) urologic cancer volume (non-index case volume, excluding the procedure of interest). Among prostate cancer patients, for example, index case volume was defined as prostatectomy and nephrectomy volume combined. Multivariate logistic regression models were constructed to measure the independent effect of urologic cancer volume on operative mortality following prostatectomy, cystectomy and nephrectomy after adjusting for patient and hospital factors.

Results: For prostatectomy, cystectomy and nephrectomy, unadjusted operative mortality rates were 0.2%, 2.8% and 1.4%, respectively. The unadjusted and adjusted (for patient, hospital and index procedure volume) effects of overall urologic cancer volume on outcomes are illustrated in the table below. Urologic oncology volume attenuated the effect of volume on mortality by 20% for prostatectomy and by 60% for cystectomy.

Continues on next page
**Conclusions:** Following cystectomy and nephrectomy, operative mortality are most favorable at centers that are high volume for a wide breadth of urologic cancer surgeries, indicating that surgical experience and processes of care extend beyond a particular surgery. For these high risk procedures, detailed quality assessments at high-volume urologic cancer centers may be the most efficient way to identify relevant and high leverage processes of care associated with beneficial outcomes.

**Poster #29**

**EVALUATION OF ADENOVIRAL GENE THERAPY WITH TRANSFORMING GROWTH FACTOR BETA RECEPTOR TYPE 3 IN CONVENTIONAL RENAL CELL CARCINOMA**

Vitaly Margulis*, Tapati Maity*, John A. Copland# and Christopher G. Wood*

*Department of Urology, University of Texas M.D. Anderson Cancer Center Houston, Texas; Department of Medicine, Mayo Clinic Jacksonville, Jacksonville, Florida

**Introduction and Objectives:** Gene array experiments have demonstrated that loss of transforming growth factor beta (TGFβ) responsiveness, through down-regulation of transforming growth factor beta type III receptor (TâRβ3) expression, is an early and critical event in renal cell carcinogenesis. We hypothesized that reintroduction of TâRβ3 into renal cell carcinoma (RCC) cell lines would induce growth inhibition in vitro and in nude mice models of RCC.

**Methods:** For in vitro studies UMRC-3 RCC cells (which express the type I (TβR1) TGFβ receptor but not type II (TβR2) or TâRβ3) were infected with recombinant adenoviral vectors that encode either a hemagglutin epitope-tagged TâRβ3 (Ad HA-TâRβ3) or â-Gal (Ad âGal) at 50:1MOI. Cell viability, anchorage independent growth and apoptosis were measured in presence and absence of TGFβ. RNA was isolated 48 h after infection, and RT-PCR performed for expression of TâRβ1, TâRβ2, and TâRβ3. Immunohistochemistry (IHC) using an anti-HA antibody was performed. For in vivo studies tumors were established in Nu/Nu adult mice by subcutaneous inoculation of 1x10⁶ UMRC-3 tumor cells. Prior to injection tumor cells were incubated for 24 hours in culture media only, culture media with Ad âGal at 50:1 MOI and culture media with Ad HA-TâRβ3 at 50:1 MOI. Tumor growth was evaluated by twice-weekly measurement of tumor volume.

**Results obtained:** UMRC3 cells infected with Ad HA-TâRβ3 demonstrated significant growth inhibition in vitro as compared to UMRC3 and UMRC3+Ad âGal. IHC demonstrated TâRβ3 expression in cells infected with Ad HA-TâRβ3 while UMRC3+Ad âGal cells were negative for TâRβ3 expression. UMRC3 infected with Ad HA-TâRβ3 demonstrated expression of TâRβ3 mRNA while cells infected with Ad â-Gal and controls did not express TâRβ3 mRNA. TâRβ2 mRNA was not induced upon expression of TâRβ3 and TâRβ1 mRNA expression was not altered. In our in vivo experiments, mean tumor volume of control, Ad âGal treated mice and Ad HA-TâRβ3 was 309 mm³, 140 mm³, and 50 mm³ respectively (p=0.006, Mann-Whitney U test).

**Conclusions:** Adenoviral gene therapy with TâRβ3 demonstrated significant inhibition of tumor growth in vitro and in vivo in animal models of human RCC. These findings support further investigation of TâRβ3 as gene therapy in RCC.

**Poster #30**

WITHDRAWN
LAPAROSCOPIC AND ROBOTIC ASSISTED LAPAROSCOPIC CYSTECTOMY AND URINARY DIVERSION: CITY OF HOPE EXPERIENCE
Clayton Lau, David Josephson, Mark Kawachi, Timothy Wilson, City of Hope National Medical Center, Duarte CA.

Introduction and Objectives: Minimally invasive approaches have been shown to offer considerable benefits to patients in the treatment of urologic malignancies. While open radical cystectomy remains the gold standard for the treatment of muscle invasive bladder cancer, the continued refinement of laparoscopic techniques and the success of robotic assistance in radical prostatectomy have led to great interest in minimally invasive approaches to radical cystectomy. We retrospectively reviewed the charts of 106 patients that have undergone either laparoscopic or robotic assisted laparoscopic cystectomy and urinary diversion at our institution and examine multiple clinical and pathologic variables.

Methods: Between 5/2001 and 7/2006 106 total cases were done, 51 laparoscopically and 55 robotic assisted laparoscopic. Sixteen of these were salvage cystectomies. The charts of these patients were reviewed. Preoperative characteristics including gender, clinical stage, and indications for surgery were analyzed. Postoperatively EBL, conversion rate, number of lymph nodes removed, pathologic stage, positive margin rate, port site metastasis rate, and complication rates were evaluated.

Results: Eighty six men and twenty women underwent radical cystectomy via laparoscopic of robot assisted laparoscopic approach. The most common indication was high grade urothelial bladder cancer(n=95, 89.6%). Average EBL for the laparoscopic approach was 556.6ml(100-2000ml), while it was 355.7(100-1050ml) in the robotic assisted laparoscopic group. The average lymph nodes removed in the laparoscopic and robotic assisted laparoscopic group was 16.1(2-42) and 20.2(2-47) respectively. There were positive margins in 6(5.7%) patients. Three cases were converted to the standard open approach. Urinary diversions were done via a mini-laparotomy. Complication rates were 31.3% and 34.6% in the laparoscopic and robotic assisted laparoscopic group respectively.

Conclusions: Laparoscopic and Robotic Assisted Laparoscopic Cystectomy can be done safely. Postoperative recovery, oncologic outcomes appear to be similar to open surgery. An extended lymph node dissection can be accomplished via both minimally invasive approaches. However, controlled clinical trials and comparisons from high volume centers are needed.

ADDITION OF ROBOTIC SURGERY TO AN ESTABLISHED LAPAROSCOPIC RADICAL PROSTATECTOMY PROGRAM: INITIAL IMPACT ON POSITIVE SURGICAL MARGINS
Robert A. Linden, M.D., Adeep Thumar, Danny Haddad, Steve N. Dong, M.D., Leonard G. Gomella, M.D., Costas D. Lallas, M.D., and Edouard J. Trabulsi, M.D., Kimmel Cancer Center, Department of Urology, Thomas Jefferson University, Philadelphia, PA

Objective: The addition of robotic assistance in performing laparoscopic prostatectomy has been reported to improve surgical outcomes. In order to evaluate the benefit of robotic assistance to improve cancer control in a center with an established laparoscopic radical prostatectomy program, we evaluated the incidence of positive surgical margins in both transperitoneal laparoscopic (LRP) and robotically assisted laparoscopic radical prostatectomy (RALP).

Methods: We performed an IRB approved, retrospective review of 247 men with clinically localized prostate cancer treated with either a LRP or a RALP from March 2000 to August 2006. Pathology reports were reviewed for both preoperative and postoperative Gleason score as well as clinical and pathological stage. Surgical pathology specimens were evaluated using a whole mount, step section technique. Extracapsular extension, seminal vesicle invasion and positive margins were noted when present in the final surgical pathologic specimens.

Results: One hundred ninety seven patients underwent LRP, and 50 patients underwent RALP. Seven of the 197 LRP required open conversion to retropubic radical prostatectomy, and were excluded. None of the RALP required conversion. The overall positive surgical margin rate for LRP and RALP was 18% (35/197) and 6% (3/50), respectively (p=0.032). When examining pathologically organ confined specimens (pT2), the positive surgical margin rate was 12% (20/161) and 4.7% (2/43) for the LRP and RALP cohorts, respectively (p=0.181). For pathologic disease that has spread through the prostatic capsule (pT3/T4), the positive surgical margin rate was 54% (15/28) and 14% (1/7) for LRP and...
RALP, respectively (p=0.062). Patient age, race and prostate volume were not significant factors in the incidence of positive surgical margins. **Conclusion:** The addition of robotic assistance to an established laparoscopic radical prostatectomy program significantly improved the incidence of positive surgical margins. Data is maturing to determine whether this will lead to improved functional and oncologic outcomes.

**Poster #33**

**3D PROSTATE MODEL FORMATION-PARALLEL 2-DIMENSIONAL TRANSRECTAL ULTRASOUND BIOPSY IMAGES: IMPLICATIONS FOR MANAGEMENT OF ATYPICAL SMALL ACINAR PROLIFERATION**


**Introduction:** Currently prostate biopsies (bx) use 2-Dimensional (2D) Transrectal ultrasound (TRUS) guidance to target 3D biopsy locations, especially problematic with attempts to re-locate areas of atypical small acinar proliferation (ASAP) on repeat Bx. We propose a patient-specific 3D prostate reconstruction technique from a sparse collection of non-parallel 2D TRUS bx images, using current biopsy equipment, without need for additional expensive hardware. The eventual goal is to precisely document the location of each biopsy core with 3D coordinates so that one can reliably return to the exact same location for repeat biopsy – even more than once - if the need arises (as with a diagnosis of ASAP).

**Methods:** Step 1: To establish a 3D prostate model construction algorithm using deformable contours to rapidly segment a collection of arbitrarily oriented 2D TRUS biopsy images and compute a 3D surface fitting using radial basis function interpolating point data generated from a non-standard grid, which would allow for non-parallel TRUS image acquisition. Step 2: To validate the model using simulated biopsy images from 3D TRUS prostate images. Step 3: To determine the optimal number of images necessary for accurate prostate surface estimation by varying the number of 2D TRUS biopsy images used for prostate modeling.

**Results:** Qualitatively the reconstructed 3D prostate models indicated our reconstruction algorithm could capture the 3D surface topology of each patient’s prostate (will show illustrations). As few as 6 to 7 2D images (4 sagittal, 3 transverse/axial), were able to adequately reproduce the prostate surface. Mean volume error and absolute volume error were -2.4 ± 3.3% and 3.2 ± 2.4% respectively with a maximum patient volume error of -7.5%. Mean signed distance was -0.13 ± 0.21mm; mean unsigned (absolute) surface distance error was 0.87 ± 0.14mm (maximum for any patient was 1.13mm). 3-D reconstruction using the 6 or 7 2D US images adds 1 to 2 minutes to the TRUS Bx procedure.

**Conclusion:** This 3-D TRUS reconstruction algorithm appears clinically practical and reliable and can provide 3D guidance and record of TRUS Bx, possibly becoming a valuable tool evaluation, monitoring and even therapy of ASAP and early focal prostate cancers. We are in the process of further validating the system with fiducial markers and prospective TRUS biopsies.

**Poster #34**

**LONG-TERM OUTCOMES OF ADJUVANT RADIATION THERAPY AFTER RADICAL PROSTATECTOMY**

Stacy Loeb1, Kimberly A. Roehl2, and William J. Catalona3

From the Department of Urology1, Georgetown University School of Medicine, Washington, D.C., the Department of Psychiatry2, Washington University School of Medicine, St. Louis, MO, and the Department of Urology3, Northwestern Feinberg School of Medicine, Chicago, IL

**Introduction and Objectives:** Bolla et al. demonstrated that adjuvant radiation therapy improves progression-free survival in men with adverse pathology in their radical prostatectomy specimen (Lancet 2005; 366: 572); however, there are limited long-term data on cancer-specific - and overall survival in men treated with adjuvant radiation therapy.

**Methods:** From a radical prostatectomy database including more than 3500 patients, we identified all men treated with adjuvant radiation therapy. Men were classified into low, intermediate, and high risk groups as defined by D’Amico et al. We calculated 7-year PSA progression-free (PFS), cancer-specific (CSS), and overall survival (OS) in men, stratified by risk group and pathological tumor features.
**Results Obtained:** From 1983 to 2005, 213 men received adjuvant radiation therapy. The mean preoperative PSA was 6.9 ng/ml, and 45% had clinical stage T1c disease. The biopsy Gleason was >7 in 34 (17%) men. Table 1 shows the results.

**Conclusions:** Many patients with high-risk clinical characteristics or adverse pathology in the radical prostatectomy specimen have long-term progression-free survival with excellent cancer-specific survival. Despite adjuvant therapy, less favorable results are achieved in clinically high-risk men with seminal vesicle invasion or lymph node metastases. Future studies are needed to compare these results with the long-term outcomes of early salvage radiation therapy; however, the results suggest that men with only extracapsular tumor extension or positive surgical margins with Gleason < 8 might be appropriate candidates for delayed salvage radiation therapy because of their low risk for progression, while those with seminal vesicle invasion or lymph node metastases may be more appropriate for adjuvant radiation and/or hormonal therapy.

Table 1. 7-Year PFS, CSS, and OS, stratified by risk group.

<table>
<thead>
<tr>
<th>Low Risk</th>
<th>Intermediate Risk</th>
<th>High Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ECE or SM+</td>
<td>SVI+ or LN+</td>
</tr>
<tr>
<td>7-year PFS</td>
<td>71</td>
<td>86</td>
</tr>
<tr>
<td>7-year CSS</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>7-year OS</td>
<td>94</td>
<td>100</td>
</tr>
</tbody>
</table>

**Poster #35**

**PSA VELOCITY VERSUS PSA DOUBLING TIME FOR THE PREDICTION OF TREATMENT OUTCOMES**

Stacy Loeb¹, Kimberly A. Roehl², Xiaoying Yu³, and William J. Catalona⁴

From the Department of Urology¹, Georgetown University School of Medicine, Washington, D.C., the Department of Psychiatry², Washington University School of Medicine, St. Louis, MO, and the Department of Urology³, Northwestern Feinberg School of Medicine, Chicago, IL

**Introduction and Objectives:** PSA velocity (PSAV) and PSA doubling time (PSADT) are two different measurements of PSA kinetics. Although PSADT has been used most frequently to evaluate post-treatment recurrences, relatively little data exists on its application in men with newly diagnosed prostate cancer. Nevertheless, it is currently being used in some active monitoring protocols to identify dangerous cancers. We sought to determine whether PSADT is an accurate predictor of adverse pathology and biochemical progression in men treated by radical prostatectomy and to compare the utility of PSADT to that of PSAV.

**Methods:** We studied 1222 men treated with radical prostatectomy with sufficient preoperative PSA measurements to enable calculations of PSAV and PSADT. We calculated PSAV by regression analysis of all PSA values within the year prior to diagnosis. We calculated PSADT by dividing the natural log of 2 (0.693) by the slope of the relationship between the log of PSA and the time of the PSA measurement. We then performed statistical analysis of the association between PSAV and PSADT and treatment outcomes, using threshold values from the literature.

**Results Obtained:** The median preoperative PSAV and PSADT in the study population were 0.90 ng/ml/year and 35 months, respectively. Of the 1222 men, 917 (76%) had organ confined disease at radical prostatectomy. Using a threshold of 2 ng/ml/year, PSAV was a significant predictor of organ-confined disease and several adverse pathological tumor features. A PSADT greater than 3 years was associated with a significantly greater proportion with organ-confined disease; whereas, a PSADT cutpoint of 18 months was not useful in the prediction of any pathological tumor features. At a mean follow-up of 84 months, 186 (15%) had biochemical recurrence. While PSAV was significantly associated with biochemical progression and 10-year PFS, PSADT was not. Overall, PSAV had better performance characteristics for the prediction of treatment outcomes as a stand-alone test.

**Conclusions:** Among men with newly diagnosed prostate cancer, PSADT is more complicated to use than PSAV, and is less reliable for the prediction of adverse pathology or progression in surgically treated men. PSADT is dependent upon the initial PSA level, and is therefore more useful in patient populations who start with the same baseline PSA, such as patients treated with radical prostatectomy or radiotherapy. However, more research is needed before PSADT can be safely applied in the preoperative setting or to determine the need for intervention in patients on active monitoring protocols.
Poster #36

APOTOPSIS BIOMARKERS FOR PREDICTION OF RECURRENCE AND SURVIVAL AFTER RADICAL CYSTECTOMY FOR BLADDER UROTHELIAL CARCINOMA

Jose A. Karam1, Shahroksh F. Shariat1, Raheela Ashfaq2, Arthur I. Sagalowsky1, Yair Lotan1

1Departments of Urology and 2Pathology, UT Southwestern Medical Center at Dallas, TX

Objectives: To investigate the association of bcl-2, caspase-3, p53, and survivin expression with clinical and pathological features of patients treated with radical cystectomy for bladder urothelial carcinoma.

Methods: Bcl-2, caspase-3, p53, and survivin immunostaining were performed on a tissue microarray containing radical cystectomy cores from 226 consecutive patients treated with radical cystectomy for bladder urothelial carcinoma at UT Southwestern Medical Center. Altered expression was defined as more than 10% of cells staining positively for each of the markers. The four markers were analyzed as individual and combined (ranked) variables.

Results: Median age was 66.2 years (range 35.2 to 86.0 years). Median number of lymph nodes removed was 19 lymph nodes (range 10 to 53 lymph nodes). 79.4% of the patients were males. Expression of bcl-2, caspase-3, p53 and survivin was altered in 32.3%, 49.1%, 53.1%, and 63.5% of patients, respectively. Altered expression of caspase-3 and p53 was associated with higher pathologic grade (p=0.002 and p=0.001, respectively). Altered expression of all four markers was associated with higher pathologic stage (p<0.05).

Bladder cancer recurred in 44.7% of the patients and 44.2% were dead at the time of analysis. 36.3% of the patients died of metastatic bladder cancer. Within a median follow-up of 36.9 months, altered expression of bcl-2, caspase-3, p53 and survivin were each associated with an increased probability of disease recurrence (p-values =0.0291) and bladder cancer-specific mortality (p-values =0.0008). 9.9% of the tumors exhibited normal expression of all markers; 24.3% showed alteration of one marker; 32.4% showed alteration of two markers; 24.3% had alterations of three markers; and 9.0% had alterations of all four markers. The risk of disease recurrence as well as disease-specific mortality gradually increased with increasing number of altered apoptosis biomarkers (p-values<0.0001). Multivariable analysis that adjusted for the effects of standard pathologic features revealed that higher T stage, presence of lymph node metastasis, and alteration of three or four markers were associated with higher rate of disease recurrence and worse disease-specific survival.

Conclusions: Bcl-2, caspase-3, p53, and survivin have a cooperative effect in bladder urothelial carcinoma pathogenesis and clinical behavior. Evaluation of combined apoptosis marker status and number of altered apoptosis markers in patients after radical cystectomy provides additional prognostic information and may help identify patients requiring adjuvant treatment.

Funding source: Departmental

Poster #37

DIFFERENCES IN SURVIVAL BETWEEN PATIENTS WITH SARCOMATOID CARCINOMA, CARCINOSARCOMA AND TRANSITIONAL CELL CARCINOMA OF THE BLADDER.

Peter C. Black1, Jonathan L. Wright2, Gordon A. Brown1, Jose A. Gomez1, Michael P. Porter2, Ashish M. Kamat1, Colin P. Dinney1, Daniel W. Lin2

1UT MD Anderson Cancer Center, Houston, TX and 2University of Washington, Seattle, WA

Purpose: Sarcomatoid carcinoma (SaC) and carcinosarcoma (CS) of the bladder are rare tumors that contain both epithelial and mesenchymal elements and may portend a worse prognosis than conventional transitional cell carcinoma (TCC). We investigated the survival of patients with both tumor subtypes compared to TCC.

Materials and Methods: Cases of SaC, CS and high grade TCC of the bladder were identified from the Surveillance, Epidemiology and End Results (SEER) Program. Demographic and pathologic characteristics were compared. Differences in survival based on histologic subtype were estimated using Kaplan Meier analysis and multivariate Cox proportional hazards regression.

Results: The overall unadjusted survival for 61,488 patients with TCC, 135 with SaC, and 166 with CS were 77%, 54% and 48% at one year, and 47%, 37% and 17% at five years, respectively. Both SaC and CS presented at a similar age but at a higher T stage and with more frequent regional and distant metastases compared to TCC. In the multivariate analysis, patients with SaC (HR=1.18, 95%CI 0.92-1.53) and CS (HR=1.93, 95%CI 1.60-2.34) were at higher risk of death compared to TCC. Overall mortality was worse with CS compared to SaC (HR = 1.63, 95% CI 1.19 – 2.25).

Continues on next page
Conclusion: Compared to patients with TCC, those with SaC and CS present at a more advanced stage and have greater risk of death even after adjusting for stage at presentation. The survival from SaC is better than from CS, offering some justification for the continued differentiation of these tumor types for clinical prognostication.

Poster #38

IMPACT OF PREOPERATIVE ENDORECTAL MAGNETIC RESONANCE IMAGING (MRI) STAGING RESULTS ON NEUROVASCULAR BUNDLE SPARING AGGRESSIVENESS AND PROSTATECTOMY POSITIVE SURGICAL MARGIN RATES
James A. Brown*, David M. Rodin, Mukesh Harisinghani, and Douglas M. Dahl, Medical College of Georgia, Augusta, GA* and Massachusetts General Hospital, Boston, MA

Introduction: Inability to accurately determine extracapsular extension (ECE) and neurovascular bundle (NVB) tumor involvement prior to or during prostatectomy remains problematic. Laparoscopic prostatectomy has the additional challenge of lack of tactile tumor assessment. The aim of this study was to retrospectively evaluate patients undergoing preoperative endorectal magnetic resonance imaging (eMRI) staging in order to determine the impact of this information upon NVB preservation aggressiveness and the subsequent radical prostatectomy surgical margin rate.

Methods: Sixty-two patients who underwent radical prostatectomy (46 laparoscopic and 16 open retropubic) from March 2002 to February 2005 and had preoperative eMRI staging were evaluated to determine the impact of apparent ECE upon NVB sparing aggressiveness and subsequently the prostatectomy margin positivity rate.

Results: Thirty-four (72%) of 47 tumors were accurately classified as pathologic stage T2 by eMRI. Eight (53%) of 15 tumors were accurately classified as pathologic stage T3 (ECE) by eMRI. Eighty-three percent of eMRI stage T2 tumors underwent bilateral NVB sparing, whereas only 55% of laparoscopic and 75% of open RRP tumors classified by eMRI as stage T3 underwent bilateral NVB sparing. The overall surgical positive margin rate in this series was 30% for laparoscopic and 25% for open RRP prostatectomy specimens. Pathologic stage T3 (ECE) tumors that were erroneously classified as T2 had a greater margin positivity rate than those classified as stage T3 (63% versus 14% for laparoscopic RP, 40% versus 0% for open RRP). Eighty percent (4 of 5) of clinical T1c, Gleason score 6, pathologic T3 (ECE) tumors classified erroneously as stage T2 by eMRI had positive margins.

Conclusions: Endorectal MRI is of limited usefulness in detecting ECE and in accurately predicting pathologic stage. Patients with eMRIs suggestive of ECE were treated with more conservative NVB sparing in this series, and the prostatectomy specimens had a lower incidence of surgical margin positivity.

Poster #39

TREATMENT PARADIGM SHIFT IMPROVES SURVIVAL OF PATIENTS WITH HIGH-RISK SUPERFICIAL BLADDER CANCER
Ganesh V. Raj*, Harry Herr, Angel M. Serio, Sherri M Donat, Bernard H. Bochner, Andrew J. Vickers, and Guido Dalbagni. from *UT Southwestern Medical Center, Dallas, TX and Memorial Sloan-Kettering Cancer Center, New York, NY

Purpose: Historically, patients with recurrent T1 bladder tumors after intravesical BCG have been managed with bladder-sparing approaches. Recently, a paradigm shift has occurred with these patients increasingly being offered a radical cystectomy prior to progression to muscle-invasion. In this study, we explore the effect of this paradigm shift on progression rates and disease-specific survival.

Materials and Methods: The historical cohort consisted of 307 patients from 3 prospective intravesical BCG protocols in the 1980s, for whom radical cystectomy was delayed until progression to muscle-invasive disease. An IRB-approved review identified 589 BCG-treated patients in a contemporary cohort from 1992-2004, for whom radical cystectomy was typically offered upon recurrence of T1 bladder tumors after BCG.

Results: In the historical cohort, the 85 patients with documented T1 recurrence after intravesical BCG were initially managed by repeated TUR and additional courses of intravesical BCG. None of these patients underwent immediate radical cystectomy. Subsequently, 60 of these 85 patients progressed to muscle-invasive disease. At 5 years after T1 recurrence, the cumulative incidence probability of progression to T2 continues on next page
disease was 71% (95% C.I. 61%, 81%). Importantly, the cumulative incidence of death from disease was 48% (95% C.I. 39%, 60%).

In the contemporary cohort, 129 had documented T1 recurrence after intravesical BCG. In this cohort, 65 of the 129 patients with recurrent T1 underwent an immediate radical cystectomy. Of the 64 patients who did not undergo immediate radical cystectomy, 33 progressed to muscle-invasive disease, with 13 subsequent deaths from disease. At 5 years after T1 recurrence, the cumulative incidence probability of progression to muscle-invasive disease was 28% (95% C.I. 20%, 38%) and the cumulative incidence of death from disease was 31% (95% C.I. 22%, 42%).

**Conclusions:** By documenting and comparing outcomes in an historical cohort to those in the contemporary cohort, our data represents the best available evidence to suggest that radical cystectomy performed for recurrent T1 disease may be associated with better disease-specific survival than if radical cystectomy were delayed until documented progression to muscle-invasion. Patients with recurrent T1 tumors following intravesical BCG therapy should be counseled to undergo pre-emptive radical cystectomy.

**Poster #40**

**ANALYSIS OF ERECTILE FUNCTION FOLLOWING PRIMARY TARGETED CRYOABLATION OF THE PROSTATE FOR CLINICALLY LOCALIZED PROSTATE CANCER IN A CONTEMPORARY SERIES**

Christopher J. DiBlasio*, Dan Linn1, Sam Kuykendall1, Kimberly D. Lamar2, Ithaar H. Derweesh1, and Robert W. Wake1 From the Departments of Urology1 and Preventive Medicine2, University of Tennessee Health Sciences Center, Memphis, TN

**Introduction and Objectives:** Targeted cryoablation of the prostate (TCAP) is an accepted primary/salvage therapy for prostate cancer (CaP). Erectile dysfunction (ED) is common following all potentially curative CaP therapy, but particularly pronounced following TCAP. This study aims to evaluate erectile function (EF) following primary TCAP in a contemporary cohort.

**Methods:** We retrospectively reviewed all patients treated at our institution between 2/2000 and 5/2006 with primary TCAP. Variables included age, Gleason sum, pre-TCAP prostate specific antigen (PSA), prostate volume, clinical stage, use of pre-TCAP hormonal ablation and pre-TCAP ED. Patients were followed with serial exam/PSA q3 months for 2 years, q6 months for the next 2, and annually thereafter. EF was evaluated using a 5-point scale as follows: 1=fully potent (no change from pre-TCAP), 2=erections sufficient for successful intercourse, 3=partial erections insufficient for intercourse, 4=minimal erections insufficient for intercourse and 5=no erections. Patients were evaluated for post-TCAP ED therapy including phosphodiesterase type-5 inhibitors (PDE5i), prostaglandin E1 (PGE1), vacuum erection device (VED), and inflatable penile prosthesis (IPP). Statistical analysis utilized SAS software with p<.05 considered significant.

**Results Obtained:** 160 consecutive patients were retrospectively studied. After exclusions, 78 patients were analyzed with a median age of 69.2 years (range 55.3-80.9), pre-TCAP PSA of 9.4 ng/dL (range 0.8-84.0), Gleason sum of 6.5 (range 3–9), and prostate volume of 29.7 cm³ (range 10-50). 10 (13.2%) patients regained EF at median follow-up of 24.9 months (range 0.03–77.04); 9 (11.8%) achieving level 2 EF with PDE5i only (n=3), VED only (n=2), or PDE5i/VED (n=4) and 1 achieving level 3 EF with PDE5i/VED. 2 (2.6%) patients with no pre-TCAP EF underwent IPP. No significant predictors of post-TCAP EF were identified on univariate/multivariate analysis. Post-TCAP EF was not associated with increased disease recurrence (p=0.247).

**Conclusions:** ED is a common complication following all potentially curative treatments for CaP. While ED is common following TCAP, 11.8% of patients in our series demonstrated erections suitable for successful penetration and intercourse. While long-term data is requisite, aggressive penile rehabilitation should be initiated to maximize sexual outcomes following primary TCAP.
**Poster #41**

**COMPARISON OF POST-OPERATIVE PAIN MEDICATION USE AMONG PATIENTS AFTER RADICAL RETROPUBIC AND PERINEAL PROSTATECTOMY**

Gregory Horwitz, Tomas Griebling, Peter Carter, J Brantley Thrasher  
The Department of Urology, Kansas University Medical Center, Kansas City, KS

**Purpose:** Radical prostatectomy is a standard form of therapy for management of clinically localized prostate cancer. Radical retropubic prostatectomy (RRP) is currently the gold standard in regards to surgical technique. Minimally invasive procedures, however, have advertised decreased post-operative pain and quicker discharge and return to work compared to their open counterparts. Perineal prostatectomy (RPP) is a proven open technique that may offer the advantages of minimally invasive procedures without the need for special equipment. The purpose of this study was to quantify the differences between RRP and RRP with respect to post-operative pain management and time to discharge.

**Methods:** The hospital records of men undergoing radical prostatectomy by a single surgeon for treatment of localized prostate cancer were retrospectively reviewed. The data collected included the type and quantity of pain medication used by each post-operative patient while hospitalized. The time to discharge was also collected. Using standard conversions from the Pain Management Department at Kansas University, the “as needed” or “prn” pain medications were converted to morphine equivalents (ME’s) for comparison.

**Results:** The medical records of 226 (74 RPP and 152 RRP) prostatectomy patients were retrospectively reviewed and included in the study. According to the post-operative standard orders, toradol was given in a scheduled fashion. The “prn” morphine equivalent was significantly less in the RPP compared to the RRP group on POD#0 with 3.80mg and 5.73mg (p=0.016). On POD#1 and POD#2 the RPP group used less pain medication than the RRP group however it did not reach significance (POD#1 6.02 mg and 7.14 mg, p=0.34; POD2 3.01 mg and 4.19 mg, p=0.19). The total ME’s for the 3 study days approached significance for the RPP group using less pain medication than the RRP group (12.83 mg and 17.06 mg, p=0.07). The discharge data also showed significant differences. Patients receiving RPP versus RRP prostatectomy were discharged more quickly (on POD 2.35 compared to POD 2.80 respectively p=0.004). It was more likely for patients in the RPP Group to be discharged on POD#1 than in the RRP group (8 patients (11%) and 1 patient (0.6%)).

**Conclusions:** RPP has been shown to be a safe and effective option for radical prostate removal. This data suggests that post-operative pain is significantly less and discharge is significantly earlier for those undergoing RPP versus RRP. RPP is a useful and advantageous surgical technique that when used in an appropriately selected patient may offer a multitude of advantages including less pain and earlier discharge.

**Poster #42**

**RISK OF SURGICAL UNDERTREATMENT WITH PROSTATE SPARING CYSTECTOMY**

Joseph A. Pettus, M.D.,¹ Hikmat Al-Ahmadie, M.D.,² Daniel A. Barocas, M.D.,¹ Theresa M. Koppie, M.D.,¹ Harry Herr, M.D.,¹ S. Machelle Donat, M.D.,¹ Guido Dalbagni, M.D.,¹ Victor E. Reuter, M.D.,² Semra Olgac, M.D.,² Bernard H. Bochner, M.D.¹  
¹Department of Urology, Memorial Sloan-Kettering Cancer Center, New York, NY  
²Department of Pathology, Memorial Sloan-Kettering Cancer Center, New York, NY

**Purpose:** To determine the incidence and location of prostate adenocarcinoma (CaP) and urothelial carcinoma in the prostate (PUC) for patients undergoing radical cystoprostatectomy (RCP) for bladder cancer and to ascertain what preoperative information is useful in predicting PUC or CaP in patients.

**Methods and Materials:** Between 2001 and 2004, 235 consecutive patients underwent RCP and had whole-mount sections of the prostate. We reviewed our prospective radical cystectomy database for preoperative clinicopathologic information associated with each patient. The bladder and whole-mount prostate sections were re-reviewed to determine the location and depth of the bladder tumor as well as the presence of any associated CaP and PUC.

**Results:** We identified 113/235 (48%) and 77/235 (33%) men with CaP and PUC, respectively. Among patients with CaP, 40 (30%) had Gleason score of 7 and 15 (13%) had extracapsular extension. On multivariable analysis, only increasing age was significantly associated with CaP (OR 1.3, p=0.046). Of the 77 with PUC, 28 (36%) had in situ disease only while 49 (64%) had prostatic stromal invasion. Bladder tumor location in the trigone/bladder neck (p<0.001) and bladder CIS (p<0.001) were strongly associated with PUC in the final specimen. Overall, 158 (67%) had either CaP or PUC in the prostate.
Conclusions: CaP and PUC are common in RCP specimens. The presence of CIS in the bladder and/or trigone involvement with urothelial carcinoma should be considered strong risk factors for PUC, but the absence of these characteristics alone is insufficient to rule out PUC.

Poster #43

OUTCOMES OF RADICAL RETROPUBIC, LAPAROSCOPIC, AND ROBOTIC-ASSISTED PROSTATECTOMY: A QUANTITATIVE, EVIDENCE-BASED ANALYSIS

J. Kellogg Parsons, M.D., M.H.S. and Lisette Bennett, M.D.
Moores Cancer Center, University of California San Diego, La Jolla, CA

Purpose: To compare outcomes of radical retropubic, laparoscopic, and robotic-assisted prostatectomy utilizing evidence-based analysis.

Methods: Meta-analysis was performed of observational studies directly comparing radical retropubic, laparoscopic, and robotic prostatectomy for the treatment of localized prostate cancer. Primary outcomes were operative blood loss, peri-operative transfusion, surgical margin status, post-operative urinary incontinence, and post-operative erectile dysfunction. Standardized mean differences (SMD) and risk ratios (RR) were estimated using DerSimonian and Laird random effects models.

Results: Nineteen studies (n=2,796 patients) met inclusion criteria for this analysis. Based on established similarities in surgical principles, laparoscopic and robotic-assisted data were combined into a single group. Compared to those undergoing retropubic prostatectomy, patients undergoing laparoscopic or robotic-assisted prostatectomy experienced less operative blood loss (SMD -1.74, 95% CI -1.74 to -1.49, p < 0.001) and were 65% less likely to receive a transfusion (RR 0.35, 95% CI 0.15 to 0.82, p < 0.001). There was no significant difference in overall risk of positive surgical margin (RR 1.09, 95% CI 0.95 to 1.25, p=0.55). Sensitivity and sub-group analyses based on likely sources of heterogeneity confirmed the effect estimates. Lack of comparative data and inconsistently-defined outcomes measures precluded quantitative assessments of urinary incontinence and erectile dysfunction.

Conclusions: Compared to retropubic prostatectomy, laparoscopic and robotic-assisted prostatectomy are associated with decreased operative blood loss, decreased risk of transfusion, and similar risk of positive surgical margin. Further studies, using consistently-defined outcomes measures, are needed for assessment of post-operative urinary incontinence and erectile function.

Poster #44

STUDY RESULTS OF ACTIVE CELLULAR IMMUNOTHERAPY WITH SIPU LEUCEL-T IN ANDROGEN INDEPENDENT PROSTATE CANCER SUGGEST SIGNIFICANT SURVIVAL BENEFIT WITH MINIMAL TOXICITY

Penson, J. Holzbeierlein, P.A. Schellhammer, M.W. Frohlich. Univ. of Southern Calif., Los Angeles, CA; Univ. of Kansas, Kansas City, KS; Urology of Virginia, Norfolk, VA; Dendreon Corporation, Seattle, WA

Background: Sipuleucel-T (Dendreon Corp.) is an investigational active cellular immunotherapy product designed to stimulate an immune response against prostate cancer. Since the publication of the results from the randomized, double blind, placebo-controlled Phase 3 clinical trial, D9901 (JCO 2006, 24(19)), several additional analyses have been performed to test the robustness of the survival results. In addition, results from an identically designed randomized, double blind, placebo-controlled Phase 3 trial, D9902A, and the integrated analysis of Studies D9901 and D9902A are now available.

Methods: Patients with asymptomatic, metastatic androgen independent prostate cancer (AIPC) were randomized (2:1) to sipuleucel-T or placebo, administered in Weeks 0, 2, and 4. The primary endpoint was time to disease progression and all patients were followed for overall survival for 3 years after randomization.

Results: In Study D9901 there was a 41% reduction in the risk of death (HR=1.71; P=0.010; Table 1) and a 31% reduction in the risk of disease progression for the patients randomized to sipuleucel-T (HR=1.45; P=0.052). The survival effect remained when non-prostate cancer deaths were censored (HR=1.82; P=0.006), as well as after adjusting for prognostic factors in a Cox multiple regression model (HR=2.16, P=0.002). There was no evidence to suggest a difference in the frequency or timing of docetaxel use following study treatment between the treatment arms. Study D9902A was stopped prematurely after 98 patients but demonstrated a similar trend in survival benefit for sipuleucel-T treated patients (Table 1). The integrated analysis of the data from D9901 and D9902A showed a 4.3 month median survival benefit for sipuleucel-T (HR=1.50; P=0.011). Patients

Continues on next page
who received above the median cell dose had an improved survival compared to those below the median. The most common adverse reactions occurring in ≤5% of patients and at a significantly higher rate in those treated with sipuleucel-T compared with placebo were chills, pyrexia, headache, asthenia, dyspnea, vomiting, and tremor. The most common adverse reactions were primarily Grade 1 and 2, with a median duration of 1 to 2 days.

**Conclusions:** Data from D9901 coupled with the supportive evidence from D9902A and the integrated analyses suggest a favorable benefit to risk ratio for patients with asymptomatic, metastatic AIPC who receive sipuleucel-T.

---

**Poster #45**

**LOWER PLASMA ADIPONECTIN LEVELS AS A POTENTIAL BIOMARKER FOR RENAL CELL CARCINOMA**

Michael Chang, Tamika Hamlet, Jiang-Ping Lu, Britt Tisdale, Aubrey Gills, Anil Kapoor and Jehonathan H Pinthus

From the Department of Surgery/Urology, McMaster University Hamilton, Ontario Canada

**Introduction:** An increased incidence of renal cell carcinoma (RCC) in overweight and obese male and female patients has been reported by several studies. Adiponectin is a cytokine secreted by adipocytes and accounts for approximately 0.01% of total plasma protein. Unlike other adipocyte products, adiponectin correlates with reduced body mass index or body weight. The objectives of this study were to measure the blood levels of adiponectin in patients with RCC as well as the adiponectin receptor R2 (AdipoR2) levels in the tumors and to correlate it to the disease characteristics. To the best of our knowledge, it has not been investigated yet.

**Methods:** Blood samples, collected pre-operatively from 34 patients, were analyzed in triplicates for the levels of plasma adiponectin using specific ELISA assay. All patients had conventional (clear cell) RCC but represented different stages of the disease including 3 cases of metastatic RCC. Patients were not diabetic and all had normal renal functions. Body weight (kg) and height were measured at diagnosis. The RCC and corresponding normal renal tissue were analyzed comparatively for adiponectin receptor-2 (AdipoR2) expression (immunoblotting) in 10 patients.

**Results:** In the healthy population adiponectin can be found in the plasma at concentrations of 7-12 mg/l. However, in our RCC cohort 22 patients (65%) had levels<7mg/l, including all 3 patients with metastatic RCC. Moreover, 16 patients (47%) had plasma adiponectin levels<5mg/ml. The average, median and range of plasma adiponectin levels were 5.9, 5.35 and 1.2-12.3 respectively. A strong inverse correlation was found between the plasma levels of adiponectin and the tumor size with significantly lower levels of adiponectin in tumors ≤ 4cm (p<0.05) with no statistical difference in the BMI of patients with tumors’ size smaller or larger than 4cm. Moreover, the expression of AdipoR2 was found to be lower in the cancerous tissue compared to the same patient’s normal kidney tissues in 80% of the cases. The mean and median relative expression of AdipoR2 in the cancer tissue vs. the normal parenchyma was 67.5% and 59% respectively. Moreover, lower expression levels of AdipoR2 were significantly associated with tumor grade, size and metastasis. Most of the patients in the cohort had abnormal BMI: 38% had BMI between 25-30 and 38% had BMI>30. We could not demonstrate an inverse correlation between BMI and adiponectin levels in our cohort.

**Conclusions:** Based on this pilot study, lower blood levels of adiponectin and lower expression of the adiponectin receptor R2 are positively associated with renal cancer pathogenesis and aggressiveness. This observation may explain the link between obesity and RCC and may shed some new light on the pathogenesis of RCC. Studies on larger cohort of patients are ongoing.
Poster #46

DOES CAVERNSAL NERVE SPARING AFFECT URINARY CONTINENCE IN LAPAROSCOPIC AND ROBOTIC ASSISTED LAPAROSCOPIC RADICAL PROSTATECTOMY?

Rosalia Viterbo, Rebecca A. Nelson, Mark H. Kawachi, Jeffrey S Yoshida, Laura E. Crocitto, Timothy G. Wilson MD and Kevin Chan, City of Hope National Medical Center, Duarte, CA

Introduction and Objectives: The role of cavernosal nerve sparing in preserving erectile function during radical prostatectomy has been well established for over 20 years. A recent series reported that cavernosal nerve sparing was found to significantly affect the preservation of urinary continence in open radical prostatectomy. Our study is the first to evaluate the benefit of cavernosal nerve sparing on urinary continence in laparoscopic and robotic-assisted laparoscopic radical prostatectomy. We evaluated one year continence rates in patients who underwent bilateral nerve sparing, unilateral nerve sparing, or non-nerve sparing laparoscopic and robot-assisted laparoscopic radical prostatectomies at our institution.

Materials and Methods: A retrospective chart review was conducted on 689 patients who underwent laparoscopic or robot-assisted laparoscopic radical prostatectomy performed by 3 surgeons: 505 bilateral nerve sparing, 50 unilateral nerve sparing, and 134 non-nerve sparing. Nerve sparing procedures were performed as clinically indicated. Urinary continence was defined as the use of 0-1 pad/day with the 1 pad used for security reasons only as reported by the physician.

Results: Median follow-up was 357 days (range=9 to 1536 days). Patients differed significantly across bilateral nerve sparing, unilateral nerve sparing and non nerve sparing groups with regard to operating surgeon (p=0.02), mean age at surgery (61.8, 64.9 and 69.0 respectively, p<0.0001), mean surgical length (3.7, 4.1 and 4.3 hours, respectively, p<0.0001), surgical gleason score (6.5, 7.2 and 7.3, respectively, p<0.0001) pathologic t-stage (p<0.0001) and mean length of hospital stay (2.4, 2.3 and 3.2 days, respectively, p=0.002). There were no statistical differences in these groups regarding estimated blood loss, positive surgical margins, and early or late complication rates. Continence at one year was 89% for those who had bilateral nerve sparing, 80% for unilateral nerve sparing, and 79% for non-nerve sparing procedures (p<0.0001). After adjusting for performing surgeon, age at surgery, surgical length, surgical gleason score, pathologic t-stage and length of hospital stay, statistically significant differences for continence rates across nerve sparing groups were still observed (adjusted p-value=0.003).

Conclusion: Bilateral cavernosal nerve sparing in laparoscopic and robotic assisted laparoscopic radical prostatectomy improves continence outcomes when compared to unilateral or non-nerve sparing procedures.

Poster #47

THE IMPACT OF COMORBIDITY ON OVERALL SURVIVAL IN PATIENTS WITH RENAL CELL CARCINOMA

David A. Berger, Anna Vlahiotis, Mohamed Radwan, Ifeanyi Megwalu, Maria Serrano, Peter Humphrey, Jay Piccirillo, Adam S. Kibel
Washington University School of Medicine, St. Louis, MO

Introduction and Objectives: While the classification of cancer has traditionally focused on gross and microscopic characteristics of the tumor, the overall health of a patient can also affect survival. Since patients with renal cell carcinoma (RCC) often have other medical conditions, we explored the impact of concurrent medical disease on survival following radical and partial nephrectomy.

Methods: Between 1/95 and 9/03, 729 patients without metastasis who underwent radical or partial nephrectomy for the treatment of RCC were identified from Barnes Jewish Hospital Oncology Data Services tumor registry. Patients were prospectively coded for comorbidity using the Adult Comorbidity Evaluation-27 by trained cancer registrars. Histopathologic rereview of all slides was performed, with histologic typing according to the 2004 WHO scheme. Other measures of interest included: gender, race, age, histologic subtype, tumor stage, Fuhrman grade, and tumor size. The outcome of interest is all-cause survival. Cox Proportional Hazards Regression was used for univariate and multivariate analysis.

Results Obtained: The mean overall survival (OS) duration was 38.7 months (median 31.2 months) and the OS rate at 1, 3 and 5 years was 92.1% (671 patients), 72.3% (527 patients) and 51.6% (376 patients). In univariate analysis, patient age, tumor size, Fuhrman grade, tumor stage and comorbidity were significant predictors of OS. Multivariate analysis (see table below) revealed that AJCC advanced stage (HR 11.7, 95% CI 5.4 to 25.4) and severe comorbidity (HR 2.6, 95% CI 1.6-4.4) were the strongest predictors of OS. Survival was not affected by gender, race or histologic cell type.

Continues on next page
Conclusions: This research demonstrates that comorbidity is an independent prognostic factor and is significantly associated with worse OS for patients with RCC. This emphasizes that accessing overall health is vital before making treatment decisions.

**Poster #48**

**LAPAROSCOPIC VERSUS PERCUTANEOUS RENAL CRYOABLATION: SINGLE CENTER EXPERIENCE**

Ithaar H. Derweesh, John B. Malcolm, Christopher DiBlasio, Andrew Giem, Robert W. Wake, Anthony L. Patterson, and Robert Gold

University of Tennessee Health Science Center, Memphis, Tennessee

**Introduction and Objectives:** Laparoscopic renal cryoablation is a feasible therapeutic option for select renal tumors. We sought to compare perioperative and short-term outcomes of laparoscopic versus percutaneous renal cryoablation.

**Method:** We performed a retrospective review of our laparoscopic renal cryoablation (LAP) and percutaneous renal cryoablation (PERC) data. 13 patients (8 Male, 5 Female) underwent LAP and 21 patients (16 Male, 5 Female) underwent PERC between September 1998 and October 2005. LAP was performed by a 4-port transperitoneal laparoscopic approach. PERC was performed with CT guidance using conscious sedation. Cryolesion was monitored with real-time ultrasound and CT imaging during LAP and PERC procedures, respectively. Follow-up imaging was obtained at regular intervals. Statistical analysis was performed with Student’s t-test.

**Result:** Data are presented for the LAP and PERC groups, respectively. Average age (years) was 64.3±9.9 and 71.4±12.7 (p=0.1). Number of Patients with ASA Class IV was 7 (53.8%) and 14 (66.7%) (p=0.47). Average BMI was 31.3±8.6 and 29.1±5.4 (p=0.359). Mean tumor size (cm) was 2.9±0.9 and 3.4±1.5 (p=0.3). Mean procedure time (minutes) was 169.4±25.4 and 112.4±47.4 (p=0.001). Mean hospital stay (hours) was 60.5±13.3 and 45.4±17.5 (p=0.026). Percentage requiring postoperative narcotics was 84.6% and 19% (p<0.001). Percentage requiring blood transfusion was 7.7% and 4.8% (p=0.734). Postoperative atelectasis was noted in 61.5% and 23.8% (p=0.028). Residual enhancement at 12 months was detected in 7.7% and 4.8% (p=0.734). Complications in the LAP group were: 1 hematuria and 1 bronchospasm, which the PERC group had 1 hematuria, 1 hypotension, and 1 peri-renal hematoma.

**Conclusion:** PERC appears to be a safe and feasible treatment option for selected renal tumors. It has a similar short-term outcome and complication profile to LAP. Furthermore, with conscious sedation, it appears to offer an advantage with respect to hospital stay, narcotic requirement and pulmonary complications. Longer-term data are required to establish the efficacy of this approach.

**Source of funding:** None
ADVANCED AGE AT DIAGNOSIS IS ASSOCIATED WITH UNDERESTIMATION OF GLEASON SCORES AT BIOPSY IN MEN UNDERGOING RADICAL PROSTATECTOMY
Brandon K. Isariyawongse, BA, Leon Sun, MD, PhD, MPH, Lionel L. Bañez, MD, John Madden, MD, Vladimir Mouraviev, MD, PhD, and Judd W. Moul, MD, FACS
Division of Urology and the Duke Prostate Center, Duke University Medical Center, Durham, NC 27707

Introduction and Objectives: Histologic grading of adenocarcinoma of the prostate dictates treatment modalities based on the Gleason score. Advanced age is correlated with larger prostate size, which may lead to underestimation of pre-operative biopsy Gleason scores. Our objectives were to: 1) analyze the role of prognostic variables on Gleason score discrepancies, 2) determine the overall extent to which biopsy Gleason scores differ from radical prostatectomy pathologic Gleason scores, and 3) analyze the detailed overall under- and over-estimation of biopsies with respect to each biopsy grade.

Methods: Discrepancies between diagnostic and pathological Gleason patterns in 2963 patients who underwent radical prostatectomy between 1988 and 2006 from the Duke Prostate Center Database were examined. The association between diagnostic Gleason grade patterns and clinico-pathological variables (age, race, body mass index, prostate weight, prostate specific antigen level) was analyzed using Kruskal-Wallis test and logistic regression.

Results Obtained: Approximately 50% of biopsy Gleason sums differed from those of pathologic analysis. Gleason scores were underestimated by 1 grade in 27.1% of cases, while 9.8% of Gleason scores were underestimated by 2 grades. Gleason scores were overestimated by 1 grade in 10.6% of cases and overestimated by 2 grades in 2.4% of cases. Grouping the data by biopsy Gleason sum demonstrates a high matching rate (64.3%) for Gleason=7. Approximately 50% of Gleason sums<7 were overestimated. Gleason sums>7 demonstrated rates of 46% and 20% of under-and overestimation, respectively. Men with advanced age at diagnosis were more likely to have pathologic Gleason sums underestimated by biopsy (odds ratio=1.05, p<0.01), and Gleason sums of men with smaller prostates were less likely to be underestimated (odds ratio=0.82, p=0.07).

Conclusions: Advanced diagnostic age was associated with underestimation of biopsy Gleason scores in men with prostate cancer. Prostate weight showed a marginal effect in the underestimation of Gleason sum. These findings suggest that men diagnosed with prostate cancer at an advanced age may benefit from an extended core biopsy strategy.

PROSTATE CANCER DISEASE-FREE SURVIVAL AFTER RADICAL RETROPUBIC PROSTATECTOMY IN PATIENTS OLDER THAN 70 YEARS COMPARED TO YOUNGER COHORTS
Marklyn J. Jones, MD^, Bahaa S. Malaeb MD^, Hani H. Rashid MD^, Yair Lotan MD†, Seyyed M. Khoddami MD†, Shahrokh F. Shariat MD†, Arthur I. Sagalowsky MD†, John D. McConnell MD†, Claus G. Roehrborn MD† and Kenneth S. Koeneman MD^ From the Departments of Urology, †University of Texas Southwestern Medical Center, Dallas, TX and ^University of Minnesota, Minneapolis, MN

Introduction and Objective: To evaluate the feasibility of radical retropubic prostatectomy (RRP) as an option for treating men older than 70 years with organ confined prostate cancer and to compare biochemical progression-free survival with younger cohorts.

Materials and Methods: 689 consecutive patients who were treated with RRP for clinically localized prostate cancer were categorized into three different age groups: less than 50 years (n=49), 50 to 70 years (n=601) and more than 70 years (n=39). Pre- and post-operative cancer-specific characteristics were compared between these three groups.

Results: There was no statistical significant difference between the three age strata in terms of clinical parameters (PSA, Gleason score, clinical stage, percent and number of positive biopsy cores) and pathologic findings (surgical margin, lymph node status, extra-capsular extension, lymph-vascular invasion, and pathologic Gleason score). The rate of seminal vesicle invasion and prostate volume increased with advancing age (p=0.034 and p<0.001). In multivariate logistic regression analysis, age was not associated with seminal vesicle invasion. The 5 year PSA progression-free estimates for patients <50, 50-70, and >70 years were 82% (95% CI: 69%-96%), 82% (95% CI: 78%-86%), and 65% (95% CI: 43-
86), respectively (p=0.349). The overall and cause specific mortalities were not different. 

**Conclusion:** RRP could be considered a standard treatment option in men older than 70 with localized prostate cancer. Further studies are necessary to assess the survival benefit and health-related quality of life after RP versus watchful waiting in patients older than 70.

**Source of funding:** None

---

**Poster #51**

**ABERRANT EXPRESSION OF SWI/SNF CATALYTIC SUBUNITS BRG1/BRM IS ASSOCIATED WITH TUMOR DEVELOPMENT AND INCREASED INVASIVENESS IN PROSTATE CANCERS**

Aijing Sun, Ossama Tawfik, Bishoy Gayed, J. Brantley Thrasher, Sara Hoestje, Chaoyang Li, Benyi Li

University of Kansas Medical Center Kansas City, KS

**Introduction:** BRM and BRG1 are major components with ATPase enzymatic activities in the nucleosome remodeling SWI/SWF complex, and their expression pattern in human prostate cancers is unknown.

**Method:** We analyzed a published cDNA microarray data set of prostate cancers for the expression of SWI/SNF genes, and then we evaluated the expression levels of BRG1 and BRM proteins with a semi-quantitative immunohistochemistry approach in a pairwise manner of malignant versus benign tissues from individual prostate cancers. The correlation of BRG1/BRM expression with clinical parameters was analyzed.

**Results:** Microarray data showed an aberrant expression of BRG1 and BRM but not SNF5/INI1 genes in different stages of the disease course. In immunohistochemistry studies, BRG1 expression was significantly higher in malignant tissues compared to their benign counterparts, and this difference was more profound in high grade cancers. Although BRM expression showed a heterogeneous pattern, the average level of BRM expression was lower in malignant tissues than that in benign tissues. More interestingly, BRG1 and BRM expression showed a reciprocal pattern in both benign and malignant tissues of individual cases. In malignant tissues, higher BRG1 but not BRM expression levels were associated with larger volume of tumor mass. Increased expression of BRG1 but not BRM protein was observed in invasive cancer cells. Consistently, overexpression of exogenous wild-type BRG1 and BRM but not mutant BRG1 enhanced cancer cell invasion in an in vitro cell invasion assay.

**Conclusion:** We provide the first evidence that aberrant expression of BRG1 and BRM genes is associated with disease development and progression in prostate cancers and increased BRG1 expression may promote tumor growth and invasion.

This study was supported by KU William L. Valk Endowment, Kansas Masonic Foundation and KUMC Lied Foundation. This work was also partially supported by a grant of 1P20RR015563 from the National Center for Research Resources (NCRR), a component of the National Institutes of Health (NIH) to Dr. Benyi Li.

---

**Poster #52**

**ETHNIC DISPARITIES REMAIN IN PROSTATE CANCER – AN EPIDEMIOLOGIC ANALYSIS**

Edward N. Rampersaud MD, Leon Sun MD, PhD, Judd Moul MD

Duke University Medical Center, Durham, NC

**Introduction and Objectives:** Controversy remains regarding variance in oncologic characteristics and outcomes across races. To examine whether time has served to disperse any difference, we studied a cohort of African-American (AA) and non-African-American (non-AA) men diagnosed with prostate cancer at our tertiary-care referral institution during the serum prostate specific antigen (PSA) era.

**Materials and Methods:** The study population consisted of 2074 AA and 8456 non-AA men diagnosed with prostate cancer from 1988 to 2006 at Duke University Medical Center. The time period was divided into three year groups: 1988-1994, 1995-1999, and 2000-2006. We examined various pathologic and outcome characteristics between and among groups throughout the time periods. Results: AA men had significantly higher median PSA at diagnosis in each of (p<0.0001) and across the three time periods (p<0.0001). Age of diagnosis evolved significance (68.4
vs 67.8, p=0.096, early PSA era) as opposed to (64.8 vs 66.4, p<0.0001, recent PSA era). AA men are at significantly higher risk of being diagnosed with high-risk Gleason on biopsy in each and across the three time periods (p=0.007). AA men were less likely to be treated with radical prostatectomy in each of (p<0.0001) and across (p<0.005) the three time periods. AA men were at a significantly greater risk of developing PSA recurrence in the early part of the PSA era (78.8% vs 56.6%, p<0.0001), but not in the most recent year group (19.6% vs 16.2%, p=0.202). AA men were also more likely to suffer disease-specific mortality in each of the first two year groups (25% vs 13.6%, p<0.0001 and 5.9% vs 1.7%, p=0.011). A stark difference was noted in the percentage of obese patients between the two groups (39.2% vs 26.8%, p<0.0001) in the most recent year group. Positive margin rate after radical prostatectomy (31.7% vs 26.1%, p=0.078), rate of PSA recurrence (19.6% vs 16.2%, p=0.202), and percentage with advanced pathologic stage (27.0% vs 27.5%, p=0.296) did not reveal divergence in the recent PSA era.

**Discussion:** A shortening of the once vast disparity between AA and non-AA men is obvious upon cursory examination of the data. Our analyses, however, demonstrate that while sweeping improvements have occurred in regards to diagnostic characteristics, and overall outcomes, statistically significant differences still exist between AA and non-AA males. AA men are becoming more likely to be diagnosed at an earlier age than non-AA men. Obesity did not appear to impart an effect on percentage with positive margins after radical prostatectomy or percentage with advanced pathologic stage in our most recent cohort. These data validate the need to maintain increased vigilance in screening and diagnosis of prostate cancer in the African-American population. This study was funded in part by a NIH ROI CA104976-01.

**Poster #53**

**PHASE II TRIAL OF COMBINATION LOW-DOSE FLUTAMIDE PLUS FINASTERIDE VERSUS LOW-DOSE FLUTAMIDE MONOTHERAPY FOR BIOCHEMICAL RECURRENCE FOLLOWING DEFINITIVE THERAPY FOR PROSTATE CANCER: LONG-TERM FOLLOW-UP**

Lionel L. Bañez, MD, Gary W. Blake, CCRC, David G. McLeod, MD, E. David Crawford, MD and Judd W. Moul, MD, FACS

Division of Urological Surgery and the Duke Prostate Center, Department of Surgery, Duke University Medical Center, Durham, NC; Center for Prostate Disease Research, Walter Reed Army Medical Center, Washington, DC; University of Colorado Cancer Center, University of Colorado Health Science Center, Denver, CO

**Introduction and Objectives:** Alternatives to traditional hormonal manipulation for the treatment of biochemical failure following primary therapy for prostate cancer are aimed at minimizing side effects while maintaining adequate cancer control. We compare the efficacy of peripheral androgen blockade using combination of low-dose flutamide plus finasteride against low-dose flutamide monotherapy for treatment of prostate specific antigen (PSA)-only recurrence following radical retropubic prostatectomy (RRP), external beam radiotherapy (EBRT) or cryoablation for prostate adenocarcinoma.

**Methods:** A total of 56 men were enrolled prospectively at the Walter Reed Army Medical Center from 1997 to 2001. Thirty-six men (18 RRP/ 18 EBRT) were given low-dose flutamide (125 mg twice daily) and finasteride (5 mg twice daily) after biochemical recurrence (PSA ≥0.4 ng/ml after definitive therapy). Twenty men (9 RRP/ 9 EBRT/ 1 cryoablation/ 1 RRP+EBRT) received low-dose flutamide (125 mg twice daily) after PSA recurrence. Serum PSA levels were monitored at regular intervals to assess response to the assigned drug regimen. Progression was defined as elevation of serum PSA on three consecutive determinations more than 4 weeks apart.

**Results Obtained:** Mean follow-up time for patients on combination therapy was 52.9 months (range: 9-84 months) and 40.3 months (range: 15-84 months) for those on monotherapy. Seven men (19%) in the combination arm completed the study without experiencing progression while 5 men (25%) on monotherapy remain on-study and progression-free. Men on combination therapy experienced a significantly greater drop in their PSA (p=0.002) and had a higher proportion of men (36% vs. 15%) exhibit a complete response (PSA dropped below 0.2 ng/ml for at least 2 consecutive assessments) to therapy. Fifteen patients (42%) in the combination arm and 12 patients (60%) receiving monotherapy had progression of disease; however, progression-free survival was not significantly different for the 2 groups (p=0.229). Toxicities were reported to be mild.

**Conclusions:** Moderate efficacy of combination low-dose flutamide plus finasteride and low-dose flutamide monotherapy in this phase II trial suggest therapeutic value of these two strategies as first-line agents in a step-up approach for treatment of PSA-only recurrent prostate cancer. A phase III trial investigating survival benefit of either treatment arm compared to traditional hormonal modalities is warranted and may clarify the modest advantage observed by the addition of finasteride to low-dose flutamide.
WHAT IS THE VALUE OF TRANSITION ZONE (TZ) BIOPSY IN PATIENTS UNDERGOING REPEAT PROSTATE BIOPSY?
Mazen Abdelhady, Ashraf Abusamra, Jonathan Izawa, Donal Downey, Joseph Chin; London Health Sciences Center, University of Western Ontario, London, ON, Canada

Introduction: The value of TZ biopsy (Bx) is under some debate. However, it is routinely obtained in patients (pts) undergoing repeat prostate Bx. We reviewed our experience with repeat Bx and assessed the role of TZ Bx.

Methods: A retrospective review of transrectal ultrasound (TRUS) and pathology reports of all pts who underwent repeat TRUS Bx in a 1 year period was done. Pt age, family history of prostate cancer, digital rectal examination (DRE), PSA, free/total PSA, prostate volume, findings on pathology report [Gleason sum, percentage of cancer in biopsy, extraprostatic extension (EPE), perineural invasion (PNI), and lymphovascular invasion (LVI)], and history of High Grade Prostatic Intraepithelial Neoplasia (HGPIN) and Atypical Small Acinar Proliferation (ASAP) were reviewed according to Bx results. Statistical analysis using ANOVA and Fisher’s exact test was done.

Results: Of 1005 TRUS Bx performed in 2004, 391 were repeat biopsies and of those 111 (28.4%) were diagnostic of prostate cancer. 90 pts (23%) had prostate cancer detected in PZ only on Bx, while 6 (1.5%) and 15 (3.8%) pts had prostate cancer detected in TZ only, and in both PZ & TZ, respectively. Clinicopathological characteristics of the prostate cancer pts and their statistical analyses are listed (Table).

Conclusions: Routinely including TZ in the repeat Bx detected only an additional 5% of cancers. However, the pts with prostate cancer detected in both PZ and TZ appear to have worse pathological features on Bx than the other groups (higher Gleason sum, higher percentage of cancer in biopsy, and presence of perineural invasion). Thus TZ Bx may have both diagnostic and prognostic value in repeat Bx situations.

SYSTEMATIC LATERAL PROSTATE BIOPSY: ARE THE BENEFITS WORTH THE COSTS?
Mischel Neill, BHB, MBChB, University Health Network, Ants Toi, MD, UHN, Gina Lockwood, PhD, UHN, Andrew Evans, MD, UHN, Lisa Tammsalu, UHN and Neil Fleshner, MD, UHN (Presented By: Mischel Neill, BHB, MBChB, University Health Network)

Introduction: To quantify the additional benefit of routinely adding 4 lateral biopsies to the initial sextant and TRUS lesion targeted biopsy pattern in terms of cancer detection and to relate this to cost.

Methods: Prospective data was accrued from 1 010 consecutive patients referred for initial TRUS directed prostatic biopsy between June 16, 2000 and September 1, 2005. These data included relevant clinical and disease characteristics. Costs were estimated for both the pathology and clinical departments in terms of staff time and materials used.

Continues on next page
Results: 494 of 1,010 (49.4%) patients were diagnosed with prostatic adenocarcinoma. Of these, 411 (83%) cancers were found in medial samples: 107 (22%) isolated to medial cores alone and 304 (62%) in both medial and lateral cores. Only 55 (5.4%) patients had cancer isolated to systematic lateral systematic cores. Of these, 30 (3%) were defined as “clinically significant” on the basis of Gleason grade = 7 or Gleason grade 6 involving more than 5% of the core. There was a 36% increase in pathology costs associated with the 4 additional lateral biopsies.

Conclusions: Medial sextant and targeted biopsy directed at TRUS identified lesions identified 97% of clinically significant cancer that would be detected with a 10 core biopsy schedule. We consider that this remains a reasonable approach to screening isolated PSA elevations, however patients with a PSA greater than 10 should have additional lateral biopsies included in their initial biopsy regimen. This approach may allow up to a 40% reduction in costs but may delay diagnosis of clinically significant cancer in 3% of men.

Poster #56

HIGH TUMOR EXPRESSION OF KI-67 IS AN INDEPENDENT PREDICTOR OF POOR OUTCOME AMONG PATIENTS TREATED SURGICALLY FOR CLEAR CELL RENAL CELL CARCINOMA

Introduction and Objectives: Increased levels of ki-67, a marker for active cell proliferation, have been shown to be related to tumor aggressive-ness and poor outcome for several cancers, including clear cell renal cell carcinoma (ccRCC). In fact, one recent report suggests that ki-67 expression in ccRCC tumors could be a suitable surrogate prognostic marker for coagulative tumor necrosis, a pathologic feature shown to be highly correlated with patient outcome. The objective of the current study is to determine if ki-67 expression and necrosis contain similar prognostic information or if both features provide independent information to predict ccRCC patient outcome.

Methods: We identified 714 patients treated surgically for ccRCC between 1990 and 1999. A centralized review by a urologic pathologist (JCC) was performed to obtain pathologic features of interest, including coagulative tumor necrosis. Representative paraffin-embedded sections were stained with a mouse monoclonal anti-human ki-67 antibody (clone MIB-1) from DAKO (1:100 dilution). The level of ki-67 expression was evaluated by a pathologist (YMS) and expressed as the number of ki-67-positive tumor cells per mm². The associations of ki-67 expression with pathologic features were evaluated using Wilcoxon rank sum and Kruskal-Wallis tests, and associations with death from RCC were assessed using Cox proportional hazards regression models.

Results: At last follow-up 396 patients had died, including 238 who died from RCC at a median of 2.1 years following surgery (range 0.1 – 14.0). The median number of ki-67-positive tumor cells per mm² was 36.3 (range 0.8 – 501.3). Higher levels of ki-67 expression were significantly associated with higher primary tumor classification, regional lymph node involvement and distant metastases at surgery, larger tumor size, higher nuclear grade, and coagulative tumor necrosis. For example, the median number of ki-67-positive tumor cells per mm² for tumors with necrosis was 78.5 compared with 27.8 for tumors without necrosis (p<0.001). Univariately, each 25-cell increase in the number of ki-67-positive tumor cells per mm² was associated with a 22% increase in the risk of death from RCC (risk ratio 1.22; 95% CI 1.18 – 1.26; p<0.001). This increased risk persisted even after adjusting for necrosis (risk ratio 1.13; 95% CI 1.09 – 1.17; p<0.001) and after adjusting simultaneously for primary tumor classification, regional lymph node involvement and distant metastases at surgery, tumor size, nuclear grade, and necrosis (risk ratio 1.07 (95% CI 1.03 – 1.11; p<0.001). On the other hand, in this same multivariate model, patients whose tumors contained necrosis were over twice as likely to die from RCC compared with patients whose tumors did not contain this feature (risk ratio 2.17; 95% CI 1.57 – 2.99; p<0.001).

Conclusions: Ki-67 expression is an independent predictor of progression in ccRCC tumors. It contains prognostic information that is in addition to the ability of coagulative tumor necrosis to predict death from RCC, even when necrosis is combined in a multivariate model with other well-known predictors of ccRCC patient outcome. The opposite holds true as well in that necrosis is significantly associated with outcome even after adjusting for ki-67 expression. As such, one should not be considered a surrogate for the other. Instead, both ki-67 and necrosis should be evaluated to improve outcome prediction for patients with ccRCC.
**Poster #57**

**TN M NODAL STATUS VERSUS LYMPH NODE DENSITY FOR PREDICTION OF DISEASE-SPECIFIC SURVIVAL AFTER RADICAL CYSTECTOMY FOR BLADDER CANCER**


Departments of Urology and Biostatistics and Applied Mathematics, The University of Texas M. D. Anderson Cancer Center, Houston, TX, and Department of Urology, Memorial Sloan-Kettering Cancer Center, New York, NY

**Purpose**: To compare lymph node density (LND) versus TNM nodal status in predicting disease-specific survival (DSS) after radical cystectomy for bladder cancer utilizing series from two comprehensive cancer centers.

**Methods**: We identified 248 patients who had pN+ disease identified on radical cystectomy and who had not received neoadjuvant chemotherapy: 162 patients from Memorial Sloan-Kettering Cancer Center (MSKCC) and 86 patients from M. D. Anderson Cancer Center (MDACC). Kaplan-Meier analysis was used to estimate DSS, and Cox’s regression model was used to study the effect of several variables, including LND and TNM nodal status, on DSS.

**Results**: Of the 248 patients, 134 patients had died of their disease at the time of analysis, including 107 of the MSKCC patients and 27 of the MDACC patients. The median follow-up for all patients was 24 months (range, 0.2-142 months), and the median follow-up for patients alive at the time of this analysis was 47 months (range, 0.2 to 142 months). The median number of lymph nodes removed was 12, the median number of positive lymph nodes was 2, and the median LND was 20%. DSS was intimately related to LND: the 5-year DSS rate was 54.6% for patients with LND = 20% and 15.3% for patients with LND > 20%. According to the 2002 TNM classification, 78 patients (31.5%) had pN1 disease, 127 (51.2%) had pN2 disease, and 43 (17.3%) had pN3 disease. On univariate analysis, both pathologic nodal status and LND were statistically significant (p<0.01) predictors of DSS. However, when pathologic nodal status and LND were considered jointly in a multivariate model, only LND remained significantly associated with improved DSS (for = 20%, hazard ratio [HR] = 0.36, p<0.01). This model also included a factor for study center, which was statistically significant (p<0.01). On multivariate analysis, additional factors associated with improved DSS were the administration of adjuvant chemotherapy (HR = 0.47, p<0.01) and organ-confined disease (HR = 0.42, p<0.01). Interestingly, the statistically significant difference between centers in DSS disappeared after patients who had received adjuvant chemotherapy (71% of MDACC patients versus 3% of MSKCC patients) were removed from the analysis.

**Conclusion**: LND appears to be superior to TNM nodal status in predicting DSS for pN+ patients after radical cystectomy for bladder cancer. The superiority of LND appears to be valid even in the context of adjuvant chemotherapy.

**Poster #58**

**TARGETED TREATMENT OF LOCALIZED REGIONS OF THE PROSTATE GLAND USING MRI-GUIDED TRANSURETHRAL ULTRASOUND THERAPY: DEMONSTRATION IN VIVO**

Sree Appu, Rajiv Chopra, Laurence Klotz, Michael Bronskill

(1) Dept Urology, (2) Dept Imaging Research

Sunnybrook Health Sciences Centre, Toronto, Ontario, CANADA

**Introduction**: Conventional treatment options for localized prostate cancer has potential for significant morbidity. Trans-rectal ultrasound therapy (HIFU), offers a high level of accuracy, and has the potential for reduced complications. Some limitations of this therapy is the long treatment time and the lack of quantitative monitoring and dynamic assessment of the procedure. We describe MRI-guided transurethral HIFU therapy for localized prostate cancer. This form of therapy can treat the entire prostate gland in a short time (<30 minutes) because the energy is being delivered from within the prostate, and hence a larger ultrasound beam can be used. In addition, MR thermometry can provide real-time quantitative measurements of the temperature distribution during therapy, enabling precise knowledge of the energy delivered to the prostate.

Continues on next page
**Objectives:** The goal of this study was to evaluate the capability to generate a targeted region of thermal damage within the prostate gland using transurethral ultrasound therapy and active MR temperature feedback. The capability to treat the posterior peripheral zone of the gland while sparing rectal tissue was also evaluated.

**Methods:** Transurethral ultrasound therapy was performed in five dogs inside a clinical 1.5T closed bore MRI using a prototype treatment system developed within our group. Heating applicators were inserted into the prostatic urethra through a perineal urethrostomy, and a cooling device was placed in the rectum to cool the rectal wall during treatment. A selected region of the prostate was treated adjacent to the rectum with active temperature feedback throughout the therapy. The measured temperature distribution was used to adjust the output from the transurethral heating applicators to achieve a temperature of 55°C along the target treatment boundary. Animals were subsequently sacrificed, and the prostates and rectal tissue were harvested. Vital staining and histology of the treated region was performed to compare with the imaging measurements.

**Results:** Accurate visualization of the prostate gland and localization of heating applicators was achieved using MRI. The MR temperature measurements were very stable, with an uncertainty of approximately 1°C over the course of the treatment. The treatments lasted approximately 15 minutes, and over 50% of the gland was treated. The error between the 55°C isotherm achieved in the prostate and the desired target boundary was +/- 0.7mm. Two boundaries of thermal damage were defined on subsequent H&E stained tissue sections corresponding to complete thermal coagulation (100% cell kill), normal prostate tissue (0% cell kill). The maximum temperature achieved along these boundaries was found to be 55 +/- 3°C (100% boundary) and 50 +/- 3°C (0% boundary). Histopathology of the rectal tissue confirmed that the cooling protected it from thermal damage during therapy.

**Conclusions:** MRI-guided transurethral ultrasound therapy is a potential alternative approach for treatment of localized prostate cancer. Accurate thermal damage of targeted regions of the prostate can be achieved rapidly using MR thermometry. Quantitative measurements of the spatial distribution of thermal damage can also be obtained.

**Acknowledgements:** This work is supported by the National Institute of Canada and the Canadian Institutes for Health Research.

**Poster #59**

**RENAL TUMOR LOCATION (CENTRAL VS. EXOPHYTIC) INFLUENCES POST-OPERATIVE COMPLICATIONS IN NEPHRON SPARING SURGERY.**

Michael Karellas, Joseph Pettus, David Sharp, Mark Snyder, Ariadne Bach, and Paul Russo, Division of Urology, Memorial Sloan Kettering Cancer Center, New York, NY

**Introduction and Objective:** Partial nephrectomy is indicated for all patients with T1 renal masses in whom it is technically feasible. The purpose of our study was to examine the influence of renal tumor location on the peri-operative complication rate following partial nephrectomy.

**Methods:** We reviewed our prospectively collected surgical database for all patients who underwent partial nephrectomy from 7/95 until 7/05. All preoperative abdominal imaging scans were re-reviewed. Tumors were designated as central if the renal contour was not distorted or if the renal sinus or collecting system was involved; all others were considered exophytic. Demographic, surgical, and postoperative data were reviewed. Complications were captured from surgery until 30 days postoperatively. The grading system was based on treatment requirements and outcome: Grade 1, oral medication or observation; 2, intravenous treatment; 3, operative or radiological intervention; 4, chronic disability; and 5, death. These data were then subjected to univariate and multivariate analysis.

**Results:** A total of 581 patients were suitable for analysis, with 248 patients having a central lesion and 333 patients with an exophytic lesion. Central tumors were larger (mean 3.43cm) compared to the exophytic lesions (2.71cm, p<0.0001). Overall, 459 patients (79%) did not experience any complications, with 122 total complications in both groups. Eighty-four percent (102/122) were grade 1. The most common complications were urine leaks in 44 patients (36%), followed by 13 wound infections (10.6%), and 11 perinephric abscesses (9.0%). On multivariate analysis, exophytic location conferred lower risk for complication (OR 0.57 p<0.014 95%CI 0.364-0.893). However there was no correlation to tumor size (p=0.846), estimated blood loss (p=0.51) or high pathologic tumor stage (p=0.95).

**Conclusions:** In our study the occurrence of post-operative complications following open partial nephrectomy occurred more frequently following excision of central renal tumors. These data are helpful for counseling patients preoperatively.
POSTER SESSION

Poster #60

SALVAGE CRYOABLATION OF THE PROSTATE: SHORT TERM COMPLICATIONS AND RESULTS
Greg Lamberton, Tekisha Lindler, Herbert Ruckle, Loma Linda University Medical Center, Loma Linda, CA

Introduction and Objectives: Prostate cancer patients who fail primary radiation treatment have limited options for further curative treatment. Cryotherapy of the prostate has been shown to be an effective ablative treatment for localized prostate cancer. Third generation cryoablation equipment has been improved by decreasing probe size, improved temperature monitoring and allows for direct transperineal probe placement. We reviewed a series of patients treated with cryoablation for recurrent prostate cancer following external beam radiation. The results and complications were compared to a group of patients who underwent primary cryoablation of the prostate.

Methods: A retrospective chart review was performed at our institution for prostate cancer patients undergoing salvage cryoablation between 2004 to present. A total of 18 patients were identified who had received external beam radiation. Fourteen patients had undergone proton radiation and were treated with salvage cryoablation with curative intent. Four patients were treated for local control and palliation of local symptoms. Fourteen age matched controls were then selected from a group of patients undergoing primary cryoablation for treatment of prostate cancer during the same time period. Approval for retrospective chart review was obtained from the institutional review board. No financial incentives were provided.

Results: Mean age for salvage vs. primary cryoablation was not statistically different at 72 and 70 years respectively (p=0.66). Average PSA prior to initial treatment for both groups was similar with PSA 13.83 for external beam radiation compared to PSA 14.17 for primary cryoablation (p=0.93). The average maximum PSA following radiation prior to salvage was 4.31. The PSA was ≤0.5 in 8 of 14 patients (57%) and found to be decreased and stable in 13 of 14 patients (93%) following salvage cryoablation. Complications for salvage cryoablation were: bowel frequency (6%), urine retention (22%), incontinence (6%), urinary frequency (17%), hematuria (17%) and rectourethral fistula (7%). Fistula occurred seven months following treatment after attempted catheterization of the urethra. A second patient developed urethral sloughing following a traumatic catheterization attempt. Of patients treated with curative intent (PSA <10, clinical pathology <T3) PSA is ≤0.5 in 7 of 14 (50%) patients and is stable in 8 of 12 (67%) patients. Complications were as follows for primary cryoablation: urine retention (7%), urinary frequency (21%) and penile shrinkage (7%). Persistence/recurrence occurred in 2 of 14 (21%) of primary treated patients. One patient treated primarily with external beam radiation for adenocarcinoma of the prostate was later treated palliatively with salvage cryoablation for undifferentiated sarcoma of the prostate.

Conclusion: Salvage cryoablation therapy in the short term appears to be effective for decreasing biochemical recurrence and clinical progression. Salvage cryoablation can be successfully performed in patients who have received up to 80 cobalt gray equivalent external beam radiation. There are more complications associated with salvage than with primary cryoablation. Urinary problems are the most common complication following salvage cryoablation of the prostate. We recommend cystoscopic placement of urethral catheter for patients who develop urinary retention following salvage cryoablation.

Poster #61

THE OUTCOME OF RADIATION-INDUCED COMPLICATIONS TREATED WITH HYPERBARIC OXYGEN THERAPY: A RETROSPECTIVE REVIEW
Tekisha Lindler, Greg Lamberton, Herbert Ruckle, Loma Linda University Medical Center, Loma Linda, CA

Introduction and Objectives: Hemorhagic cystitis and radiation proctitis are side effects commonly seen following treatment of pelvic malignancies with radiotherapy. Hyperbaric oxygen therapy (HBOT) is often used as a primary or adjuvant treatment for these complications. The response rates are often reported as 80-90% in the literature. We assessed our experience in treating radiation-induced complications in patients with pelvic malignancies following radiotherapy with HBOT.

Methods: 35 patients with either radiation cystitis or proctitis after external beam photon radiation (11), proton beam therapy (18), salvage proton (5) or brachytherapy (1) received HBOT at Loma Linda University from 7/2000 to 8/2006. The pelvic malignancies treated were prostate cancer (85.71%), colonic adenocarcinoma (2.85%) and malignancies of gynecologic origin (14.29%). Mean age of 74 years (85.71% men and 14.29% female). The average number of treatments was 36.6 with 100% oxygen at 2.0 to 2.5 atm absolute pressure for 90 minutes. A retrowspec-
tive review of medical records was completed after approval by the Loma Linda Institutional Review Board.

**Results:** 83% of the patients completed the full treatment course, ranging from 20 to 60 sessions. The remaining patients did not complete the predetermined number of HBOT sessions for multiple reasons, including patient compliance, seizures, ear discomfort, acute myocardial infarction and clinical decline or death from the underlying disease process. There were 13 patients (37.14%) who reported improvement or complete resolution of their symptoms. The best response from HBOT was seen post-proton, 45% patients had clinical improvement, in comparison to 27.3% of the patients in the external beam photon group. Of the total patients reviewed, 14.29% remained symptomatic and required surgical intervention in the form of radical cystectomy with ileal conduit diversion, diverting colostomy, bilateral percutaneous nephrostomy tubes, embolization of the internal iliacs or adjuvant cystoscopy with instillation of formalin.

**Conclusion:** HBOT was well tolerated and can be considered as a therapeutic option in patients with radiation cystitis or proctitis. Greater than half of the patients required additional or adjuvant treatment in the form of surgery, embolization, or intravesical instillation to control hematuria or rectal bleeding. In our study the best response was seen post-proton radiation patients.

No financial incentives were given to the participants of this study.

**Poster #62**

**ASSOCIATION OF CEREBROVASCULAR ACCIDENT AND MYOCARDIAL INFARCTION WITH ANDROGEN DEPRIVATION THERAPY**

John B. Malcolm¹, Christopher J. DiBlasio¹, Jamie H. Womack¹, Matthew C. Kincade¹, Mitch Ogles¹, John Mancini¹, Kimberly D. Lamar², Anthony L. Patterson¹, Robert W. Wake¹, and Ithaar H. Derweesh¹

¹Department of Urology and ²Department of Preventive Medicine, University of Tennessee Health Science Center, Memphis, TN

**Introduction and Objectives:** Androgen deprivation therapy (ADT) is a widely utilized treatment for clinically localized and advanced stage prostate cancer (CaP). The adverse effects of ADT include altered lipid profiles and worsening glycemic control. While proatherogenic effects of such changes can be inferred, the effect of ADT on cardiovascular events has not been well studied. We investigated the association between ADT in men with CaP and the incidence of myocardial infarction (MI) and cerebrovascular accidents (CVA).

**Methods:** We retrospectively reviewed all patients who received ADT (surgical or pharmacologic) for CaP at our institution between 1/1989 and 7/2005. Patients receiving neoadjuvant ADT or having incomplete information were excluded. Statistical data analysis was conducted to describe the incidence of cardiovascular events in relation to ADT, using univariate statistics, T-tests and Chi-Square analysis. Data were analyzed using Logistic Regression. All potential explanatory covariates were incorporated into the Logistic Regression model. Variables that demonstrated an association with CVA or MI were considered for multivariate Logistic Regression analysis. Independent variables were modeled as both dichotomous (1=‘yes’, 2=‘no’) and continuous variables. Age, Gleason total, PSA, and BMI were also entered into the logistic model as categorical variables. P-values <0.05 were considered statistically significant.

**Results:** 395 patients were analyzed with a mean age of 71.7 years. At a mean follow-up of 66.1 months, 4.6% of patients (18) suffered an MI and 5.8% of patients (22) suffered a CVA at an average of 49 and 64 months following initiation of ADT, respectively. All patients with either post treatment CVA or MI had hypertension (p=0.020, p=0.052). No statistically significant differences were observed in post-ADT CVA or MI when analyzed by age, race, BMI, high cholesterol, diabetes (pre-ADT and new onset), tobacco use or Gleason sum. Increased duration of ADT treatment was determined to correlate positively with development of CVA (OR, 3.228, p=0.001) and MI (OR, 2.129, p=0.034).

**Conclusions:** While further studies are needed to confirm the data presented, the affect of ADT on adverse cardiovascular events merits further consideration, as our data demonstrates that risk of MI and CVA increases with increasing duration of ADT. Optimum control of other known cardiovascular risk factors should be encouraged in patients on ADT treatment, as risk of cardiovascular events may be compounded with ADT.
**Introduction and Objectives:** Prostate secretory protein of 94 amino acids (PSP94) is one of the major proteins secreted by human prostatic epithelial cells. It is a small cysteine rich protein, abundant in the seminal plasma. In in vitro studies of rat prostate explants and a human prostate cancer cell line, PSP94 synthesis was demonstrated to show androgen independence, in contrast to prostate specific antigen (PSA). This feature may suggest utility for PSP94 in disease monitoring while patients are on hormone therapy. However, by immunohistochemistry staining of radical prostatectomy specimens, one study showed that after androgen deprivation PSP94 expression was decreased in grade 3 tumor foci but increased in higher grade lesions.

We aimed in the present study to examine if longer duration of neoadjuvant hormone treatment has any effect on the intensity and extent of expression of PSP94 in prostate adenocarcinoma cells.

**Material and Methods:** The study population is comprised of 60 patients with histologically confirmed prostate cancer who underwent radical prostatectomy (RP) in our institution. They were divided into 3 groups: Group 1 - 16 patients who received no neoadjuvant hormone treatment (NHT), Group 2 - 25 patients who received 3 months of NHT and Group 3 - 19 patients who received 8 months of NHT. Immunohistochemistry staining (IHC) was done on transrectal ultrasound guided biopsy (TRUS-Bx) and RP specimens. The intensity and extent of expression of PSP94 was reported by 2 experienced clinicians. Clinical and pathological data were collected. Univariate and multivariate statistical analyses were performed to evaluate the predictors of outcome for PSP94 intensity and expression, and for biochemical disease free survival (BDFS).

**Results:** The three groups of patients were similar with regards to age at diagnosis, baseline PSA, TRUS-Bx Gleason score, TRUS-Bx PSP94 intensity and extent. PSP94 expression intensity was significantly lowered in Group 3. The results of univariate and multivariate analyses in relation to PSP94 expression intensity in surgical specimens (Table-1) showed that NHT was the only independent predictor in both models. When we considered BDFS in univariate and multivariate analyses (Table-2); baseline PSA, biopsy Gleason score category and adjuvant radiotherapy were significant in univariate analysis and only adjuvant radiotherapy was the independent predictor of BDFS in multivariate model.

<table>
<thead>
<tr>
<th></th>
<th>PSP94 intensity</th>
<th>PSP94 extent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P value</td>
<td>P value</td>
</tr>
<tr>
<td>Age</td>
<td>0.469</td>
<td>NS</td>
</tr>
<tr>
<td>NHT</td>
<td>0.006</td>
<td>0.005</td>
</tr>
<tr>
<td>Baseline PSA</td>
<td>0.828</td>
<td>NS</td>
</tr>
<tr>
<td>Biopsy Gleason score category</td>
<td>0.669</td>
<td>NS</td>
</tr>
<tr>
<td>Biopsy PSP94 intensity</td>
<td>0.609</td>
<td>NS</td>
</tr>
<tr>
<td>Biopsy PSP94 extent</td>
<td>0.405</td>
<td>NS</td>
</tr>
<tr>
<td>Surgical margin</td>
<td>0.235</td>
<td>NS</td>
</tr>
</tbody>
</table>

(Table-1) Predictors of PSP94 intensity and expression in RP specimens

Continues on next page
(Table-2) Predictors of biochemical disease free survival

<table>
<thead>
<tr>
<th></th>
<th>univariate</th>
<th>multivariate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P value</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>0.729</td>
<td>NS</td>
</tr>
<tr>
<td>NHT</td>
<td>0.447</td>
<td>NS</td>
</tr>
<tr>
<td>Baseline PSA</td>
<td>0.036</td>
<td>NS</td>
</tr>
<tr>
<td>Biopsy Gleason score category</td>
<td>0.006</td>
<td>NS</td>
</tr>
<tr>
<td>Surgical margin</td>
<td>0.157</td>
<td>NS</td>
</tr>
<tr>
<td>Adjunct radiotherapy</td>
<td>0.007</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Biopsy PSP94 intensity</td>
<td>0.239</td>
<td>NS</td>
</tr>
<tr>
<td>Biopsy PSP94 extent</td>
<td>0.513</td>
<td>NS</td>
</tr>
</tbody>
</table>

**Conclusion**: In our series eight months of neoadjuvant hormone treatment seems to affect PSP94 expression in prostate cancer cells. With the advent of protocols involving neoadjuvant taxane-based chemo- and hormone therapy for high risk disease, PSP94 may still have a role in disease course monitoring. Based on the results of this study, we have embarked on a prospective study on the effect of NHT and radical prostatectomy on the serum level of PSP94. Further studies are needed to detect if PSP94 expression would change with longer duration of androgen deprivation and also to find out the level of expression of PSP94 in hormone refractory prostate cancer patients.

**Poster #64**

**FUNCTIONAL OUTCOME FOLLOWING NERVE SPARING POST-CHEMOTHERAPY RETROPERITONEAL LYMPH NODE DISSECTION FOR NONSEMINOMATOUS GERM CELL CARCINOMA**

Joseph Pettus, Brett Carver, Joel Sheinfeld
Division of Urology, Memorial Sloan Kettering Cancer Center, New York, NY

**Purpose**: To evaluate return of antegrade ejaculation following NSPC-RPLND for NSGCT and to determine associated factors.

**Methods**: We queried our institutional database for all patients who underwent NSPC-RPLND between 3/1995 and 4/2005 using a modified or full bilateral template. Nerve sparing was carried out whenever technically possible without regard to residual mass size. Antegrade ejaculation was defined as any seminal fluid expulsion and was determined by patient report. We evaluated ejaculation recovery based on clinical and pathologic parameters and fit a logistic regression model to determine which preoperative information is helpful in predicting ejaculation recovery.

**Results**: A total of 394 patients had PC-RPLND during the study period, of which 189 (48%) received NSPC-RPLND. Postoperative antegrade ejaculation was reported by 107/136 (79%) of patients with information available. Full bilateral template (p=0.02) and increasing residual mass size (p=0.008) had significantly negative impact on ejaculation. In the multivariable model, only residual mass >5cm was significantly associated with retrograde or absent ejaculation (OR 0.2, p=0.013). However, 4/9 (44%) with mass >5cm did report antegrade ejaculation. The 5-year relapse free survival was 98% with a median follow up of 39 months (IQR 19, 66).

**Conclusions**: NSPC-RPLND is associated with excellent functional return of antegrade ejaculation, is feasible even with bulky disease, and has excellent oncologic outcomes.
Poster #65

NEOADJUVANT CHEMOTHERAPY IN PATIENTS WITH UROTHELIAL CARCINOMA: IMPACT OF VARIANT HISTOLOGY

McGill University Health Center, Montreal, Quebec, and University of Texas M. D. Anderson Cancer Center, Houston, Texas

Purpose: To evaluate the relevance of variant histology in patients with urothelial carcinoma treated with neoadjuvant chemotherapy followed by radical cystectomy.

Method: Over the past 15 years, 147 patients with urothelial carcinoma were enrolled in one of the 2 prospective randomized trials evaluating the role of neoadjuvant chemotherapy [taxol, methotrexate, and cisplatin (TMP), or methotrexate, vinblastine, adriamycin, and cisplatin (MVAC)] followed by radical cystectomy at M. D. Anderson and form the basis of this report. Analyzed variables include clinical parameters (clinical stage, lymphovascular invasion, hydronephrosis, variant histology), pathological stage (response to chemotherapy), and survival data.

Results: Five year disease-specific survival for patients overall was 60% after a median follow-up of 43 months. Tumor histology was pure TCC in 96 patients (65%), TCC plus variant histology in 48 patients (33%), and pure variant histology in 3 patients (2%). Neoadjuvant chemotherapy significantly downstaged more tumors of pure TCC histology compared to TCC plus variant (55% vs 45%, p=0.04). Patients who had pure TCC tumors were associated with prolonged disease-specific survival compared to those with TCC plus variant histology (68% vs 50%, p=0.067). No significant difference between patients with pure TCC versus those with TCC plus variant with regards to age, gender, clinical stage, presence of lymphovascular invasion, and number of nodes removed.

Conclusion: The presence of variant histology in bladder cancer is associated with a decreased response to neoadjuvant chemotherapy and shorter survival.

Poster #66

MAGNETIC RESONANCE MICROSCOPY OF RADICAL PROSTATECTOMIES AT 7 TESLA

Bungo Furusato 1,2, Kimberlee Potter 1, Robert Becker 1, Shiv Srivastava 2, David G. McLeod 2,3, Isabell A Sesterhenn 1

1 Department of Genitourinary Pathology, Armed Forces Institute of Pathology, DC
2 Center for Prostate Disease Research, Department of Surgery, USUHS, Bethesda
3 Urology Service, Walter Reed Army Medical Center, DC

Objective: Recently developed high field MR scanners (3 T and above) provide advantages such as higher signal-to-noise ratio and the prospect of resolving structures at histologic scale. Fields of 9 Tesla are available with commercial instruments to image small specimens such as prostate within a volume resonator. The trade-offs among image resolution, imaged volume and practical application to the pathology of the prostate are not yet established.

Methods: Five intact radical prostatectomy specimens were imaged in a Bruker Biospec 7T (300 MHz) magnetic resonance microscope (MRM). Three-dimensional datasets representing the entire organ, and quantitative 2D slice images at selected planes, were acquired for each specimen. The formalin fixed prostates were sectioned at 2.2 mm intervals for embedding (13 to 14 levels per specimen). We marked tumor deposits on hematoxylin and eosin stained sections studied by light microscopy (LM), and correlated the MRM and LM images.

Results: Structures smaller than 700 microns were clearly resolved in the 3D MRM images. There was excellent cross-correlation of landmarks between MRM and LM images. Homogenous areas with low signal in the MRM T2 weighted images corresponded to several peripheral tumors, though the MRM features did not distinguish the tumors uniquely. Alternate contrast techniques (magnetic transfer and diffusion) displayed organ detail in addition to the information in the T2 and T1 images. Magnetic transfer images gave especially detailed representation of the collagen lattice in the transition and peripheral zones.

Conclusion: MRM images of prostate at 7T have features that correlate with tumor recognized by LM, though the features are not unique to tumor. Use of small external coils, providing greater detail for small tissue volumes, might distinguish tumor further. It is likely that improved contrast between tumor and background, rather than higher resolution alone, is required to unambiguously identify prostatic tumor deposits.

No financial funding support.
BILATERAL HAND-ASSISTED LAPAROSCOPIC RENAL SURGERY IN THE SUPINE POSITION: AN ASSESSMENT OF EFFICACY
Kashif Siddiqi* and James A. Brown, Medical College of Georgia, Augusta GA

Introduction: Bilateral renal surgery historically required large muscle-splitting incisions via a transabdominal or bilateral flank approach. Standard laparoscopic renal surgery typically required the patient to be placed in the lateral decubitus position. Thus, bilateral procedures require staging the operations or repositioning during the case. Hand-assisted laparoscopy (HAL) allows for additional retraction with the hand or back of the wrist or forearm. We retrospectively evaluate the feasibility of bilateral renal procedures performed using HAL in the supine position.

Methods: This procedure requires the patient to be securely strapped to the table with foam tape criss-crossing the chest, across the hips, thighs and lower extremities. A hand port device is placed via a 7 cm peri-umbilical incision with two to four 5-12mm trocars placed bilaterally. Between October 2003 and August 2006, we initiated 6 bilateral HAL renal operations (upper pole partial nephrectomies, 2 nephroureterectomies and 3 nephrectomies) as treatment for 1) incontinence secondary to ectopic vaginal ureters, 2) end-stage renal disease (ESRD) with left renal tumor, 3) ESRD with vesicoureteral reflux (VUR), 4) ESRD with Goodpasture’s disease and refractory hypertension, 5) ESRD with neurogenic bladder and VUR and 6) ESRD with autosomal dominant polycystic kidney disease (ADPKD).

Results: Medical record data was available for 5 patients. Mean age was 34 (21-48). Patient 6 with ADPKD required conversion to open due to failure to progress secondary to excessive perirenal fat and 22cm kidneys. The other 5 procedures were completed successfully with mean and median operative times of 420 and 386 minutes (354-553), respectively. The longest procedure was a bilateral HAL nephroureterectomy procedure with left augmentation ureterocystoplasty. Mean and median estimated blood loss was 306 and 175 ml, respectively. A small splenic laceration treated successfully conservatively was the only intraoperative complication. There were no postoperative complications.

Conclusions: Bilateral hand-assisted laparoscopic renal procedures in the supine position (rolling the table side to side) are feasible and provide an effective minimally invasive surgical option. While complex diseases may be handled, very large kidneys (e.g. ADPKD) may be better approached in the lateral decubitus position or via a Chevron incision. Care must be taken during mobilization of the splenic flexure as the increased difficulty of mobilization in the supine position appears to increase the risk of laceration.

PARTIAL PENECTOMY FOR PATIENTS WITH SQUAMOUS CELL CARCINOMA OF THE PENIS: THE MEMORIAL SLOAN-KETTERING EXPERIENCE
Ruslan Korets, Theresa M. Koppie, Mark E. Snyder, Paul Russo, Memorial Sloan-Kettering Cancer Center, New York, NY

Introduction and Objectives: Carcinoma of the penis is a rare disease in the United States with approximately 1,500 new cases diagnosed each year. We present our institution’s experience with squamous cell carcinoma (SCC) of the penis, and assess the oncologic efficacy and overall survival of men treated with partial penectomy.

Materials and Methods: Between 1989 and 2005, we identified 32 consecutive patients (median age 61) with SCC of the penis managed with partial penectomy. Clinicopathologic variables were examined, and actuarial and disease—specific survival were determined.

Results: Pathologic stage of the primary tumor was pTis in 1 patient (3%), pT1 in 11 (34%), pT2 in 16 (50%), and pT3 in 4 (13%). Pathologic grade was well differentiated in 9 patients (28%), moderately differentiated in 20 (63%), and poorly differentiated in 2 (6%). Twenty-five patients (78%) underwent inguinal lymph node dissection, with 15 (60%) demonstrating nodal metastases. Twenty-two patients (69%) underwent pelvic lymph node dissection; 21 were negative for pelvic nodal metastases and one had grossly positive nodes. One patient developed local recurrence. After a mean follow-up of 34 months, actuarial survival was 56%. Numbers of patients alive and disease-free were 9 (75%) and 11 (55%) in the low-stage and advanced-stage groups, and 8 (89%) and 12 (60%) in the well and moderately differentiated groups. Both patients with poorly differentiated disease died of disease within 12 months from presentation.

Conclusions: Partial penectomy for SCC of the penis provides excellent local control, with low recurrence rate and acceptable maintenance of urinary and sexual function. Outcomes are generally poor, however, for patients with metastases, even in moderately differentiated disease. Future studies are needed to identify a reliable method of predicting regional metastases.
**Poster #70**

**CHANGES IN SURGICAL MANAGEMENT OVER TIME FOR SOLID RENAL MASSES 7 CM OR LESS**
Matthew K. Tollefson, Bradley C. Leibovich, Christine M. Lohse, Michael L. Blute, Mayo Medical School, Rochester, MN

**Introduction:** The burgeoning use of abdominal imaging, coupled with the evolution of nephron-sparing surgical (NSS) techniques and laparoscopy have revolutionized the management of solid renal masses over recent years. Several large epidemiological studies have analyzed laparoscopic radical nephrectomy and suggest that it may be overused in relation to partial nephrectomy. Therefore, we reviewed our experience over the last 10 years with surgically managed renal masses 7 cm or less in relation to surgical technique and patient presentation.

**Methods:** We studied the first surgical treatment among 1,293 pM0 patients with a solid renal mass diagnosed between 1995 and 2004. Any surgery in which either benign or malignant tumors were resected was considered a surgery for malignancy. Patients with a palpable flank or abdominal mass, discomfort, gross hematuria, acute onset varicocele, or constitutional symptoms including rash, sweats, weight loss, fatigue, early satiety, and anorexia were considered symptomatic at presentation.

**Results:** 522 (40%) patients underwent open radical nephrectomy, 77 (6%) patients had laparoscopic radical nephrectomy, 631 (49%) had open NSS and 63 (5%) had laparoscopic NSS over this 10-year time period. Radical nephrectomy techniques, including open and laparoscopic, represented over 76% of our management in 1995; which declined to 33% by 2004 (p<0.01). Open NSS and laparoscopic surgery were both used more frequently in the most recent 5 years (p<0.01). Also, the incidence of symptomatic renal masses declined from 57% to 33% over that same time period (p<0.01).

**Conclusion:** The presentation and our surgical treatment of renal masses 7 cm or less have evolved over the last 10 years. Patients are now presenting with more asymptomatic renal masses that are incidentally detected on abdominal imaging. Also, our management of these masses continues to evolve. The majority of patients with masses 7 cm or less are now candidates for NSS techniques. However, radical nephrectomy techniques remain in use for patients requiring dialysis pre-operatively and those with vena caval thrombi, extra renal extension, significant lymphadenopathy or very centrally located tumors.

---

**Poster #71**

**SIGNIFICANCE OF TERTIARY GLEASON GRADE 5 PATTERN IN PATIENTS WITH GLEASON SUM 7 PROSTATE CANCER FOLLOWING RADICAL PROSTATECTOMY.**
Darren Whittemore,¹ Eric HicK,¹ Mark Carter,¹ Judd Moul,² Alejandro Miranda-Sosa,³ and Wade Sexton.¹ ¹Wilford Hall Medical Center, Lackland AFB, TX, ²Center For Prostate Disease Research, Rockville, MD, and ³H. Lee Moffitt Cancer Center and Research Institute, Tampa, FL

**Introduction:** The Gleason grading system in reporting prostate cancer accounts for the primary and secondary Gleason pattern, however there is little data on how to account for a tertiary (third most prevalent) grade.

**Methods:** We analyzed the clinical significance of a tertiary grade 5 pattern within 214 radical prostatectomy (RP) specimens with Gleason score 7 (3+4 or 4+3) in terms of pathologic stage (PS) and biochemical recurrence free survival (bRFS). All cases were re-reviewed to confirm initial diagnoses and to ensure standardization of grading criteria and the reporting of tertiary grade 5 patterns. Patients treated with neoadjuvant or adjuvant therapy were excluded from review. Biochemical recurrence was defined as PSA > 0.2 ng/ml.

**Results:** Patients with Gleason score 7 and tertiary grade 5 cancer (GS7+5) have significantly higher PS than patients with Gleason score 7 without tertiary grade 5 cancer (GS7) (P<0.001). Pathologically, GS7+5 tumors were significantly more likely to have seminal vesicle invasion, extraprostatic extension and lymphovascular invasion compared to GS7 tumors (P<0.05). The relative effects of a tertiary grade 5 component on all pathologic parameters analyzed was greater for GS7 tumors with a lower primary Gleason pattern 3 versus a higher primary Gleason pattern 4. Clinically, patients with GS7+5 tumors have significantly decreased bRFS (54 months) compared to patients with GS7 tumors (121 months) (P=0.0005). Preoperative prostate specific antigen (PSA) level, lymphovascular invasion, and positive surgical margin status were shown to be independent predictors of PSA recurrence on multivariate analysis.

**Conclusions:** Overall, we advocate the routine reporting of a tertiary grade 5 pattern in Gleason score 7 RP specimens as patients with GS7+5 cancer have significantly more advanced PS and decreased bRFS compared to patients with GS7 cancer.
GENETIC VARIATION IN CPA4 IDENTIFIES MEN AT RISK FOR AGGRESSIVE PROSTATE CANCER

University of California San Francisco, San Francisco, CA
The Cleveland Clinic Foundation, Cleveland, OH

Introduction: Cerboxypeptidase 4 (CPA4) is a zinc-dependent metallocarboxypeptidase located on chromosome 7q32 in region previously linked to prostate cancer aggressiveness. CPA4 is involved in the histone hyperacetylation pathway and is thought to modulate the function of peptides that play an essential role in the growth and regulation of prostate epithelial cells. Increased expression of CPA4 has been observed in prostate cancer cell lines. The role of genetic variation in CPA4 and prostate cancer risk has yet to be investigated. We examined the association between genetic variation in CPA4 and risk of aggressive prostate cancer.

Methods: We studied 1012 men (506 cases of aggressive prostate cancer and 506 age-, ethnicity-, institution-matched controls) that were recruited from the major medical institutions in Cleveland, Ohio between 2001 and 2004. Aggressive disease was defined as Gleason = 7, tumor stage = T2c, or PSA = 10 ng/mL at diagnosis. Six CPA4 single-nucleotide polymorphisms (SNPs) were genotyped, and evaluated for their relation to prostate cancer. In addition to looking at the entire study population, we also evaluated risk among men diagnosed at an earlier age (< 66 years) to evaluate how the genetic variants might affect age at diagnosis.

Results: Median patient age was 65.8 years and 82% of the patients were Caucasian. Mean diagnostic PSA was 14.1 ng/mL among cases and baseline PSA was 1.7 ng/mL among controls. We identified 238 cases of aggressive prostate cancer among patients <66 years of age, 40 (16.8%) of these patients were African-American and the remainder were Caucasian. We did not observe any associations within the entire study population. Nevertheless, two variants in CPA4 (rs2171492 and rs1569132) were associated with an increased risk of aggressive prostate cancer among younger patients. Specifically, patients diagnosed at age <66 years carrying the TT genotype for the rs2171492 SNP had an approximately two-fold increased risk for aggressive disease (Odds Ratio=1.99, 95% CI 1.14-3.46, p=0.015). Similarly, patients diagnosed at age <66 years carrying the GG genotype for the rs1569132 SNP were also at a significantly increased risk for aggressive disease (OR=1.74, 95% CI 1.09-2.78, p=0.02). These results remained consistent when restricted to Caucasians only.

Conclusions: Our study suggests that variation in CPA4 confers increased risk of aggressive prostate cancer among younger patients. Further work is needed to replicate this finding, and identify the functional aspects of this variation and to understand its biological effects on prostate cancer. The identification of genetic risk factors may translate to the clinical arena in areas such as directed screening of higher risk individuals as well as guiding clinicians and patients toward earlier and more aggressive treatment modalities in patients genetically identified as higher risk.

Gα PROTEINS ARE REQUIRED FOR ANDROGEN RECEPTOR TRANSACTIVATION IN PROSTATE CANCER

James McIntosh, Hyewon Youn, Sandy Tang, Brantley Thrasher and Benyi Li
Department of Urology, University of Kansas Medical Center, Kansas City

Introduction and Objective: The Androgen Receptor (AR) is a ligand-dependent transcription factor that plays a critical role in the development and progression of prostate cancer by regulating target genes involved in cellular proliferation and survival. In attempt to dissect the mechanisms involved in androgen-induced AR transactivation, our group demonstrated the involvement of two major signaling molecules, phosphoinositide 3-OH kinase (PI3K) and glycogen synthesis kinase-3å (GSK-3å). Also, a possible involvement of guanine nucleotide-binding proteins (G-protein) or their relative members in AR activation has emerged recently. To identify novel components that participate in the AR transactivation, we tested if Gα proteins or its related members are involved in AR activation.

Methods: Two prostate cancer cell lines, LNCaP and LAPC-4, were used in this study. Two androgen responsive gene reporter constructs, ARE-LUC and Probasin-SEAP, were utilized to access the signaling pathways involved in AR transactivation. To determine the involvement of Gα-proteins on the AR transactivation, we used a targeted expression of constitutively activated forms of Gα proteins and a knock-down expression of Gα proteins using small interference RNA (siRNA). Transient transfection of Green fluorescent protein (GFP) conjugated AR was performed to investigate nuclear translocation of AR after activation.

Continues on next page
Results: Over expressing constant active mutants of Gα proteins such as Gα12, Gαs, Gαi and Gαq showed different effect on the basal level or androgen (R1881)-induced reporter activities. Consistent with a recent report, only active Gαs but not others enhanced the basal reporter activity. Active Gαq overexpression resulted in a significant inhibition of androgen-induced reporter activities, but Gα12 and Gαi enhanced androgen-induced reporter activities. In the knockdown experiments using a siRNA approach, we found that knocking down Gα12 and Gαs reduced androgen-induced reporter activities, but Gαq and Gαi did not show a dramatic effect. In the AR nuclear translocation experiments, we found that knocking down Gα12 suppressed AR nuclear translocation after androgen treatment. Finally, we demonstrated that Gα12 silencing impaired androgen-induced activation of PI3K and GSK-3β, which were required for AR activation.

Conclusions: Taken together, our findings clearly demonstrated that Gα12 and Gαs are required for androgen-induced AR transactivation in prostate cancer cells. While Gα12 is involved in androgen-dependent AR transactivation, Gαs is associated with androgen-independent AR transactivation. These findings provide novel targets for better management of prostate cancer.

Funding Source: the KU William L. Valk Endowment, and grants from Kansas Mason’s Foundation, KUMC Lied Foundation, and Department of Defense PCRP (DAMD17-03-1-0121) to Dr Benyi Li.

Poster #74

CAN BLADDER WASH CYTOLOGY PREDICT PATHOLOGIC OUTCOMES AT REPEAT TURBT?

Alan M. Nieder, Rajinikanth Ayyathurai, Murugesan Manoharan and Mark S. Soloway

University of Miami Miller School of Medicine Department of Urology

Introduction: Over 60,000 Americans are diagnosed with Urothelial Carcinoma (UC) of the bladder each year. Recent bladder cancer guidelines have stressed the need for a repeat TURBT prior to treatment for patients with high-grade lesions or pT1 UCs. While these new guidelines hope to prevent understaging of muscle invasive UC and increase the efficacy of intravesical therapy, a significant number of additional procedures are now required in the evaluation of UC. We sought to ascertain whether a bladder wash cytology prior to repeat TURBT can predict the pathologic outcome, and thus potentially obviate the need for a repeat TURBT in patients with a negative bladder wash cytology.

Methods: We retrospectively reviewed a single surgeon’s TURBT database and selected all patients who underwent a repeat TURBT (within eight weeks of their first resection) and had a bladder wash cytology obtained at the time of the repeat TURBT. The University of Miami IRB provided us with approval to perform this retrospective study. We specifically analyzed the correlation of bladder wash cytology and pathologic outcomes. All responses were entered by an independent data manager into SPSS statistical software.

Results: We retrospectively identified 33 patients, with a mean age of 71, who underwent a repeat TURBT at a mean interval of 39 days from their first TURBT. 25 (75%) patients had tumor present at repeat TURBT. 27% upstaged to muscle invasive disease at repeat TURBT and 18% had residual T1 disease. Bladder wash cytology was positive in 18, atypical in 12 and negative in 3. The table describes the sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV) of the bladder wash cytology when atypical results were analyzed as either positive or negative.

Conclusions: The negative predictive value of the bladder wash cytology was only 67% when atypical results were considered positive. We were thus unable to define a scenario, at which point, a negative bladder wash cytology could preclude the need of a second TURBT. Larger, prospective studies should be performed to further evaluate this topic. Until then, we will continue to support the recommendation for a repeat TURBT in patients at high risk for understaging or residual carcinoma.

<table>
<thead>
<tr>
<th>Atypical results (n=12)</th>
<th>Sensitivity</th>
<th>Specificity</th>
<th>PPV</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Negative for cancer</td>
<td>72%</td>
<td>100%</td>
<td>100%</td>
<td>33%</td>
</tr>
<tr>
<td>Positive for cancer</td>
<td>95%</td>
<td>23%</td>
<td>80%</td>
<td>67%</td>
</tr>
</tbody>
</table>
THE DISTRIBUTION OF RENAL MASSES USING AGE OF DIAGNOSIS AND TUMOR CELL TYPE UTILIZING THE UPDATED 2004 WHO HISTOLOGIC PARAMETERS

David Berger, Maria Serrano, Peter Humphrey, Yan Yan, Travis Bullock, Adam Kibel
Washington University School of Medicine, St. Louis, MO

Introduction: In 2004, the World Health Organization (WHO) revised the histologic subtypes of renal cell carcinoma (RCC) and renal masses to reflect our understanding of the genetic basis of this malignancy. The distribution of the new histologic parameters for each decade of life is unknown. Herein, we reviewed all of our radical and partial nephrectomy patients by decade to determine the distribution using the 2004 subtype scheme.

Methods: Using a computer database, we searched for patients who had undergone partial and radical nephrectomies performed at Barnes-Jewish Hospital during the years 1989 to 2003; we identified a total of 1087 consecutive cases of renal masses. All pathology slides were reviewed by a single pathologist (MS) and were retyped according to the 2004 WHO classification. The patients were classified as having Clear Cell (CC), Medullary (Med.), Papillary (Pap.), Chromophobe (Chr.), Unclear (UNCL), Multilocular Cystic (MLC), Collecting Duct Carcinoma (CDC), Angiomyolipoma (AML), Oncocytoma (Onc.) and Suspicious Cysts (SC). The variables analyzed were age of onset, gender, tumor cell type and stage of disease.

Results Obtained: Results are presented in Table below. Of the patients, 659 were males, 422 were females and 6 were unknown. Renal masses were more common in males throughout all decades of life, and of this study group, males are 659/1081 (60.96%), compared to 422/1081 (39.04%) for females. 33/1087 (3.04%) of the patients had known metastasis at time of diagnosis. Overall, CC was the most common tumor at 64.77% (704/1087) and Med. was the least common at 0.09% (1/1087). The incidence of Pap. RCC and Oncocytomas increased with each decade of life. Overall the histologic subtype distribution varied by age in a statistically significant manner (p=0.0006)

Conclusions: This study provides baseline histologic subtypes for the most common renal tumors. There is an association between cell type and decade of life at diagnosis.
Poster #76

THE SENSITIVITY OF TRANSURETHRAL BIOPSY FOR DETECTING PROSTATIC INVOLVEMENT BY TRANSITIONAL CELL CARCINOMA IN PATIENTS WITH BLADDER CANCER

Steven S Shen, Thomas M Wheeler, Gilad E Amiel, LD Truong, Seth P Lerner, Department of Pathology and Scott Department of Urology, The Methodist Hospital and Baylor College of Medicine, Houston, TX

Introduction: We have shown recently that patterns and extent of prostatic involvement is prognostically relevant (Human Path 2006) in patients with bladder transitional cell carcinoma (TCC). Knowledge of prostatic involvement preoperatively is important for surgical planning and choice of urinary diversion for cystectomy. To date, no studies have described the detailed patterns of prostatic TCC and correlation with transurethral biopsy. We analyzed prostatic TCC involvement in radical cystoprostatectomy specimens from 173 patients who had matched pre-cystectomy prostatic urethral biopsy.

Methods: Whole mount prostate step sections from 173 cases of radical cystoprostatectomy specimens from the files of a tertiary hospital between 1988 and 2006 were reviewed for incidence and patterns of TCC involvement of prostate including (1) prostatic urethral/ductal involvement by CIS; (2) lamina propria invasion of prostatic urethra; (3) Stromal invasion of prostate; (4) or extracapsular extension/semenal vesicle invasion by prostatic TCC direct penetration from bladder cancer. The corresponding prostatic urethra biopsies were evaluated and the results were correlated with whole mount sections.

Results: Prostatic involvement of TCC was detected in 65 patients (37.6%) by either prostatic urethral biopsy or whole mount sections. Of the 65 patients with prostatic TCC involvement, 33 had CIS, and 32 had invasive TCC, of which 8, 12, 12 of them were lamina propria invasion, prostatic stromal invasion and extracapsular/semenal vesical invasion, respectively. Ten of the invasive TCC were direct penetrating invasion from bladder cancer, and the rest were arising from the prostatic urethra or ducts. Forty-eight of 55 cases of lateral spreading prostatic TCC were detected by prostatic urethra biopsy for a detection rate of 87.3%. Seventeen cases of prostatic TCC were missed by prostatic urethral biopsy, of which over half (53%) of them were penetrating bladder cancers. Interestingly, 12 cases of prostatic TCC detected by prostatic urethral biopsy were not detected by whole mount sections. Eleven (92%) of these cases were CIS only.

Conclusions: Prostatic involvement by TCC is a common finding in patients with bladder cancer. Using the appropriate sampling strategy, the sensitivity of prostatic urethra biopsy for detection of lateral spreading prostatic TCC is 87.3%. Awareness of pattern of prostatic involvement by TCC in patient with bladder cancer should help guide the management of patients.

Poster #77

RADICAL PROSTATECTOMY FOR CLINICALLY LOCALIZED HIGH-RISK PROSTATE CANCER: CRITICAL ANALYSIS OF RISK-ASSESSMENT METHODS

Memorial Sloan-Kettering Cancer Center, New York, New York

Introduction and Objectives: Standardized criteria are lacking to define high-risk clinically localized prostate cancer before definitive treatment. Reliance on simple risk stratification schemes has led many physicians and patients toward therapeutic nihilism, inappropriately selecting androgen deprivation instead of definitive local therapy for these men. Among patients undergoing radical prostatectomy (RP), we identified high-risk subsets based on 8 previously described definitions, and examined their pathologic characteristics and prostate-specific antigen (PSA) outcomes.

Methods: The study population included 4708 men treated with radical prostatectomy alone between 1985 and 2004. Estimates of PSA relapse for high-risk patients were generated with the Kaplan-Meier method. Cox proportional hazards regression was used to estimate hazard ratios for recurrence in high-risk versus non–high-risk cohorts. A subset analysis of 664 patients who relapsed was conducted to determine the interval from RP to biochemical recurrence (BCR) and the PSA doubling time (PSA DT) at recurrence. The proportions of men with a PSA DT less than 3 months and a PSA DT of more than 10 months were calculated, based on previously established clinically relevant stratifications. All statistical tests were two-sided.

Continues on next page
Results: Depending on the definition used, high-risk patients comprised 3% to 38% of the study population. The proportion of patients with extracapsular extension, seminal vesicle invasion, and lymph node metastasis among men with high-risk cancers ranged from 35 to 71%, 10 to 33% and 7 to 23%, respectively. Notably, 22–63% of the high-risk tumors proved to be confined to the prostate pathologically. While high-risk patients had a 1.8-fold (95% confidence interval [CI] = 1.5 to 2.3) to 4.8-fold (95% CI = 4.1 to 5.7) increased hazard of PSA relapse, their 10-year relapse-free probability after radical prostatectomy alone was 41% (95% CI = 29 to 53) to 74% (95% CI = 70 to 78). Of the high-risk patients who relapsed, 25% (across all definitions) relapsed more than 2 years after surgery, and in 26-39% the PSA DT at recurrence was ≥10 months.

Conclusion: Patients diagnosed with high-risk cancers by currently available definitions do not have a uniformly poor prognosis after radical prostatectomy. The risk of extraprostatic disease and PSA relapse varies greatly depending on the definition used.

Poster #78

DETECTION AND ISOLATION OF DISSEMINATED TUMOR CELLS BY ENRICHMENT IN PATIENTS UNDERGOING RADICAL PROSTATECTOMY
Todd M. Morgan, Daniel W. Lin, William J. Ellis, Ian Gallaher, Marty Kinnunen, Bryce Lakely, Paul H. Lange, and Robert L. Vessella
University of Washington, Seattle, WA

Introduction and Objectives: We have developed and previously reported a technique for enriching and isolating disseminated tumor cells from the bone marrow (BM) of patients with prostate cancer. While it is known that dissemination of prostate cancer cells to distant sites generally occurs via the vasculature, the relationship between these cells and clinical disease remains in question. In particular, the significance of these cells in patients who have yet to undergo definitive therapy is not yet known. By obtaining bone marrow aspirates in patients prior to undergoing radical prostatectomy (RP), we sought to determine whether the presence of disseminated tumor cells (DTC) was associated with known clinicopathologic variables.

Methods: 668 patients underwent BM aspiration from the anterior iliac crest immediately prior to RP. Density gradient centrifugation with Ficoll-Hypaque was then performed to obtain an enriched mononuclear cell population, including cancer cells. Magnetic bead enrichment with antibodies to CD45 and CD61 was used as a negative selection step to remove leukocytes and megakaryocytes. This was followed by magnetic bead enrichment with antibodies to human epithelial antigen as a positive selection step to isolate the tumor cells. Cells were then stained with FITC-labeled anti-BerEP4 antibodies and viewed under ultraviolet light.

Results: The median PSA of patients undergoing RP was 5.3 (range 0.3-158.0). Overall, DTC were detected in 56.4% of patients. No difference was found in the detection of tumor cells between patients with pT2 (56.4%) versus pT3 disease (55.5%). However, detection was significantly increased in patients with node-positive disease, with 24 of 31 patients (77.4%) positive for disseminated tumor cells (÷2, p=0.016). Increasing PSA was associated with a trend towards increased detection of these cells. DTC were present in 47.0% of patients having a PSA < 4 compared with 61.5% of patients who had a PSA ≥20 (÷2, p=0.077). The presence of tumor cells was not dependent on Gleason grade. Additionally, DTC were found in 29 of 43 patients (67%) with hormone refractory metastatic disease. To explore the issue of tumor cell dormancy, we tested for these cells in patients who were >5 years disease-free following RP. DTC were detected in the bone marrow of 47% of these patients.

Conclusions: Over half of men undergoing RP had disseminated tumor cells detected in their BM just prior to surgery. This is significantly higher than the 20-30% of these patients expected to have biochemical relapse. The disparity in these numbers suggests that while dissemination of tumor cells is an early event in prostate cancer, other mechanisms such as clearance by the immune system, adaptation to the bone microenvironment, or prolonged tumor cell dormancy are likely playing important roles in mediating the fate of these cells. In addition, the findings with respect to PSA in this study indicate that these cells may correlate with pre-operative biochemical tumor severity. Further work is ongoing to describe the molecular characteristics of DTC using comparative genomic hybridization and gene expression micro-arrays.
ANALYSIS OF CASES WITH ABNORMAL URINE CYTOLOGY AND NORMAL HISTOLOGIC FINDINGS OVER A FIVE YEAR PERIOD
Alex Gorbonos, Eva M. Wojcik, JoAnn Jensen, Robert C. Flanigan, and Marcus L. Quek
From Loyola University Medical Center, Maywood, IL and Hines VA Hospital, Hines, IL

Introduction: Urine cytology remains an integral part of the initial diagnosis and subsequent surveillance for urothelial carcinoma. However, there exists a wide variability in the diagnostic value of this test. Patient characteristics, tumor features, and institutional differences account for a wide range in the accuracy of urinary cytology. The urologic evaluation for an abnormal cytology result often involves further invasive and costly testing, including endoscopic, histologic, and radiographic assessment. We reviewed the subgroup of patients at our institution with “positive” or “suspicious” cytology and negative initial evaluations.

Methods: From January 2000 to December 2005, 9688 urinary cytology specimens were collected from 8870 patients at the Edward J. Hines VA Medical Center. Of these, we retrospectively identified 50 discordant cytologies from 37 patients. The case was considered discordant if a work-up of “positive” or “suspicious” cytology obtained during initial cystoscopy resulted in a negative or benign diagnosis during subsequent cystoscopy with bladder biopsies and selective upper tract cytologies.

Results: All patients in our series were men with a mean age of 70.4 years (range: 39-88 years). The mean follow-up was 3.57 yrs (0.44-6.71). 19/37 (51.4%) patients had a prior history of urothelial carcinoma. 5/37 (13.5%) patients with discordant cytology and initial evaluation turned out to have cancer during follow-up. Of these 5 discordant cases, three were diagnosed with bladder carcinoma in situ, one with moderate grade superficial bladder cancer, and one had an upper tract malignancy. Only one of these cases involved a patient without a prior history of urothelial carcinoma.

Conclusions: Our results suggest that in the setting of “positive” or “suspicious” urine cytology with a negative initial evaluation, less than 15% of patients will later demonstrate urothelial malignancy. Despite this, continued surveillance of such cases, especially in patients with prior history of urothelial carcinoma is recommended. Other means of screening for and following urothelial cancer are needed to improve the diagnostic value of urinary cytology.

Financial Funding: None

IMPACT OF EXTENDED PROSTATE BIOPSY ON MINIMAIZATION OF THE VOLUME-GRSDE BIAS IN PROSTATE CANCER DETECTION
University Health Network, University of Toronto, Princess Margaret Hospital, Toronto, Ontario

Introduction and Objectives: Data from the prostate Cancer Prevention Trial (PCPT) revealed a higher number of high-grade cancers among men who were randomized to finasteride and underwent predominantly sextant prostate biopsy. We have recently explained that these results may have arisen due to a previously unknown association between prostate volume and sextant-biopsy derived grade. A basic tenet of measurement theory is that repeated or additional measurement improves validity of the underlying construct. We have decided to examine the impact of extended prostate sampling on the volume grade bias.

Materials and Methods: We reviewed 679 patients (median age 62.2 years, mean PSA 5.3, median prostate volume 46.8 cc.) in our center that underwent systematic 10 core or more biopsies with TRUS negative and PSA < 10. Since specimens were separately labeled, we are able to compare the histological grade amongst the first six cores versus the extended pattern. We studied the associations between histological grade, prostate volume and the number of biopsies (extended vs sextant). The prostate volume was divided into tertiles and McNemers tests were used to determine the statistical significance of the associations.

Results: Prostate cancer detected using a 6 core technique revealed 179/679 (26.4% 95% CI: 23.1-29.9) cancers vs. 240/679 (35.4% 95% CI: 31.8-39.1) using the extended core technique (p<0.001). The marginal cancer detection rate increased significantly as prostate volume increased. Cancer detection rates for first, second and third tertiles of prostate volume were increased by 16/227, 17/226 and 28/226, respectively (p=0.05, Cochrane test). With respect to Gleason score, upgrading from Gleason 6 to 7 was observed among 14 patients (5.8%) (p<0.001) due to the additional procured cores. However there was no association noted among the various prostate volumes: p=0.87.

Continues on next page
Conclusion: Although more high grade cancers are detected by additional prostate sampling, there is no differential upgrading with respect to prostate volume. Based on these observations, extended prostate sampling within clinical trials of agents that reduce prostate size will have minimal impact on volume grade associations.

No financial funding

Poster #81

RADICAL PROSTATECTOMY WITHOUT THE USE OF A PELVIC DRAIN
David Hepps, Roohollah Sharifi, University of Illinois at Chicago, Chicago, Illinois

Introduction and Objective: Negative pressure drains are commonly used after radical prostatectomy to evacuate fluid and monitor the quality of drainage. The gynecologic and colorectal literature has indicated that a pelvic drain provides no benefit and may increase infection and morbidity rates. We sought to evaluate the need for pelvic drainage after radical prostatectomy for localized prostate cancer.

Methods: 100 consecutive patients underwent either radical retropubic prostatectomy with pelvic lymph node dissection (RRP) or radical perineal prostatectomy (RPP) by a single surgeon for a clinically organ confined prostate cancer. After performing the vesicourethral anastomosis the urethral catheter was irrigated and if adequate return was noted a drain was omitted. A pelvic drain was placed if a rectal injury had occurred. Pre- and post-operative serum creatinine values were compared. A post-operative voiding cystourethrogram (VCUG) was performed and an assessment of pathologic stage, post-operative complications, and urinary continence was reviewed.

Results: We performed 81 RRP’s with pelvic lymph node dissection and 19 RPP’s. One patient had a drain placed intra-operatively due to a rectal injury repaired at the time of surgery. There was one immediate post-operative complication in a patient who developed a urinoma requiring re-exploration and drain placement on post-operative day (POD) 2. Both patients had extensive pT3 disease. Two patients experienced urinary retention after catheter removal on POD 8 and 10. One patient required incision of a bladder neck contracture and is continent. No patient had clinical evidence of a hematoma, lymphocele, or wound infection with an average follow up of 14 months (range 1-24). There was no difference between mean preoperative and postoperative (day ≥ 2) serum creatinine values in patients without a drain (1.14 vs. 1.08, p=0.16). A VCUG was performed in 71/100 patients. By POD 14, all catheters were removed without evidence of extravasation. At last follow-up, 90 patients (90%) required 0-1 pad per day (ppd), 6 required 2 ppd, and 4 required more than 2 ppd.

Conclusion: Our study suggests that a pelvic drain is not required in patients undergoing a radical perineal or retropubic prostatectomy. Omitting a drain does not appear to increase the risk of bladder neck contracture, incontinence, or post-operative complications. In selected cases a drain may be of benefit but routine drainage of the pelvis after surgery for localized prostate cancer can be avoided.

Poster #82

PROSPECTIVE COMPARISON OF ‘CLAMPLESS, SUTURELESS’ NEPHRON SPARING SURGERY VS. ‘CONVENTIONAL’ OPEN NEPHRON SPARING SURGERY FOR RENAL TUMORS INVOLVING COLLECTING SYSTEM ENTRY: INITIAL EXPERIENCE
Ithaar H. Derweesh, Christopher DiBlasio, Reza Mehrzarin, and Anthony L. Patterson
Department of Urology, University of Tennessee Health Science Center, Memphis, Tennessee

Introduction and Objective: Open nephron sparing surgery (NSS) is a technically challenging operation frequently involving collecting system entry with its attendant sutured repair and ischemic occlusion of the renal vasculature. Clampless, sutureless NSS involves utilization of a bipolar dissector (GYRUS) for renal tumor removal followed by hemostasis and closure of the parenchymal and collecting system defect with BioGlue (serum albumin glutaraldehyde adhesive) and Porcine Small Intestinal Submucosa. We sought to compare perioperative and short-term outcomes of clampless, sutureless open nephron sparing surgery versus conventional (collecting system and parenchymal closure with sutures and with cold or warm ischemic vessel occlusion) in patients undergoing NSS who had collecting system entry and repair.

Methods: Prospectively accrued data of patients with renal tumors (From September 2005 to August 2006) undergoing ‘conventional’ open NSS (group 1, n = 13, 8 Male/5 Female) or clampless, sutureless NSS (group 2, n = 12, 9 Male/3 Female) were compared for demographic factors, tumor characteristics, and perioperative parameters, and outcomes. Student’s T-test was used for statistical analysis, with p < 0.05 considered significant.
Results: Average age (years) for the Group 1 and Group 2 was 55.5 and 53.5, respectively (p=0.787). Maximal tumor dimension (cm) for Group 1 and Group 2 was 3.9 ± 1.3 and 3.9 ± 1.4, respectively (p=0.985). Mean operative time (minutes) for the Group 1 and Group 2 was 186.9 ± 30.4 and 210 ± 44.7, respectively (p=0.142). Mean estimated blood loss (cc) was significantly higher in Group 1 vs. Group 2, 336.9 ± 223.9 and 191.7 ± 84.2 (p=0.046), respectively. Average ischemia time for Group 1 was 24.1 minutes, while no patients in Group 2 required renal hilar occlusion. No patients in either group had a positive margin, while one patient in Group 1 (7.6%) had a urine leak and 1 patient in Group 1 (7.6%) suffered a deep venous thrombosis. Mean preoperative serum creatinine (ng/dL) values for Group 1 and Group 2 were 1.38 ± 0.34 and 1.33 ± 0.21 (p=0.607), the 3 month postoperative serum creatinines for Group 1 and Group 2 were 1.55 ± 0.43 and 1.37 ± 0.23 (p=0.191).

Conclusions: With similarly matched groups as regards age and maximal tumor dimension, clampless, sutureless open NSS may have advantages over conventional NSS in that it avoids any ischemic insult to the kidney, and is associated with a lower blood loss. Further experience and data are needed to confirm these findings and examine the effects on preservation and recovery of renal function.

Poster #83

RADIOFREQUENCY ABLATION OF RENAL TUMORS BETWEEN 3 AND 5 CENTIMETERS USING DIRECT, REAL-TIME TEMPERATURE MONITORING

Robert I. Carey MD PhD1, Scott Wingo MD2, Vincent G. Bird MD3 and Raymond J. Leveillee MD2
1 Urology Treatment Center, Sarasota, Florida and 2 University of Miami Miller School of Medicine, Miami, Florida

Purpose: We present our experience with the radiofrequency ablation (RFA) of renal tumors in the size range of 3 to 5 cm. The kidney, which receives at least 25% of cardiac output, is capable of buffering temperature changes with a large vascular throughput of blood at core body temperature. Algorithms of ablation that allow for complete ablation of a small peripheral tumor may not be sufficient for the ablation of a larger or centrally located endophytic tumor where rapid blood flow may act to dissipate heat efficiently. Insufficient or inhomogeneous temperature changes will result in an incomplete ablation. Conversely, overly ablating tissue without the ability to adequately monitor the ablation zone is not consistent with the goals of nephron-sparing surgery and is not equal treatment to techniques of partial nephrectomy in which safe margins (often only millimeters are required) are routinely obtained. We use direct, real-time temperature monitoring to help guide the targeting and duration of our ablations.

Patients and Methods: 96 patients underwent 104 tumor laparoscopic or percutaneous CT-guided RFAs. We identified a total of 37 tumors between 3 and 5 cm at the time of the ablation. Non-conducting temperature probes, independent of the RF electrode, were placed at the peripheral and deep margins of the tumor in order to achieve real-time temperature monitoring of the ablation zone. All ablations were continued until the peripheral and deep temperature probes reached 60 degrees Celsius.

Results: All 37 patients (100%) achieved complete necrosis. There were two radiographic failures at 9 months and 30 months respectively that required a second treatment (95% radiographic success rate), however tissue samples taken at the time of the retreatment showed no evidence of viable tumor with hematoxylin eosin or NADH viability stains. Average length of follow-up is 11.3 months (range 1-44 months). No patient with localized disease at the time of the RFA developed local extension or metastatic disease in follow-up.

Conclusions: We recommend the use of direct, real-time temperature monitoring at the deep and peripheral tumor margins to guide deployment and duration of RF ablation cycles. Complete ablation in a single session is 100% successful for tumors less than 5 cm. At 11.3 months average follow-up, radiographic imaging has suggested recurrence for 3.2% of tumors less than 3 cm and 7.1% of tumors between 3 – 5 cm. H&E and viability stains after salvage treatments have shown only one viable tumor in these cases. There has been only one tissue-proven case of local recurrence, no development of metastatic disease, no skin site metastasis, and no peritoneal spread after RFA in this series. Techniques for targeting and monitoring the ablation are more important for success than is the source of RF energy or the electrode.
**Poster #84**

**IDENTIFYING CANDIDATE TUMOR GENES ASSOCIATED WITH BLADDER CANCER INVASION AND HISTOLOGIC SUBTYPES USING OLIGONUCLEOTIDE MICROARRAYS**  
Theresa M. Koppie*, Semra Olgac, Nicholas Socci, Bernard H. Bochner, Carlos Cordon-Cardo, New York, NY

**Introduction and Objective:** Gene expression profiles analysis is a useful means to identify novel candidate tumor genes. We sought to identify novel genes associated with bladder cancer histology as well as the invasive bladder cancer phenotype using oligonucleotide arrays.

**Methods:** After pathologic review by a dedicated GU pathologist, transcript profiling of 116 bladder tumors were performed using the Affymetrix U133 2.0 Plus oligonucleotide microarrays. Data were normalized using the RMA method. Several techniques including t-test and single logistic regression analyses with corrections for multiple comparisons were used to identify genes associated with histologic subtype and the invasive phenotype. The differential protein expression of selected molecular targets was validated at the microanatomical level by immunohistochemistry using tissue microarrays.

**Results:** Data analysis strategies identified more than 300 genes differentially expressed between histologic subtypes (neuroendocrine, glandular, squamous, urothelial). Tumors with glandular differentiation showed enrichment for expression of a number of enzymes such as chymotrypsin, peptidases and lipases. Tumors with small cell differentiation showed relative overexpression of genes which map to previously described regions of genomic amplification in small cell carcinomas, such as 1p, 1q and 6p. Statistical analyses also revealed over 300 genes associated with the invasive phenotype. Many candidate genes identified had functions implicated in invasion and metastasis, such as cellular motility, cell signaling, extracellular matrix degradation, and differentiation.

**Conclusions:** Molecular profiling identified numerous genes associated with bladder cancer invasion and histologic subtype. Genes associated with bladder cancer invasion may have implications for metastasis and disease progression, and provide novel markers for aggressive disease.

**Poster #85**

**LAPAROSCOPIC NEPHRECTOMY FOR LARGE RENAL MASSES**  
Kristian Novakovic, Millie Pevzner, Bart Radolinski, Peter Pinto, Paul Albert, Jonathan Coleman  
Urologic Oncology Branch, National Cancer Institute Bethesda, MD

**Introduction:** Laparoscopic nephrectomy is increasingly reserved for more complicated renal masses. The upper limit of renal mass size that is considered amenable to laparoscopic radical nephrectomy (LN) continues to increase. We reviewed a series of LN done at the National Cancer Institute (NCI) to determine the impact of increasing tumor size on operative outcomes.

**Methods:** A retrospective review of 96 consecutive LN performed at the NCI between March 1996 and December 2005 was conducted. The impact of tumor size on several operative outcome measures including surgery length, estimated blood loss, blood transfusions, open conversions, perioperative complications, and postoperative disease status was assessed using regression techniques.

**Results:** Tumors ranged in size from 2.0 to 20.0cm (median 8.0cm) and 34 operations were performed for tumors that were =10.0cm. 11 of the 96 operations were performed using hand assisted technique. 12 specimens were morcellated intraoperatively while the rest were removed intact. Average follow up was 10 months. Operative times did increase significantly with larger tumor size as did estimated blood loss (r=0.32, P=0.001 and r=0.30, P=0.003 respectively). Tumor size did not significantly impact the number of perioperative transfusions, or perioperative complications (P=0.10 and P=0.39 respectively). There was no significant increase in the number of open conversions in patients with larger tumors (P=0.49). In patients with no preoperative metastases, tumor size did not correlate with poorer postoperative disease status during the follow up period (P=0.35).

**Conclusions:** Although larger tumors add complexity to the laparoscopic nephrectomy that is reflected in longer operative times and increased EBL, they do not worsen operative outcomes with respect to blood transfusion, peri-operative complications, or open conversion. Large renal tumors can be safely and effectively removed with laparoscopic nephrectomy.
**Poster #86**

**GROWTH RATES OF HEREDITARY CLEAR CELL RENAL CARCINOMAS: INFLUENCE OF GERMLINE MUTATIONS AND BODY MASS INDEX**

Gennady Bratslavsky, Paul Albert, Jack Liu, Rabindra Gautam, Craig Rogers, James Peterson, Lynda Choyke, Peter Choyke, Peter Pinto, and W. Marston Linehan
Urologic Oncology Branch, National Cancer Institute, National Institutes of Health, Bethesda, MD

**Introduction and Objectives:** Biallelic loss of the von Hippel-Lindau (VHL) gene is a well established early event that is seen in the majority of sporadic clear renal cell carcinomas (SCRCC) and all cases of renal malignancies in VHL patients. Previous studies have demonstrated that when solid renal tumors from VHL patients are removed before the largest lesion reaches 3cm, the metastatic potential of these lesions is low. Therefore, at NCI the routine management of patients with solid renal masses is observation until the largest solid tumor reaches about 3cm. Although recent studies have evaluated the natural history of observed sporadic enhancing renal masses, there are no studies that evaluate the behavior of hereditary renal lesions. In this study we examine the growth rates of renal masses in VHL patients and evaluate the influence of germline mutations and Body Mass Index (BMI) on growth rates of these hereditary tumors.

**Methods:** We retrospectively reviewed radiographic studies (CT or MRI) of VHL patients evaluated for follow up at the National Cancer Institute in the Urologic Oncology Branch within the past 12 months. Patients with at least one solid enhancing renal lesion greater than 2cm during the last follow up who had at least two prior interval tumor measurements were included in the study. In each patient the slope of the growth rate for the largest solid renal lesion was estimated using the least-squares regression. Analysis of variance (ANOVA) and T-tests were used to test for differences in tumor growth rate between specific VHL mutations and types of VHL mutations. Linear regression was used to test for an association between BMI and tumor growth rate.

**Results:** We identified 62 patients that fulfilled our inclusion criteria. The median age was 43 years (range 22 to 67) and 50 % were males. The median follow up was 2.5 years (0.4-6.3) years. The median tumor growth per year was 0.31cm (-0.37cm to 1.12cm). There were no associations between the growth rates and specific VHL mutations (ANOVA comparing 7 mutation types, p=0.67), or types of mutations (p=0.68) for comparing truncating versus non-truncating mutations. Additionally, there was no association between the tumor growth rates and BMI (p=0.11).

**Conclusions:** This is the first report that examines the growth rates of hereditary renal tumors. Solid tumors in VHL patients have similar growth rates of their sporadic counterparts reported in the literature, and are independent of mutations and BMI. The absence of association between the growth rates and mutations indicate that any aberration of the VHL protein leads to carcinogenesis independent on initial germline mutation.

This research was supported by the Intramural Research Program of the NIH, National Cancer Institute, Center for Cancer Research.

**Poster #87**

**AGE OF INDEPENDENT PREDICTOR OF CLINICALLY SIGNIFICANT PROSTATE CANCER IN A REFERRAL POPULATION**

Gregory R Hanson, Jonathan Wright, Christopher R Porter
Section of Urology, Virginia Mason Medical Center, Seattle, WA

**Introduction:** Prostate cancer is the most common non-cutaneous malignancy of men in the United States. Approximately 232,090 new cases were diagnosed in the U.S. in 2005 with 30,350 patients succumbing to this disease. Traditionally, screening for prostate cancer has waned as men approach 75 years of age. As the U.S. population ages and as life expectancy increases, urologists will increasingly be faced with patients in their 70’s who can be expected to live for greater than 10 years. Clinically significant prostate cancer is still diagnosed in men in this age group. To help address this issue, we evaluated a prostate biopsy database to assess the nature of prostate cancer diagnosed in elderly men.

**Objective:** To evaluate the impact of age in diagnosing clinically significant prostate cancer in a referral population.

*Continues on next page*
Methods: A prospective database of 790 men who had undergone biopsy by a single urologist (CRP) was reviewed. Data recorded included age, race, pre-biopsy PSA, DRE status, previous biopsy, number of cores taken, mean prostate volume and biopsy Gleason score. Multivariate regression analysis was performed to determine the relationship of increasing age with more aggressive Gleason scores (7-10) on biopsy. For analysis, we divided our patients into clinically applicable age groups of greater than or equal to 70 and less than 70 years (Table 2).

Results: The mean age of patients was 63.1 years. Men over 70 years of age were more likely to have increased mean prostatic volume (P < 0.001), abnormal DRE (P < 0.001) presence of prostate cancer (P < 0.001) as well as presence of a clinically significant grade of prostate cancer (Gleason 7 or 8-10) (P < 0.001).

Conclusions: Age is an independent predictor of clinically significant prostate cancer in a referral population. Patients who are 70 years or older with a 10-year life expectancy that are seen by urologists should be counseled that they are at higher risk of harboring clinically significant prostate cancer.

Poster #88

PARTIAL ADRENALECTOMY FOR THE TUMOR OF A SOLITARY ADRENAL GLAND: OPTIMAL TUMOR SIZE FOR INTERVENTION
Craig Rogers, Sunil Sudarshan, Amar Singh, Munish Vira, W. Marston Linehan, Jonathan Coleman, Peter Pinto, Urologic Oncology Branch, National Cancer Institute, National Institutes of Health, Bethesda, MD

Introduction and Objectives: Patients with von Hippel-Lindau disease (VHL) and multiple endocrine neoplasia type 2 (MEN2A) are at significant risk of developing adrenal pheochromocytomas, with both glands commonly affected during the patient’s lifetime. The aim of partial adrenalectomy is to provide adequate resection of adrenal masses without compromising tumor control while preserving adrenocortical function, thus avoiding the morbidity of adrenal insufficiency and the need for long term hormonal replacement. We report our outcomes after partial adrenalectomy in patients with hereditary adrenal pheochromocytoma in the setting of a solitary adrenal gland and assess the association of tumor size with the need for postoperative adrenal replacement.

Methods: We identified 10 patients who underwent partial adrenalectomy in the setting of a solitary adrenal gland from 1996 to 2003. The median follow-up was 5 years (range 1-9 years). A retrospective review was done to obtain information including tumor size (radiographic and pathologic), postoperative adrenal function, and tumor recurrence.

Results: We identified 10 patients who underwent partial adrenalectomy on a solitary adrenal gland (open=4 laparoscopic =6). Four of these patients required adrenal replacement after surgery, although 3 of these patients no longer required steroids after 3 months. Adrenal tumors ranged in size from 1.7 cm to 5 cm (mean 2.8 cm). The only patients that required adrenal hormone replacement after surgery all had tumors over 3 centimeters (mean 4.0 cm, range 3.0-5.0 cm) whereas all patients that did not require hormones had tumors less than 2.2 cm (mean 1.86 cm, range 1.7-2.2 cm). This size difference was statistically significant (P = 0.03). Therefore, ideal tumor size cutoff for recommending partial adrenalectomy for a solitary adrenal mass is likely less than 3 centimeters. No patient had evidence of adrenal tumor recurrence based on postoperative imaging and catecholamine levels.

Conclusions: Partial adrenalectomy can preserve adrenocortical function in patients with a mass in a solitary adrenal gland without compromising tumor removal. The necessity for postoperative adrenal hormone replacement after partial adrenalectomy in a solitary tumor may be reduced when surgery is performed for a tumor size of less than 3.0 cm.

This research was supported by the Intramural Research Program of the NIH, National Cancer Institute, Center for Cancer Research.
**Poster #89**

**SURGICAL ISCHEMIA EFFECT ON NON-MALIGNANT PROSTATIC URETHRA DURING RADICAL PROSTATECTOMY**

John W. Josephson¹, Manish A. Vira M.D.¹, John W. Gillespie, M.D.¹, Jaime Rodriguez M.D.², Peter A. Pinto M.D.¹, W. Marston Linehan M.D.¹, Rodrigo F. Chuaqui, M.D.², Michael R. Emmert-Buck, M.D., Ph.D.², Heidi S. Erickson, Ph.D.², and Jonathan A. Coleman, M.D.¹

¹Urologic Oncology Branch, Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda, MD.
²Pathogenetics Unit, Laboratory of Pathology and Urologic Oncology Branch, Center for Cancer Research, National Cancer Institute, National Institutes of Health, Bethesda, MD.
³SAIC-Frederick, Inc., National Cancer Institute at Frederick, Frederick, MD 21702-1201

**Introduction:** Hypoxia has been implicated in the development of spurious molecular events that promote mutagenesis and tumorigenesis. The alterations caused by tissue hypoxia and downstream effects in human tissue, both malignant and non-malignant, may be critical to understanding the tumor micro-environment and particularly tumor-stromal interactions. The objective of our study is to evaluate the effects of iatrogenic ischemia on non-malignant tissue in patients undergoing prostatectomy. Gene expression in microdissected cell populations were evaluated to assess putative alterations in selected pathways as a function of tissue hypoxia.

**Methods:** Under an IRB approved tissue procurement protocol, normal prostatic urethral tissue was freshly procured from ten patients at three time points during laparoscopic and robot assisted laparoscopic prostatectomy, imbedded in OCT, and immediately placed on dry ice. After sectioning, urothelium and urethral stroma samples were isolated using laser capture microdissection while normalizing by cell count. Quantitation and qualification of total RNA was performed using NanoDrop and Bioanalyzer techniques. Gene expression analysis was performed using Taqman qRT-PCR on three housekeeping (18s, CYPA, TFRC) three traditional hypoxia related (VEGF, HIF-1a, VHL) and three non-hypoxia related genes (LAMP2, MTR, STAT5B) and indexed to â-actin. Data analysis used the Delta-Delta Ct method between time points.

**Results:** Few genes showed significant alterations in gene expression between the three time points analyzed. Only VEGF, a known hypoxia related gene, in urothelium showed greater then a three-fold significant up regulation in transcript expression (3.63, p=0.004) between time points. No other gene in either class showed greater then two-fold significant difference between any time points.

**Conclusion:** These preliminary data suggest that iatrogenic hypoxia occurs during surgical manipulation of normal tissue creating changes in hypoxia related gene expression. Changes in expression of other selected genes including housekeeping and non-hypoxia related genes were not associated with hypoxia. These findings may elucidate the role of hypoxia in normal tissue and implicates hypoxia as a confounding influence of surgical manipulation on human tissue obtained for research study of gene expression from procured specimens.

**Poster #90**

**UPDATED NOMOGRAM TO PREDICT PATHOLOGIC STAGE OF PROSTATE CANCER GIVEN PSA, CLINICAL STAGE, AND BIOPSY GLEASON SCORE (PARTIN TABLES) BASED ON CASES FROM 2000-2005**

Danil V. Makarov, Bruce J. Trock, Elizabeth B. Humphreys, Leslie A. Mangold, Patrick C. Walsh, Jonathan I. Epstein, Alan W. Partin

The James Buchanan Brady Urological Institute, Departments of Urology and Pathology, The Johns Hopkins Medical Institutions, Baltimore, Maryland

**Objectives:** To correct for the effect of stage migration we update the 2001 “Partin Tables” with a contemporary patient cohort and revised variable categorization.

**Methods:** We analyzed 5,730 men treated with prostatectomy (without neoadjuvant therapy) between 2000 and 2005 at the Johns Hopkins Hospital. Average age was 57 years. Multinomial logistic regression was used to estimate the probability of organ-confined disease, extraprostatic extension, seminal vesicle involvement, or lymph node involvement. Predictor variables included preoperative PSA (0-2.5, 2.6-4.0, 4.1-6.0, 6.1-10.0, and >10ng/mL), clinical stage (T1c, T2a, and T2b/T2c), and biopsy Gleason score (5-6, 3+4=7, 4+3=7, or 8-10).

**Results:** 77% had T1c, 76% had Gleason 6, 80% had PSA between 2.5-10.0ng/mL, and 73% had organ-confined disease. Nomograms were developed of the predicted probability of pathologically organ-confined disease, extraprostatic extension, seminal vesicle invasion, or lymph node involvement. Ninety-five percent confidence intervals were developed using bootstrap resampling. The risk of non-organ-confined disease increased with increases in any individual prognostic factor. Combining T2b with T2c groups generated better predictive accuracy.

*Continues on next page*
Conclusions: These updated “Partin Tables” were generated to reflect trends in presentation and pathologic stage for men diagnosed with clinically localized prostate cancer at our institution. Clinicians and patients can use these nomograms to help make important decisions regarding management of prostate cancer.

Supported by the National Institute of Health/ National Cancer Institute – SPORE Grant #P50CA58236, The Prostate Cancer Foundation, and Early Detection Research Network/NCI/ NIH Grant number U01-CA86323

Poster #91

PD-L1 (B7-H1) EXPRESSION BY UROTHELIAL CARCINOMA OF THE BLADDER AND BCG-INDUCED GRANULOMATA: ASSOCIATIONS WITH LOCAL STAGE PROGRESSION AND BCG RECURRENCE
Brant Inman1, Thomas Sebo1, Haidong Dong1, Eric Bergstralh1, Yves Fradet2, Louis Lacombe2 and Eugene Kwon1
1Mayo Clinic College of Medicine, Rochester, MN; 2Universite Laval, Quebec, QC

Introduction: PD-L1 (a.k.a. B7-H1) is a cell surface glycoprotein that can impair T cell function following costimulatory activation. PD-L1 is aberrantly expressed by multiple human malignancies and has been associated with unfavorable tumor prognosis. Animal studies indicate that tumors expressing PD-L1 more easily evade host immunity and that blockade of PD-L1 facilitates T cell-mediated tumor rejection.

Methods: Using immunohistochemistry and proportional odds ordinal logistic regression, we evaluated PD-L1 expression as a potential mechanism for stage progression in 280 high-risk urothelial carcinomas of the bladder. Covariates controlled for included age, gender, tumor grade and lymphocytic invasion. We also assessed the role of PD-L1 in patients with high-risk superficial bladder cancers that experienced BCG failure.

Results: PD-L1 expression was observed in 7% of pTa, 16% of pT1, 23% of pT2, 30% of pT3/4 and 45% of CIS tumors. PD-L1 expression was extremely elevated within granulomas of 11/12 patients failing bacillus Calmette-Guérin for treatment of high-risk non-muscle invasive carcinoma. PD-L1 expression was associated with high-grade tumors (OR=2.4, P=0.009) and tumor infiltration by mononuclear cells (OR=5.5, P=0.004). Using multivariate ordinal logistic regression, we observed that the key determinants of stage progression were WHO/ISUP high-grade tumor pathology (OR=4.77, P<0.001) and PD-L1 expression (OR=2.20, P=0.012).

Conclusions: Collectively, these data indicate that tumor PD-L1 may facilitate local stage-advancement of urothelial carcinoma and also provide a mechanism for the failure of BCG immunotherapy. The crippling of T cells that normally guard against cancer invading from the epithelium into the bladder musculature may be a threshold event that heralds transformation of this cancer from one that is primarily curable into one that is fatal for a large proportion of patients.
Introduction and Objective: Mortality associated with renal cancer has increased over the past three decades. However, few studies have examined mortality based on ethnicity. This study investigated ethnic variation in overall and cause-specific mortality associated with renal cancer in the United States using population-based registries.

Methods: This was a retrospective descriptive epidemiologic study using the 13 population-based registries of the National Cancer Institute’s Surveillance Epidemiology and End Results (SEER) program. All individuals 20 years or older diagnosed with a malignant renal cancer from 1988 to 2002 were eligible. We excluded those persons diagnosed with transitional cell carcinoma, sarcoma, or squamous cell carcinoma. We assessed differences in cause-specific and overall mortality based on ethnicity (African-American, Hispanic, or Asian/Pacific Islander compared with non-Hispanic Caucasians) using Cox proportional hazard regression. We stratified subjects based on clinical stage of disease (localized, regional, or distant) and adjusted for patient's age and marital status, gender, year of diagnosis, histologic type, tumor registry, and whether the patient had surgery.

Results Obtained: Among patients with localized disease, African-Americans had an increased overall mortality (HR 1.31, 95% CI: 1.19-1.44 p<0.0001) while only Asian/Pacific Islanders had an increased cause-specific mortality (HR 1.52, 95% CI: 1.11-2.06 p<0.01) compared with Caucasians. Among patients with regional disease, neither cause-specific nor overall mortality varied based on race. Among patients with distant disease, Asian/Pacific Islanders had a lower overall and cause-specific mortality compared with Caucasians (HR 0.83, 95% CI 0.71-0.96 p=0.01 and HR 0.76, 95% CI: 0.65-0.90 p<0.01 respectively).

Conclusions: Mortality among people with renal cancer varies by ethnicity in the United States. This variation may result from biologic effects of ethnicity on the disease process or the access and utilization of health care.
THE HISTONE DEACETYLASE INHIBITOR FK228 IS AN EFFECTIVE TREATMENT IN A MOUSE MODEL OF HUMAN UROTHELIAL CARCINOMA (UC)
Jose A. Karam1, Jinhai Fan1, Jennifer Stanfield1, Edmond Richer2, Elie A. Benaim1, Eugene Frenkel3, Peter Antich2, Arthur I. Sagalowsky1, Ralph P. Mason2, and Jer-Tsong Hsieh1
1Department of Urology, 2Department of Radiology, 3Department of Internal Medicine, University of Texas Southwestern Medical Center, Dallas, Texas

Objectives: Bladder cancer results in 13,000 deaths each year. The long term disease-free survival in patients with metastatic bladder cancer is still considerably low. Novel chemotherapeutic agents are needed to decrease the morbidity and mortality of UC.

Methods: T24 bladder cancer cell line was used. Cell treatment was done with the histone deacetylase inhibitor FK228. Cell viability was measured using crystal violet assay after drug treatment. Western blot and flow cytometry were used to assess for apoptosis and alterations in cell cycle. Subcutaneous model was obtained with subcutaneous implantation of T24 cells in nude mice and measurement of tumor size with caliper. Orthotopic model was obtained by injection of T24-luciferase cells into nude mice bladders and assessment of tumor size with quantitation of bioluminescence with an intensified charge-coupled camera.

Results: FK228 results in decreased T24 cell viability starting 3 days after treatment with a low dose (0.25ng/ml). This effect is dose-dependent and time-dependent. FK228 results in apoptosis as evidenced by cleavage of PARP on western blot. Apoptosis effect is corroborated by flow cytometry as the pre-G0/G1 phase is 37% with treatment, compared to 1.6% in control. In addition, FK228 causes arrest in G2 phase (G2 content 21.2% in treatment versus 11.7% in control). Cyclin B, level was unchanged. Cyclin E, on the other hand, was increased after treatment with FK228. Wild-type p53 could not be detected in T24 cell line, before and after treatment. p21 levels were increased in FK228-treated cells, in a p53-independent fashion. In the subcutaneous model, tumors were equal in size at start (21 vs. 16 mm^3) and 7 days after treatment (46 vs. 58 mm^3). On days 14 and 21 after treatment, tumors were significantly smaller in the FK228-treated group as compared to control group (63 vs. 132 mm^3, and 69 vs. 240 mm^3, respectively). In the orthotopic model, bioluminescence imaging of the bladder region showed 1.6, 5.8, 5.2, 3.1 million photon counts in the FK228-treated group, compared to 0.9, 2.6, 9.2, 17.5 million photon counts in the control group, at 0, 7, 14, and 21 days of treatment, respectively.

Conclusions: FK228 results in a dose and time dependent cytotoxic effect on UC in vitro. FK228 causes apoptosis and G2 arrest in UC. p21 levels are increased in a p53-independent fashion. FK228 results in tumor shrinkage in a subcutaneous model as well as an orthotopic bladder cancer model as measured by reproducible, non-invasive novel bioluminescence imaging techniques.

Funding source: NIH grant CA95730 (to J.T.H.)

POLYMORPHISMS OF TGFB1 AND PROSTATE CANCER PROGNOSIS
Timothy C. Brand, MD, Carlos Bermejo MD, Dawn Garcia MS, Edith D. Canby-Hagino MD, Jacques Baillargeon PhD, Dean A. Troyer MD, Ian M. Thompson MD, Robin J. Leach PhD, Susan L. Naylor PhD
University of Texas Health Science Center at San Antonio

Introduction and Objective: In normal cells, TGFα is associated with tumor suppression by promoting differentiation and growth inhibition. In tumor cells, increased expression of TGFα may result in promotion of tumorigenesis. Several single nucleotide polymorphisms (SNPs) in TGFB1 have been identified, and two variants C-509T and T+29C may be associated with prostate cancer risk. Because of the potential role of TGFB1 variants in prostate cancer risk and progression, we hypothesized that polymorphisms of TGFB1 at C-509T may be associated with prostate cancer risk and/or more aggressive tumors.

Methods: This is a case-control study where prostate cancer patients were enrolled regardless of stage, grade or treatment rendered. Ascertainment of case status was determined by review of pathology reports and/or medical records in all cases obtained from the various health care facilities in the San Antonio area. The control group consisted of male volunteers of at least 40 years of age who had a normal digital rectal examination (DRE) and a prostate specific antigen (PSA) < 2.5 ng/ml. The definition of bad outcome used in this study was any Gleason...
sum 8-10, pT3A (if Gleason is 7 or greater), pT3B or higher (all Gleason), any N1 or higher, any M1 or higher, or any documented PSA recurrence. Lymphocyte DNA was isolated from blood samples using a QIAamp blood kit. Single nucleotide polymorphisms were genotyped using TaqMan allelic discrimination assays. Statistical analyses were performed using SPSS software. Logistic regression models were used to estimate odds ratios with corresponding 95% confidence intervals. All odds ratios were adjusted for age.

**Results**: There were 653 cases and 1476 controls available for genotyping with complete records. The polymorphisms did not demonstrate a statistically significant association with prostate cancer risk. There was a trend towards a protective effect with the CT polymorphism and risk of high-grade prostate cancer (Gleason score = 7) with an odds ratio of 0.65 (95% C.I. 0.41-1.04). The TT polymorphism did show a statistically significant protective effect with high grade prostate cancer with an odds ratio of 0.48 (95% C.I. 0.15-0.68). There was a trend towards a protective effect with the CT polymorphism and risk of bad outcome prostate cancer with an odds ratio of 0.61 (95% C.I. 0.37-1.00). The TT polymorphism did show a statistically significant protective effect with bad outcome prostate cancer with an odds ratio of 0.30 (95% C.I. 0.10-0.89).

**Conclusions**: We have not demonstrated an association with SNPs of TGFB1 at C-509T with prostate cancer risk. The TT polymorphism of TGFB1 at C-509T demonstrates a protective effect against high-grade prostate cancer and cases with a bad prognosis.
Methods: Men on a programme of active surveillance following a diagnosis of prostate adenocarcinoma were recruited. Patients with prior prostate surgery, radiotherapy or hormonal treatments were excluded. A dynamic contrast-enhanced (DCE) MRI was performed on enrolment. VTP procedures used a trans-rectal ultrasound and brachytherapy template to guide the insertion of cannulae into the prostate. Procedure was performed under general anaesthesia and took 120-150 minutes. Light was delivered from a 763nm diode laser, via cylindrical diffusers in the prostate. The 14 patients in part A received a maximum of 1 illumination fibre per lobe, at varying light doses. The 10 patients in Part B received multiple illumination fibres, the configurations of which were based on previous experience and the position of tumour on biopsy and MRI. Follow-up included MRI, PSA, IPSS/IIEF questionnaires and laboratory tests.

Results: Evidence of confluent necrosis of up to 60% of the prostate was seen on DCE-MRI. Urinary toxicity was low. 2 patients required a urinary catheter for up to 7 days and 3 more performed intermittent catheterisation for up to 3 weeks. There was no urinary incontinence. Erectile function was preserved in previously potent men. Intra-operative hypotension related to drug infusion was seen in 7/24 patients. 1 case of deep vein thrombosis and 2 cases of superficial thrombosis were seen. A transient, asymptomatic rise in hepatic enzymes was seen in almost all patients. No skin photosensitivity was seen.

Conclusions: WST-09 VTP in primary prostate cancer is a safe and well tolerated procedure which can produce targeted lesions of necrosis within the prostate. It has possible utility in focal and whole-gland therapy. Further studies are required to assess its oncological efficacy.

Declarations: Research supported by Steba-Biotech and Negma-Lerads, France. (Mr D Pendsé) Mrs C Moore was funded by The Royal College of Surgeons of England Research Fellows scheme, St Peters Trust and the BUPA Foundation.

8:30 p.m.

TARGETED TREATMENT OF LOCALIZED REGIONS OF THE PROSTATE GLAND USING MRI-GUIDED TRANSURETHRAL ULTRASOUND THERAPY: DEMONSTRATION IN VIVO
Sree Appu (1), Rajiv Chopra(2), Laurence Klotz (1), Michael Bronskill (2), (1) Dept Urology, (2) Dept Imaging Research Sunnybrook Health Sciences Centre, Toronto, Ontario, CANADA

Introduction: Conventional treatment options for localized prostate cancer has potential for significant morbidity. Trans-rectal ultrasound therapy (HIFU), offers a high level of accuracy, and has the potential for reduced complications. Some limitations of this therapy is the long treatment time and the lack of quantitative monitoring and dynamic assessment of the procedure. We describe MRI-guided transurethral HIFU therapy for localized prostate cancer. This form of therapy can treat the entire prostate gland in a short time (<30 minutes) because the energy is being delivered from within the prostate, and hence a larger ultrasound beam can be used. In addition, MR thermometry can provide real-time quantitative measurements of the temperature distribution during therapy, enabling precise knowledge of the energy delivered to the prostate.

Objectives: The goal of this study was to evaluate the capability to generate a targeted region of thermal damage within the prostate gland using transurethral ultrasound therapy and active MR temperature feedback. The capability to treat the posterior peripheral zone of the gland while sparing rectal tissue was also evaluated.

Methods: Transurethral ultrasound therapy was performed in five dogs inside a clinical 1.5T closed bore MRI using a prototype treatment system developed within our group. Heating applicators were inserted into the prostatic urethra through a perineal urethrostomy, and a cooling device was placed in the rectum to cool the rectal wall during treatment. A selected region of the prostate was treated adjacent to the rectum with active temperature feedback throughout the therapy. The measured temperature distribution was used to adjust the output from the transurethral heating applicators to achieve a temperature of 55°C along the target treatment boundary. Animals were subsequently sacrificed, and the prostates and rectal tissue were harvested. Vital staining and histology of the treated region was performed to compare with the imaging measurements

Results: Accurate visualization of the prostate gland and localization of heating applicators was achieved using MRI. The MR temperature measurements were very stable, with an uncertainty of approximately 1°C over the course of the treatment. The treatments lasted approximately 15 minutes, and over 50% of the gland was treated. The error between the 55°C isotherm achieved in the prostate and the desired target boundary was +/- 0.7mm. Two boundaries of thermal damage were defined on subsequent H&E stained tissue sections corresponding to

Continued from previous page

Continued on next page
complete thermal coagulation (100% cell kill), normal prostate tissue (0% cell kill). The maximum temperature achieved along these boundaries was found to be 55 +/- 3degC (100% boundary) and 50 +/- 3degC (0% boundary). Histopathology of the rectal tissue confirmed that the cooling protected it from thermal damage during therapy.

**Conclusions:** MRI-guided transurethral ultrasound therapy is a potential alternative approach for treatment of localized prostate cancer. Accurate thermal damage of targeted regions of the prostate can be achieved rapidly using MR thermometry. Quantitative measurements of the spatial distribution of thermal damage can also be obtained.

**Acknowledgements:** This work is supported by the National Institute of Canada and the Canadian Institutes for Health Research.

---

**SATURDAY, DECEMBER 2, 2006**

8:30 a.m.

**EFFECTS OF SHORT-TERM FINASTERIDE ON APOPTOTIC FACTORS AND ANDROGEN RECEPTORS IN PROSTATE CANCER CELLS**

Robert Bass*, Brantley Thrasher, Billy Perry, Osama Tawfik, Jeffrey Holzbeierlein

**Introduction:** Finasteride has been shown to decrease the risk of developing prostate cancer by approximately 25%. However, finasteride is generally believed to be an ineffective treatment for existing prostate cancer. We explored the molecular correlates of finasteride’s effect on prostate tissue in patients undergoing radical prostatectomy. Support for the study was provided by Merch Pharmaceuticals.

**Methods:** Patients undergoing radical prostatectomy for localized prostate cancer were recruited into the study and informed consent was obtained. The patients were randomized to receive 5mg of finasteride daily or placebo for at least 30 days prior to surgery. At the time of surgery, prostate tissue was harvested from the surgical specimen and sent for analysis. The tissue samples were analyzed for pro-apoptotic factors caspace-3, caspace-7, IGF-1, and IGFBP-3. The samples were also analyzed for tumor suppressor/proto-oncogenes bcl-2, p53, and p21. Finally the tissues were analyzed for androgen receptor density.

**Results:** Twenty-two study patients and 20 placebo patient samples were collected and analyzed. Negligible staining for bcl-2 or caspace-3 was noted. No statistical difference was noted between the treatment and control group for pro-apoptotic factors caspace-3 and IGF-1. Statistical differences were not present in bcl-2, p53, or p21. There was a significant difference for caspace-7 and IGFBP-3. The mean percent of cells staining for caspace-7 in the treatment group was 77% versus 99.9% (p=0.007) in the control group. Mean intensity staining for IGFBP-3 was 1.03 in the treatment group and 1.54 (p=0.005) in the controls. The staining intensity of nuclear androgen receptors on benign and cancerous cells was not significant between the treatment and control groups. However; there is significant difference in androgen receptor staining between benign cells and cancer cells in both patient populations. The mean nuclear androgen receptor staining intensity for all benign tissue was 119.3 and 151.8 for all cancer tissue samples (0.001).

**Conclusions:** Finasteride taken 30 days prior to surgery appears to decrease apoptotic factors caspace-7 and IGFBP-3 in cancer cells while having little to no effect on caspace-3, IGF-1, bcl-2, p53, and p21. While the clinical correlation is uncertain, this short-term study has interesting implications in the interpretation of the PCPT data on a molecular level. No differences were noted between the treatment and control groups on the expression of nuclear androgen receptors; however, a decreased expression of androgen receptors was present in cancer cells compared to benign prostate cells in both groups.

8:40 a.m.

**ACTIVE SURVEILLANCE OF ENHANCING RENAL TUMORS: RISK OF DISEASE PROGRESSION**

Paul L. Crispen, Richard E. Greenberg, David Y.T. Chen, Robert G. Uzzo, Fox Chase Cancer Center, Philadelphia, PA

**Introduction and Objectives:** The natural history of untreated non-hereditary enhancing renal tumors is currently being quantitated. Serial radiographic evaluation of patients who are not surgical candidates or refuse surgical treatment provides an opportunity to characterize the growth kinetics and metastatic potential of untreated enhancing renal tumors. Here we present the largest single institutional series to date on the active surveillance of enhancing renal tumors.

**Methods:** We reviewed our renal cancer database for enhancing renal masses which were radiographically observed for a period of at least one year. Variables examined included patient age, gender, lesion size on presentation, duration of active surveillance, linear growth rate, incidence and type of intervention, surgical pathology, development of new renal tumors, and progression to metastatic disease.

Continues on next page
Continued from previous page

**Results:** 109 patients with 124 sporadic enhancing renal tumors were identified undergoing a period of active surveillance of at least 12 months. Median patient age was 73 years (mean 69.8, range 35-87), 72% (78/109) of patients were males. Median duration of active surveillance was 26 months (mean 33.4, range 12-156). Multifocal disease was present in 9% (10/109) patients on presentation accounting for 20% (25/124) of all tumors. Radiographically, 85% (106/124) of tumors were solid with the remaining 15% (18/124) either Bosniak III (22%, 4/18) or IV (78%, 14/18) cysts. Tumor size on presentation was a median of 2.0 cm (mean 2.61, range 0.4 – 12.0). Overall median tumor growth rate was 0.21 cm/yr (mean 0.28, range -1.4 – 2.47). 25% (31/124) of tumors undergoing active surveillance demonstrated no interval growth. Observed linear growth rates were independent of patient age, gender, size on presentation, multifocality, and radiographic characteristics (solid versus cystic), $p > 0.05$. Of the patients initiating a period of active surveillance 36% (39/109) eventually underwent definitive therapy. Malignant pathology was present in 90% (35/39) of patients undergoing treatment. In patients which continued active surveillance 64% (70/109), 2.9% (2/70) developed de novo renal lesions and 1.4% (1/70) developed metastatic disease.

**Conclusions:** The majority of enhancing renal tumors undergoing active surveillance demonstrate slow interval growth. Although low, the risk of developing metastatic disease is the primary deterrent for initiating active surveillance of enhancing renal tumors. As such surgical excision remains the standard of care. Currently, no clinical predictors of tumor growth or progression have been identified. Future investigation and development of molecular and histologic markers of disease progression are needed prior to offering active surveillance to otherwise acceptable surgical candidates.

Continues on next page
PROSPECTIVE EVALUATION OF PROTEOMICS TO DISCRIMINATE BETWEEN BENIGN AND MALIGNANT PROSTATE IN MEN WITH PSA LESS THAN 10
Yair Lotan, Robert S. Svatek, Animesh Nandi, Prem Gurnani, Kevin Rosenblatt

Introduction: PSA has a positive predictive value of only 25-30% secondary to its low specificity. Recent advances in mass spectrometry instrumentation, bioinformatics, and sample preparation techniques have enabled the development of the field of clinical proteomics. The aim of the study is to identify reliable serum proteomic biomarkers to discriminate between the presence or absence of prostate cancer in men.

Methods: Between 2/2004 and 9/2005, blood was obtained from 253 patients with elevated PSA prior to prostate biopsy or prostate surgery (for benign or malignant conditions) and men with known prostate cancer prior to radical prostatectomy. Serum samples were processed by using ProXPRESSIONTM Biomarker Enrichment Kits and directly spotted on single-use MALDIchipTM Target plates (PerkinElmer). Mass spectra were acquired using a prOTOFTM 2000 matrix-assisted laser desorption/ionization orthogonal time-of-flight (MALDI O-TOF) MS interfaced with TOFWorksTM software (PerkinElmer/SCIEX). Samples were run in triplicate. Progenesis PG600 (Nonlinear Dynamics Ltd., UK.) was used to analyze the spectrum peaks. For identification, a protein of interest (m/z 5901.7) was enriched using the enrichment kits (ProXPRESSION). ProXPRESSIONTM kits and IMAC30 columns were used to enrich for a ~12 kDa peak and then gel purified using SDS-PAGE and Sypro Ruby. We sequenced the protein associated with this peak after in gel tryptic digestion and MS/MS-based sequencing.

Results: Our study group included 179 patients with prostate cancer with a mean age of 61.1 and mean PSA of 9.1 ng/ml. There were 74 controls with a mean age of 63.9 years and mean PSA levels of 6.08 ng/ml. We identified 12 monoisotopic peaks that had significant differences between cancer and non-cancer specimens with p values less than 0.05 in all 3 replicates of the serum samples. The analysis also identified 4 peaks (3190, 3206, 3261 and 3277) that had a significant difference in marker intensities between prostate cancer patients with features of aggressive cancer (serum PSA =20 ng/ml, Gleason sum =8, metastases to lymph nodes, and/or extraprostatic extension) versus those without (p<0.05). One of the discriminatory peaks identified was a peak of 5901.7 Da. The peak was a multiply charged (+2H) species from a parent molecule of 11,803.4 Da in molecular weight. We identified this protein to be serum retinol binding protein (PRO2222, 17.9 kDa MW, dominant tryptic fragment LIVHNGYCDGR, GI number 7770173), which has an expected mass at 17.9 kDa. This peak was found to be expressed (i.e. by MS peak intensities) at 36% less intensity in cancer than in normals (p=0.06).

Conclusions: Proteomics offers the potential for identification of new serum markers in detection and prognostication of prostate cancer. Our study identifies several discriminatory peaks that differentiate patients with prostate cancer from benign disease. We demonstrate the feasibility of marker identification by sequencing retinol binding protein which has a decreased expression in patients with prostate cancer.
Results: Sixty nine out of 112 CaP patients (61.6%) had detectable expression of TMPRSS2-ERG fusion transcripts in their CaP cells in the following distribution: 65 patients (58%) expressed fusion A, 2 patients (1.8%) both fusion A and B, and 1 patient (0.9%) fusion C. No expression of fusion transcripts was detected in benign prostate epithelium. Patients with pT3-4 CaP had significantly lower expression of TMPRSS2-ERG fusion A transcript as compared to patients with pT2 stage disease. A comparative sub-study of well differentiated (WD) and poorly differentiated (PD) CaP tumors revealed TMPRSS2-ERG fusion A transcripts in 17 out of 20 (85%) WD tumors in contrast to the presence of the TMPRSS2-ERG fusion A transcripts in 8 of 20 (40%) PD tumors.

Conclusions: This study establishes that most of the CaP associated ERG overexpression represent TMPRSS2-ERG fusion A transcripts (95%) and supports previous observations. Lack of detectable expression of the TMPRSS2-ERG fusion in benign cells of over 110 patients and its presence in only tumor cells supports diagnostic potential of the TMPRSS2-ERG fusion. Increased expression of TMPRSS2-ERG fusion transcript significantly associates with well differentiated tumors and with organ confined pT2 pathological stage of CaP.

This research was supported by an ongoing grant from the Center for Prostate Disease Research, a program of the Henry M. Jackson Foundation for the Advancement of Military Medicine (Rockville, MD), funded by the US Army Medical Research and Materiel Command, and grant support from the National Institutes of Health, RO1 DK065977, Principal Investigator: Shiv Srivastava, PhD.

11:00 a.m.

THE UTILITY OF TRANSPERINEAL 3-DIMENSIONAL PATHOLOGICAL MAPPING IN COUNSELING PATIENTS SEEKING EXPECTANT MANAGEMENT FOR LOW VOLUME PROSTATE CANCER
Winston E. Barzell1*, Robert I. Carey1 and Myron R. Melamed2.
1 Urology Treatment Center, Sarasota FL, 2 Valhalla, NY

Introduction and Objective: While the majority of patients with T1c prostate cancer (PCa) have clinically significant disease, 20-30% may have insignificant cancer (ca) not requiring treatment. We evaluated the utility of template guided transperineal 3 dimensional pathologic mapping (3-DPM) in sorting out the significant from the insignificant cancers prior to recommending treatment.

Methods: Between 2/02 and 10/06, 59 patients presented with minimal Gleason 6 or less ca on transrectal ultrasound (TRUS) biopsies (bxs). Minimal ca was defined as either a single micro focus 24/59 (Group1), or 3 or less positive cores and 50% or less involvement 35/59 (Group2). All patients subsequently underwent 3-DPM as well as repeat TRUS bxs (an average of 80.7 bxs were done per patient, 2 bxs per cm3 of prostate). Treatment recommendations were based on 3-DPM results. Between 8/05 and 7/06 the 3-DPM slides were reviewed by an independent pathologist (MRM), and assigned a Gleason score, zonal location, and clinical risk category based on tumor grade and extent. (MRM) was blinded as to the “pre” 3-DPM variables, treatment undertaken and subsequent clinical course.

Results: At 3-DPM, 10/59 patients had negative, while 49/59 had positive bxs. Of the 49 positives, 8 (16%) were upgraded at 3-DPM. Positive bxs were detected by both the transperineal and TRUS approach in 11/49, and by the transperineal approach only in 38/49, yielding an 77.5%(38/49) false negative rate for repeat TRUS bxs alone. Clinical risk category was assessed as low in 22/59, intermediate 10/59, increased 15/59, and high in 12/59 based on the tumor load and grade seen in the pathological specimens. The pre 3-DPM variables, which include PSA, PSA density, Gleason score, assignment to Group1 or Group 2, number cores positive and % core involvement were correlated to the post 3-DPM risk category assignments as described above. 19/59 (32%) of the patients elected expectant management, 40/59(68%) elected definitive treatment (11 radical prostatectomy, 8 conformal and 9 bilateral cryoablation, 8 external radiation, and 4 brachytherapy). Despite fulfilling criteria for expectant management, 3 patients elected definitive treatment. Transient complications included urinary retention (4), hematuria (1), fever (1) and perineal ecchymosis (2).

Conclusions: In patients presenting with minimal Gleason 6 ca, 3-DPM enabled a separation of low risk clinically insignificant cancers 22/59 (37%), from higher risk ones 42/59 (63%). Treatment can be withheld in the former, while in the latter it can be more appropriately tailored given the added information provided by 3-DPM.
**PROSTATE CANCER LATERALITY AS A RATIONALE FOR THE CLINICAL APPLICATION OF FOCAL ABLATIVE THERAPY: AN ANALYSIS OF 1184 PROSTATECTOMY SPECIMENS**

Thomas J. Polascik, Vladimir Mouraviev, Leon Sun, John F. Madden, Janice Mayes, Daniel J. George, Phillip G. Febbo and Judd W. Moul

Division of Urology, Department of Surgery, Duke Prostate Center, Department of Pathology, Department of Medicine, Duke Institute for Genome Science and Policy, Duke University Medical Center, Durham, NC

**Introduction and Objective:** Effective screening and early detection of small volume prostate cancer (PCa) has led to the concept of focal therapy to treat PCa as an organ-sparing, minimally-invasive procedure [e.g. male lumpectomy]. However, traditional dogma of PCa being a heterogeneous and multifocal disease creates concern to the adoption of this approach. We sought to determine the frequency and role of tumor laterality in order to clarify the possibility of hemiablation of the prostate using focal therapy while preserving the contralateral lobe.

**Methods:** 1184 paraffin embedded radical prostatectomy specimens excised from patients with early stage PCa between 2002–06 were sectioned at 3-mm thickness and stained with hematoxylin-eosin. Pathologic assessment had particular attention to laterality and percentage of tumor involvement (PTI) along with other routine parameters as pT-stage, pathology Gleason Score (pGS), extracapsular extension (ECE), surgical margins (SM). Based on PTI, all cancer foci were ranked from minimal (=5) to largest (=15%) PCI. Clinical and pathologic parameters were analyzed using univariate and multivariate methods.

**Results:** Analysis of frequency of tumors showed that a real “therapeutic window” for focal therapy sequentially decreased with increasing PTI. Completely unilateral cancers were identified in 227 (19.2%) of 1184 patients. 164 (72.2%) of them have had PTI of ≤5, 40 (17.6%) - PTI of 5.1 ≤10, 9 (4.0%) - PTI of 10.1 ≤15 and 14 (6.2%) - PTI of >15, respectively (p<0.0005). African-American men had bilateral cancers more commonly than Caucasian men, e.g. 93.3% vs. 84.2%, respectively (p<0.0005). Univariate analysis suggested significant variables to be race, prostate weight, pT stage, pGS, +SM. However, only race, pGS, PTI and +SM were independent predictors via multivariate logistic regression (p≤0.05).

**Conclusions:** This study suggests that only a select group of men diagnosed with prostate cancer have small volume, completely unilateral cancers that would be amenable to focal ablative therapy targeting 1 lobe. Further study is needed to develop predictive models for those patients likely to have small, unilateral cancers amenable to focal therapy.

**CRYOABLATION AS A PRIMARY TREATMENT OPTION FOR LOCALIZED PROSTATE CANCER: RESULTS FROM THE COLD REGISTRY**

J. Stephen Jones, The Cleveland Clinic, Cleveland, OH

**Introduction and Objectives:** In the past 10 years the use of cryoablation as initial treatment for localized prostate cancer has increased. It has been reported that the modern procedure is associated with significantly less morbidity than that which was initially observed in the early 1990s due to a combination of improved treatment and monitoring technology with a better understanding of cryobiology. However, data regarding disease control and complications have been limited, and typically from single center case series. The objective of this study is report the outcomes of modern cryoablation at a large number of centers, both academic and community, which have participated in the Cryo On-Line Data (COLD) Registry. The assembled data on 1002 men presented herein is the largest primary prostate cryoablation series reported to date.

**Methods:** A secure on-line database was developed consisting of case report forms designed to collect relevant pre and post treatment information for patients undergoing prostate cryoablation as well as information about the procedure itself. 1002 patients who had undergone primary cryotherapy were identified and stratified according to risk groups as follows. For low risk patients all of the following were true: PSA < 10, Gleason < 7 and Stage < T2b. If one of these were not true the patient was considered moderate risk and if two or three were untrue the patient was considered high risk. Biochemical failure was defined according to the standard ASTRO definition. Incontinence was defined by the use of any absorbent pads as determined by physician interview. Return to intercourse was defined as the ability to complete intercourse with or without pharmaceutical or device assistance.

*Continues on next page*
**Results:** The average age was 70.4 ± 7.3 years. Pre-treatment PSA was 9.7 ± 8.9 ng/ml, median Gleason sum was 7 (range: 4-10) and the median stage was T2a. Patients were followed for 25.2 ± 26.8 months. Biochemical survival, using the ASTRO definition was 76.1%. Stratified by risk group the biochemical survival was 84.0%, 70.5% and 71.7% for the low, moderate and high risk groups, respectfully. The positive biopsy rate was 5.9%. The rectal fistula rate was 0.1%, and incontinence at 6 and 12 months was 4.5% and 2.0%, respectfully. Of those patients potent at the time of therapy, 14.8, 19.0 and 11.7% had returned to intercourse by 12, 24 and 36 months, respectively.

**Conclusions:** The COLD registry of patients from both academic and community practices provides the largest data set to date regarding cryoablation as a primary treatment option for localized prostate cancer. Data collection is ongoing and longer term followup of both morbidity and disease control will be reported as appropriate.

11:30 a.m.

**EVALUATION OF ß-CATENIN AS A FIELD MARKER FOR PROSTATE CANCER, BY QUANTITATIVE FLUORESCENCE IMAGING ANALYSIS (QFIA) OF ARCHIVED PROSTATE BIOPSIES**

George P. Hemstreet, III, MD, PhD, University of Nebraska Medical Center, George P Casale, PhD, UNMC, Dali Huang, MD, UNMC, Jennifer Tian, MD, UNMC, Nizar K Wehbi, MD, UNMC, Niel Abrahams, MD, UNMC, Z. Kaleemz, MD, UNMC, L.M. Smith, MD, UNMC, S.L. Johansson, MD, UNMC and Johny E. Elkahwaji, PhD, UNMC (Presented By: George P. Hemstreet, III, MD, PhD, University of Nebraska Medical Center)

**Introduction:** There is a need to develop new methods that will accurately quantify protein biomarkers in human tissue specimens in the context of the microecosystem of the tissue. The development of such a method will facilitate individual risk assessment, diagnosis, prognosis, and therapy of multiple malignancies. To develop this methodology, ß-catenin was quantified in prostate tissues and core biopsy specimens from normal acine (NA) and normal appearing acine in glands harboring prostate cancer (NAA) and prostate cancer tissue acini (CA). This method was used to identify individuals at risk for prostate cancer who have an elevated PSA or prostate nodule with a negative initial biopsy based on the concept of molecular field disease.

**Methods:** Based on the paradigm for QFIA single cell proteomic analysis and the concept of molecular field disease, prostate core biopsies fixed in 10% buffered formalin were assayed from cases and controls matched for year of collection and age (± 5 years). Core biopsies were stoichiometrically labeled with epitope-saturating concentrations of primary antibody followed by secondary antibody conjugated with AlexFluor® 488 (tissue/cells) or IRDye® 800 CW (protein array) to ß-catenin utilizing a secondary indicator system. Stability was established for the Leica Fluorescence Microscope fitted with a mercury/xenon excitation lamp and a high-resolution CCD b/w camera, images were segmented and fluorescence emission was quantified with Image ProPlus Software®. The image-based system was calibrated with calibration beads, LNCAP cell line and BPH tissue. Quantification of ß-Catenin was validated by reverse phase protein analysis (RPPA) of methacarn fixed tissue from screened BPH (2) specimens and cancer specimens (8) reflecting a range of ß-Catenin expression. Adjacent tissue sections were analyzed by QFIA. The validated QFIA method was then used to analyze 42 prostate cancer glands (CA) and normal non cancer acini (NAA) and normal acini from controls (NA).

**Results:** The calibrated imaging system showed a stability of the mean pixel intensity MPI of standard fluorescent beads at 1, 10, and 100% relative intensity and varied 5% or less with the Hg/Xe excitation lamp, and 10% or less for the LNCAP cells and BPH tissue controls. Adjacent tissue sections assayed by QFIA and RPPA exhibited a strong linear correlation (r=.97) and a correlation of (r=.84) for quantification of the ß-catenin between the methacarn and 10% buffered formalin fixed tissues. For the core biopsy specimens the average MPI from 40 to 200 acini were quantified. The AMPI in cancerous acini cases compared to normal acini (NA) from non cancer gland was reduced in 37 of 42 cases p<.02. The grand mean of all cancer cases (CA) (458±21) compared to all normal cases (NA) was 674±14. The grand mean of the AMPI of NAA for the 31 cases was 538±16 compared to 684±16 for the NA of the matched controls. ROC plots revealed that ß-catenin expression in NAA identified 42% (95%C.I., 26% - 57%) of cancer cases, with 88% (95% C.I., 80%-96%) specificity.

**Conclusion:** A tissue QFIA method has been developed for the quantification of ß-catenin in prostate core biopsy specimens and the method has been validated by RPPA. Assay of ß-catenin in prostate core biopsy specimens shows promise as a potential biomarker for defining individuals at risk for prostate cancer. The tissue QFIA method has broad implication for not only developing a biomarker profile for prostate cancer risk assessment but for quantifying multiple biomarkers in the context of the microecosystem of the tissue and for studying the pathogenesis of multiple benign and malignant biological processes.
NOX4 NADP(H) OXIDASE EXPRESSION IS CRITICAL FOR TUMOR GROWTH OF VHL-DEFICIENT KIDNEY CANCER CELLS
Jodi K Maranchie MD, Ye Zhan, University of Pittsburgh Medical Center, Pittsburgh, PA.

Background: Loss of VHL occurs in greater than 60% of clear cell kidney cancer (RCC). VHL is a ubiquitin ligase for hypoxia inducible factor-α (HIF-α) and absence of VHL results in HIF-α accumulation and activation of HIF-dependent transcription of an array of genes including VEGF and TGF-α. We recently reported that expression of Nox4 is critical for expression and activation of HIF2-α even in the absence of VHL. To determine if Nox4 silencing could abrogate the tumorigenic phenotype of VHL-deficient cells, we measured the ability to form tumors in a xenograft model.

Materials: Small inhibitory RNA for Nox4 (siRNA) and a non-specific siRNA (scramble) were cloned into pSilencer™ 4.1-CMV puro (Ambion) and transfected into the VHL-deficient human RCC cell lines 786-0. Single cell clones were screened for reduced production of ROS using a 2',7'-dichlorofluorescin diacetate fluorescent assay. Non-specific (scramble) siRNA served as a negative control. One million cells were injected subcutaneously into 5 SCID-Beige mice and tumors were measured twice weekly for 14 weeks.

Results: Mice injected with 786-0-scramble cells developed measurable tumors at 5 weeks compared with 9 weeks for the Nox4 knockdown clones. Further, Nox4 knockdown tumors grew to approximately half the size of scramble tumors and demonstrated less ulceration and bleeding in size-matched tumors.

Conclusions: Consistent with the Nox4 requirement for HIF2-alpha activity, Nox4 expression is critical to the full and tumorigenic phenotypes of 786-0, further supporting Nox4 as a candidate for molecularly targeted RCC therapy.
The following urologic oncology fellowship programs have earned the credentials of the Society of Urologic Oncology:

**University of Washington Medical Center**  
Department of Urology  
Program Director: Paul H. Lange, MD  
Box 356510, BB-1115  
Seattle, WA 98195  
(206) 543-3918

**University of Michigan**  
Department of Urology  
Program Director: James Montie, MD  
TC2916 Box 0330  
1500 East Medical Center Drve  
Ann Arbor, MI 48109  
(734) 615-0563

**Urologic Oncology Program, National Cancer Institute**  
Program Director: W. Marston Linehan, MD  
National Cancer Institute Bldg. 10, Room 2B47  
9000 Rockville Pike Bethesda, MD 20892  
Phone: 301-496-6353

**Urology Department, Memorial Sloan Kettering Cancer Center**  
Program Director: Joel Sheinfeld, MD  
1275 York Ave.  
New York, NY 10021  
Phone: 212-639-2593

**Urology Department, MD Anderson Cancer Center**  
Program Director: Ashish M. Kamat, MD  
Assistant Professor and Attending Surgeon  
Departments of Urology and Cancer Biology  
University of Texas MD Anderson Cancer Ctr.  
1515 Holcombe Blvd. Box 446  
Houston, TX 77030  
Phone: 713-792-3250

**Urology Department, UCLA Medical Center**  
Program Director: Arie Belldegrun, MD  
UCLA School of Medicine  
66-118 CHS 173818  
10833 Le Conte Ave.  
Los Angeles, CA 90095  
Phone: (310) 206-1434 or (310) 825-5056

**Urology Department, University of Indiana**  
Program Director: Michael Koch, MD  
University Urologists P.C., Inc.  
Indiana Cancer Pavilion/Dept. of Urology  
535 N. Barnhill, Suite 420  
Indianapolis, IN 46202  
Phone: 317-274-7338

**Urology Department, University of Toronto**  
Program Director: Laurence Klotz, MD  
Sunnybrook Medical Science Centre  
2075 Bayview Dr., Suite #A140  
Toronto, Ontario M4N 3M5  
CANADA  
Phone: 416-480-4673

**Urology Department, Mayo Graduate School of Medicine**  
Program Director: Bradley C. Leibovich, MD  
1600 Divisadero St., Room A631  
San Francisco, CA 94143  
Phone: 415-885-3660  
Assistant Director: Maxwell V. Meng, MD  
Department of Urology  
1600 Divisadero St. Room 632  
San Francisco, CA 94143-1695  
414-353-7096

**University of Western Ontario - Division of Urology**  
Program Director: Joseph Chin, MD  
800 Commissioners Road East Suite C3-120C  
London, Ontario N6A 4G5 Canada  
Phone: 519-685-8451

**University of Texas Health Science Center, Division of Urology**  
Program Director: Ian M. Thompson, MD  
UTSHCSA-Division of Urology  
7703 Floyd Curl Drive, MC 7845  
San Antonio, TX 78229-3900  
Phone: 210-567-5644
The Society of Urologic Oncology (SUO) was created in 1984 to include members interested in the care of patients with malignant genitourinary disease. The SUO develops educational and research initiatives, studies in urologic oncology, and provides physician statements representing state-of-the-art assessments of these issues to other organizations.

For more information, see http://www.societyofurologic oncology.org.

The National Cancer Institute (NCI) is the government’s primary agency for conducting and supporting research in cancer causes, diagnosis, prevention, and treatment. In support of the entire community of cancer researchers, NCI employs its funding mechanisms, organizations, and networks to support basic, translational, and clinical research, and to invest in extraordinary opportunities to further progress made possible by previous discoveries.

For more information, see http://www.cancer.gov.

MARK YOUR CALENDARS!

8th Annual SUO Meeting
November 30-December 1, 2007
Natcher Conference Center
National Institutes of Health
Bethesda, Maryland