Research Paths for Surgeon-Scientists

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*Lester and Sue Smith Chair in Urologic Research*
Director, Center for Reproductive Medicine
Vice-Chairman for Research and Professor
Scott Department of Urology
Professor of Molecular and Cellular Biology
Baylor College of Medicine
The Physician-Scientist

- Physician-Scientists bring unique perspectives to biomedical science
- Throughout history, physicians were “translators” of medical research
- Over the last 30 years, physician-scientists are a dying breed
Why Did The Loss of Physician-Scientists Occur?

- Progressive language barriers between basic and clinical scientists-
- Technologic complexity

- A reductionist approach to medical sciences suggested that complex systems can be understood by reducing the study to the smallest, individual, analyzable part
  - Today “Systems Biology” provides a link between basic science, clinical research and medical practice
# The Cultural Chasm

## Physicians
- Motivated by need for immediate action
- Taught to adhere to Standards and Practice Guidelines
- Respect hierarchy and expert authority
- Errors are potentially mortal threats
- Focus on the unique

## Basic Scientists
- Conditioned to avoid rushing to judgment
- Taught to challenge existing paradigms
- Critique and challenge accepted wisdom
- Errors are a result of creative process
- Look for generalizable principles
Gender Issues

- Equivalent numbers of men and women graduate from medical school today

- No increase of women in senior faculty and leadership positions
  - Concerns regarding the challenges of a medical research career with family life
  - Concerns that women must be better than male counterparts to be considered equal
  - Few role models and little encouragement to become physician-scientists
The Under-Represented Minority: Where Have All The Young Girls Gone?

- Howard Hughes Medical Research Institute (HHMI): less then 2% are women with MD degrees (24% are men with MD degrees)

- American Society for Clinical Investigation: less then 12% are women and less then 4% of emeritus and senior members are women (1 of 94 past presidents were women)

Flexible promotion systems that resemble corporate lattices rather than ladders will have a competitive advantage for recruiting and retaining physician scientists
The Generation Gap

- Different life priorities
  - Work-life balance and controllable lifestyles thought to be incompatible with research careers

- Erosion in the quantity and quality of effective mentoring
  - Mentor-mentee format
Determine Your Nitch: Are you the Star or a Team Player?

Can you be both a Star and a Team Player???
Research is a Team Sport

There are many possible models for the Team Leadership
Trainee Success Stories
Kirk Lo, M.D. (Urologist) Professor, U. Toronto School of Medicine

- American Foundation for Urologic Disease Scholar and Canadian Urologic Association Scholarship
- Staff Urologist, Professor, Surgeon Investigator, Mount Sinai Hospital, University of Toronto
- Fertility Preservation Research and Semen Proteomic Analysis Funding
  - NIH R01
    - A Novel Testicular Germ Cell Maturation Model for Fertility Preservation in Pre-Puberal Boys
  - Physician Service Incorporated Foundation
  - The Star
- Trainees
- Techs
Joseph Alukal, M.D.
Asst. Professor Urology, NYU

- American Urological Association Foundation Scholar
- National Institutes of Health Loan Repayment Award for Research in Contraception and Male Infertility
- Asst. Professor of Urology, NYU
- Director of Reproductive Health and Benign Diseases of the Prostate
- Co-Host of the “Men’s Health” show on Sirius Satellite Radio’s “Doctor Radio”
- Collaborator (Team Player)
Kathleen Hwang, M.D.
Asst. Professor, Brown U, Rhode Island Hospital

- Assistant Professor of Surgery (Urology) and Assistant Professor of Pathology and Laboratory Medicine
- Elizabeth Pickett, MD Research Award, Society of Women in Urology, AUA
- K12 Multidisciplinary Urologic Research Career Development Program Scholar
- American Medical Women’s Association Award- Glasgow-Rubin Achievement Award
- ASRM Research Grant Recipient.
- Rising Star
Richard Link, M.D., Ph.D.
Assoc. Professor, Baylor College of Medicine

Busy, Successful Clinician M.D., Ph.D.

20 Years After Graduate School at Stanford U.

New Research Investigator M.D., Ph.D.

- Professor of Urology (promotion in process)
- Board-certified and fellowship-trained urologist specializing in the treatment of urologic disease affecting the kidney, ureter, and prostate.
- Focuses on the use of laparoscopic, robotic-assisted, percutaneous, and endoscopic techniques to treat kidney tumors, renal and ureteral obstruction, and urinary tract stones.
- Directs the BCM Division of Endourology and Minimally Invasive Surgery

Clinical Star - Rising Research Star
Larry I. Lipshultz, M.D., Professor of Urology and Lester and Sue Smith Chair in Reproductive Medicine, Chief, Division of Male Reproductive Medicine and Surgery and
Dolores J. Lamb, Ph.D., Professor of Urology and Molecular and Cellular Biology, Lester and Sue Smith Chair in Urologic Research, Director, Center for Reproductive Medicine, Vice-Chairman for Research, Scott Department of Urology
Take Home Message

- If you have the passion for research...
  - Enjoy the thrill of discovery
  - The satisfaction of advancing our field every day
  - The creativity to think outside of the box
  - The need to compete

- The desire to be the “architect rather then the carpenter”

- The love of writing, teaching, mentoring and presentation...

- Then a career as a physician scientist is for you!
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<td>Jeff Buch, M.D.</td>
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<td>Barbara M. Sanborn, Ph.D.</td>
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**Past Fellows Who are In Leadership Positions Today:**

- **Michael Coburn, M.D.**, Chair of Urology Baylor College of Med.
- **Adel Essen, M.D.**, Chair of Urology, Iszmir University School of Med
- **William Huang, M.D.** Chair of Urology Taipei Memorial U. Hospital
- **Ates Kadioglu, M.D.** Chair of Urology, University of Istanbul
- **Andy Meachum, M.D.** Chair of Urology, U. Colorado
- **Craig Niederberger, M.D.** Chair of Urology at UIC (co-Editor in Chief, Fertility and Sterility, SMRU Past-President, ASRM Program Chair)
- **Mark Sigman, M.D.** Chair of Urology, Brown (SSMR, SMRU, SRS President, Editorial Editor, Fertility and Sterility)
- **John Weiner, M.D.** Past-Chair of Urology, U. Miss
- **Shahrokh Shariat, M.D.** Chair of Urology U. Vienna
- **Edward Kim, M.D.** (SSMR, SMRU Past-President)
- **Kirk Lo, M.D.** (ASRM Annual Meeting Post-Graduate Chair)
- **Robert Oates, M.D.** (SSMR, SRMU President, ASRM Annual Meeting Program Chair)