ONE BOOK: HENRIETTA LACKS’ IMMORTAL HeLa CELLS

Many biology students are amazed to learn that there are cells that divide forever and never die. In the case of the HeLa cell line, it is an amazing and sobering perspective to contemplate the fact that these cells, growing in little plates and bottles in labs all over the world, came from a woman who died from cervical cancer a half century ago. The anecdotal story was that HeLa cells came from a woman named “Helen Lane” who donated her cells to science before she died. Rebecca Skloot, in her book “The Immortal Life of Henrietta Lacks” uncovers the real story that is steeped in the issues of race, gender, and poverty. Turns out that HeLa cells came not from “Helen Lane”, but Henrietta Lacks. Skloot’s book brought to life Henrietta’s hopes, joys, struggles and the tragedy of her early death. It also turns out that Henrietta didn’t quite donate her cells to science. Thus, the book also provides a fascinating look at the evolving practice of medicine and science since 1951, particularly in the use of human subjects in medical research.

The One Book One Northwestern committee chose “The Immortal Life of Henrietta Lacks” for the campus-wide book this year. The very human story of Henrietta and her cells raises a multitude of questions about biology, medicine, and the tension between science and society. Why do some cells grow forever, but most cells die? What is cancer and why do some tumors escape from every medical treatment available? How do scientists grow cells in laboratories? What rights does a patient have to what is done with their cells? Who owns your body, your cells, or your tumor? Does race or gender matter for medical care? Does it matter in terms of the care a person is offered now or 60 years ago? Does it matter in terms of the biology of that person’s body? So many questions! Given the important issues raised in this book about reproductive medicine and the bioethics of human medical research this was a wonderful opportunity for educational outreach to biology students and the broader community by the Center for Reproductive Science. Fern Murdoch, CRS assistant director of operations, worked with One Book One Northwestern to organize three faculty facilitated book discussions that focused on the biology behind the story and were open to all members of the Northwestern community as well as the general public. CRS trainees also participated in the small discussions to provide information on the facts of the biology to participants.

The first book discussion was entited “Why are Henrietta’s cells still alive? HPV and Cervical Cancer” and took place in the Dittmar Memorial Gallery at Norris University Center on October 12th with a hot dinner buffet provided by the Gallery. The over-subscribed event included students from many areas of study, CRS trainees, staff from across the university, and a number of members of the community outside Northwestern. Kelly Mayo, director of CRS and Laimonis Laimins, Guy and Anne Youmans Professor of Microbiology-Immunology and Chair, Department of Microbiology-Immunology were the faculty facilitators. Dr. Laimins gave a general introduction on how human papilloma virus causes cervical cancer and was peppered with questions from the crowd. The group then divided into small groups for lively discussions with Drs. Laimins, Mayo, Murdoch, and Dr. Jerry Rhee, a post-doc from the Iannaccone lab serving as biology resources.
I hope this late fall issue of Reproduction Matters finds you all well, and I wish you a wonderful end to 2011 and a happy 2012. There is much good news to share in this issue regarding the accomplishments and recognition of our students and faculty, and I hope you find it informative. I am especially pleased to welcome our new Assistant Director for Operations Dr. Fern Murdoch, who is a terrific addition to CRS. I also want to warmly welcome new CRS faculty Dr. Thomas O’Halloran (Chemistry) and Drs. Melissa Simon and William Grobman (Ob/Gyn). And I want to highlight the wonderful organization and participation by our CRS trainees in the 32nd Minisymposium on Reproductive Biology and the 3rd Illinois Symposium on Reproductive Science.

Northwestern University has just released its new strategic plan (We Will), which includes four pillars for building our future: Discover creative solutions; Integrate learning and experience; Connect our community; and Engage with the world. As I listened to the presentation of this new and exciting plan, I was struck by the extent to which CRS faculty and students already engage in activities that are at the forefront of these four focus areas. At the same time, I appreciate the many opportunities that exist for CRS to expand its impact within our institution and our community by building on the goals of the new strategic plan. I look forward to working with all of you to support the engagement of CRS with the spirit of “We Will”.

Finally, remember- with growing concern about an increasing world population and a deteriorating environment-reproduction matters!

Robert Brannigan, MD  
• Was recently named an Associate Editor of the journal Fertility and Sterility

Andrea Dunaif, MD  
• The Northwestern University Program in Endocrinology Diabetes and Hormone Action (NUPEDHA) was awarded a competitive training grant renewal from NIDDK for July 1, 2011 - June 30, 2016

Erv Goldberg, PhD  
• Is the recepient of the American Society Andrology (ASA) 2012 Distinguished Andrologist Award.

Julie Kim, PhD  
• Was chosen by the Association for Women in Science, Chicago to be “Scientist of the Month” for May 2011  
  Julie’s one-on-one interview with graduate student Beth Sefton can be viewed on AWIS, Chicago’s website:  

Kelly E. Mayo, PhD  
• Has joined WCAS Administration as the Associate Dean of Research & Graduate Students

Christopher Payne, PhD  
• Wrote a chapter for a forthcoming book, “Germ Cell Tumors”, edited by Angabin Matin, PhD  
• Was appointed to the Editorial Board of “Andrology - Open Access Journal” (OMICS Publishing Group)

Neena Schwartz, PhD  
• Gave an invited seminar at DePaul University, Chicago, IL for their 7th Annual LaDuke Women in Mathematics, Science and Technology Lecture Series, entitled “What’s a Little Girl Like You Doing With That Great Big Slide Rule?: Constructing a Lab of My Own”

Melissa Simon, MD, MPH  
• Was awarded an Institute of Medicine Anniversary Health Policy Fellowship in July 2011. The press release for this award can be viewed on the Institute of Medicine’s website: http://www.iom.edu/Activities/Education/ABOG-Fellowship/Melissa-Simon-Selected-as-Gant-IOM-Fellow.aspx

Laurie Zoloth, PhD  
• Has been elected to the presidency office of the American Academy of Religion
Robert (“Bob”) Brannigan, MD is an Associate Professor in the Department of Urology with a clinical and research focus on male reproduction. He obtained his undergraduate and medical degrees from Northwestern. After completing residency training in Urology at Northwestern, he entered a fellowship in Male Reproductive Medicine and Surgery at Baylor College of Medicine with Larry Lipshultz, MD. Dr. Brannigan returned in 1999 to join the Faculty at Northwestern where he is an Associate Professor and co-Director of the Andrology Fellowship. The Northwestern fellowship, now in its seventh year, is one of just six such Andrology fellowship programs nationwide.

Dr. Brannigan has collaborated with Teresa Woodruff, Ph.D. and colleagues within the Oncofertility Consortium on projects regarding fertility preservation in males. Their prior work includes the SPARE survey, a national survey of pediatric oncologists identifying widespread lack of familiarity with the American Society of Clinical Oncology fertility preservation recommendations. This is an important finding, as males under 18 years of age are as susceptible to the deleterious effects of cancer treatment as men over 18, yet fertility preservation measures are commonly overlooked in this population. Dr. Brannigan’s group has also recently performed a retrospective study assessing the impact of the formalized oncofertility program here at Northwestern. This study demonstrated a sharp increase in male fertility preservation consultations and sperm cryopreservation after implementation of a formalized program. The “take-home” message from this study is that other institutions should consider implementing their own formalized fertility preservation programs, as such initiatives help overcome barriers to the delivery of care in the acute setting of a cancer diagnosis. This collective research is timely as institutions across the country are seeking ways to implement fertility preservation care in the context of acute cancer treatment.

Dr. Brannigan has been actively involved in the leadership of many national organizations and societies. He is a Past President of the Society for Male Reproduction and Urology (SMRU) and also a Past President of the Society for the Study of Male Reproduction (SSMR). He is the currently Chair of the Research Committee of the American Society for Reproductive Medicine (ASRM). He is an Associate Editor for Fertility and Sterility, and he serves on the editorial board of the Journal of Andrology. He is the former specialty society editor for the Journal of Urology, and he is an ad hoc reviewer for numerous other peer-reviewed journals.

Dr. Brannigan is proud to acknowledge that his first encounter with CRS faculty occurred in the Winter of 1984, when he took an undergraduate “freshman seminar” writing course on female reproductive physiology with Neena Schwartz, Ph.D. Although his career path ultimately took him in the direction of the male (sorry, Neena!), he is grateful for all of the subsequent years of interaction and collaboration that the CRS has provided.

One Book: Henrietta Lacks (con’t)

in each group. The evening ended with a wrap-up session led by Dr. Mayo with each small group reporting out on a wide range of issues considered. Two additional book discussions are scheduled. Dr. Teresa Woodruff, CRS associate director, and Dr. Laurie Zoloth, Professor of Medical Humanities & Bioethics and Religion, Director of the Center for Bioethics, Science and Society will lead the discussion entitled “An Immortal Life: Who should own Henrietta’s Cells?” on November 3rd. This promises to be a wide-ranging discussion on the value and bioethics of human tissue use in medicine and research. Dr. Neena Schwartz, founder and former director of CRS, Dr. Sarah Rodriguez, Medical Humanities & Bioethics Program, and Dr. Melissa Simon, Assistant Professor, Obstetrics & Gynecology and Medical Social Sciences, will host the last discussion on November 29th. The topic is “Race, gender and medical care”. The topic is intentionally provocative and broad to allow the group to consider the socio-economic context of medicine when Henrietta Lacks died in 1951 and how it has evolved. It also allows for discussion of how gender, and sometimes ethnicity, are important in the biology of medicine. Whether you had the opportunity to attend one of the events or not, you can still join the discussion on the One Book One Northwestern blog (http://www.blog.onebooknu.org/) where Fern is making regular posts.
The Center for Reproductive Science held its 31st Minisymposium on Reproductive Biology, last spring on April 12, 2011. This year’s minisymposium was conveniently located within Northwestern’s Chicago campus in the Prentice Women’s Hospital.

As customary, we honored our keynote speaker with the Neena B. Schwartz Lectureship in Reproductive Science award. This year’s recipient and keynote speaker was Dr. Franco DeMayo, Gordon Cain Professor in the Department of Molecular and Cellular Biology and also Director of the Genetically Engineered Mouse Core at Baylor College of Medicine in Houston Texas. His keynote address was entitled, “In Vivo analysis of Progesterone receptor signaling in the endometrium”.

Our alumni speaker this year was Dr. Joanna Burdette (Woodruff Lab), Assistant Professor of Medicinal Chemistry and Pharmacognosy at University of Illinois at Chicago. Dr. Burdette gave an engaging presentation in which she reflected on her experience as a trainee at Northwestern University along with giving an overview of her lab’s current research. She also offered valuable advice about pursuing different types of careers in reproductive biology and gave insight into why she chose to pursue reproductive biology in the first place.

The 31st Annual Minisymposium on Reproductive Biology was sponsored in part by the Offices of the President and Vice President for Research at Northwestern. These generous sponsorships help the Center for Reproductive Science continue its tradition of offering our trainees the opportunity to present their research and provide a forum for scientific exchange. Each year, the Minisymposium is organized by a selected group of trainees with administrative assistance from the CRS staff and still remains free to all attendees.

**Constance Campbell Memorial Research Award Winners**

We Congratulate You All!

**Oral Winners:**
Miranda Bernhardt (Woodruff lab), Guadalupe Navarro (Bulun lab), Dallas Vanorny (Mayo lab)

**Poster Winners:**
Betty Kong (Woodruff lab), Michael VanGompel (Xu lab), Wenan Qiang (Kurita lab)

**Save The Date!**
4/17/2012

32nd Annual
CRS MiniSymposium on Reproductive Biology

**Keynote Speaker:**
Susan Fisher, PhD
University of California, San Francisco

Chicago campus
Prentice – Levin Auditorium
Time: 8 am

Please visit our website for updated information in the coming months.
www.research.northwestern.edu/crs
Congratulations to the following trainees on the successful completion of their PhD. We are proud to call you Dr.:

- Unmesh Jadhav, PhD (Weiss/Jameson Lab)

**Awards and Recognitions**

- Jessica Huszar (Payne Lab) passed her qualifying exam, advancing to candidacy for her PhD degree in the program.
- Jerry Rhee, PhD (Iannaccone Lab) was acknowledged in an EMBO meeting report by Karen Downs under the “New concepts and technologies” section.
- Robin Skory (Woodruff Lab) received a Ruth L. Kirschstein National Research Service Award for Individual Predoctoral MD/PhD Fellows from the NIH/National Institute on Aging. Her research is titled “Corpus luteum mechanical regulation in a tissue-engineered model of ovarian aging”
  - Ms. Skory won 1st place for poster presentation at the Northwestern University Medical Scientist Training Program Annual Student-Faculty Retreat, August 2011
  - Ms. Skory also won 1st place for poster presentation at the 3rd Annual Illinois Symposium on Reproductive Sciences, Urbana-Champaign, IL, October 2011
- Min Xu (Woodruff Lab) won 1st place poster presentation at the 3rd Annual Illinois Symposium on Reproductive Sciences, Urbana-Champaign, IL, October 2011

**2011 Illinois Symposium on Reproductive Sciences (ISRS)**

The Illinois Symposium on Reproductive Science in Champaign on October 10, 2011 was a rousing success with almost 200 participants, 76 posters, 16 research talks, careers in science talks from University of Illinois alumni, and the A.V. Nalbandov Memorial Lectureship by Professor Martin M. Matzuk, M.D., Ph.D. from Baylor College of Medicine. Northwestern University was well represented with work from the laboratories of Drs. Kurita, Bulun, Woodruff, Payne, Mayo, Shea, Goldberg, and O’Halloran presented in talks or posters.

This is the 3rd year of this statewide symposium that has as its goals to foster the exchange of scientific information in the reproductive sciences, to facilitate the training and career development of future reproductive scientists, and to leverage our collective institutional strengths to maintain Illinois in a preeminent nationwide position in this critical research field. The scientific goals were clearly met this year with a full program of research reports from labs at Northwestern University, University of Illinois at Urbana-Champaign, University of Illinois at Chicago, and Southern Illinois University. There was even participation from neighboring states as labs from Michigan State University and University of Wisconsin had presentations. Dr. Matzuk gave an excellent keynote address highlighting research from his lab on the role of microRNA regulation of gene expression in metastatic ovarian carcinoma, TGFβ family members in male germ cell development, and a first generation male non-hormonal contraceptive. In addition, alumni of the training program at University of Illinois at Urbana-Champaign gave short talks on a variety of career paths open to reproductive scientists. The success of the goal to facilitate trainee development was clearly seen not only in the science presented, but the excellent organization of the meeting. Trainees from across Illinois organize the symposium, are on the Abstract Committee and also serve as moderators for the oral sessions. Judges at the symposium also come from state-wide, university institutions. From Northwestern, Huanghui Tang served as a judge along with faculty members Kelly Mayo, Takeshi Kurita, J. Julie Kim and Chris Payne.

The day ended with surprise lifetime achievement awards presented to Professor Emerita Benita Katzenellenbogen, Ph.D. and Professor Emerita Janice M. Bahr, Ph.D. by their former trainees. Dr. Katzenellenbogen trained in the laboratory of Professor Jack Gorski and Dr. Bahr trained in the laboratory of Professor Andrew V. Nalbandov. Drs. Gorski and Nalbandov were instrumental in establishing the reproductive science program at University of Illinois at Urbana-Champaign almost 50 years ago.

We would like to thank the following trainees for participating in this year’s Abstract Committee:
- Pamela Monohan, Diana Monsivais, Kai Orton, Robin Skory, Fern Toh and Dallas Vanorny.
Meet Fern E. Murdoch, Ph.D., the newest addition to the Center for Reproductive Science. Fern joins us as Assistant Director of Operations. Fern was born in Chicago and raised in the Uptown neighborhood and Maywood. She did her undergraduate work at Northwestern University intending to major in both Russian and biochemistry, before deciding that macromolecules, not Dostoevsky, was the better career choice. Fern’s first encounter with CRS faculty was taking a biology class in which Professor Neena Schwartz was a lecturer. Although details of chick development remain foggy, the memory of Dr. Schwartz exhorting the women in our class to think about what was in their birth control pills and how it worked, is vivid.

The purpose of the Assistant Director of Operations is to increase the value of the Center to its membership and the university. This includes supporting collaborative funding initiatives as well as strengthening the opportunities for scientific engagement between both faculty and trainees. The Center also has outreach goals to the broader Northwestern community and the general public that are supported by this position. With a broad background in academic research and teaching, Fern is well prepared to take on these challenges. Her graduate work included studies on hematopoietic stem cell differentiation and a separate thesis project on the kinase cascades initiated by insulin signaling in the placenta. She did her post-doctoral training in the lab of Professor Jack Gorski at the University of Wisconsin where she was supported by an individual NIH post-doctoral fellowship to study the mechanism of estrogen receptor interaction with DNA in uterus, breast, and pituitary. As an assistant professor at Uniformed Services University, her NIH-funded research focused on the roles of DNA topology, chromatin, and co-activators in estrogen receptor function. Fern moved her research program back to University of Wisconsin – Madison in 2000 where she continued work on the protein-protein interactions that are required for estrogen regulated gene transcription. At Wisconsin she also began working with embryonic stem cell differentiation as a model to understand the role of chromatin metabolism in cell fate determination. In addition to research, she has taught at the undergraduate, medical, at graduate student level along with mentoring students from high school to post-doc in the lab. Although, CRS is her first administrative position, she helped organize the Nuclear Receptor Club at University of Wisconsin. She is a member of The Endocrine Society, Women in Endocrinology, and a former member of the Minority Affairs Committee of the Endocrine Society.

In order to learn about CRS and hear from the membership, Fern is meeting with faculty and attending group meetings when possible. She hopes to meet as many members as possible in her first few months here. She attends R² data club, seminars, and was at the ISROC in October. As part of our outreach mission, Fern organized the CRS led book discussions for the One Book One Northwestern selection, “The Immortal Life of Henrietta Lacks”. See the lead article in this issue for more information on that activity. Please feel free to contact her with your ideas and feedback for the mission and activities of CRS, or stop her to say “hello” at any CRS event.

### Selected Recent CRS Faculty Publications


Selected Recent CRS Faculty Publications (Con’t)


11/16/2011

Dolores Lamb, PhD
Baylor College of Medicine, Houston TX
Title: “Exploring the Genomic Basis of Male Infertility”
Chicago Campus
Lurie Bldg., Baldwin Auditorium
4:15 pm

01/11/2012

Mary Hunzicker-Dunn, PhD
Washington State University
Title: “Tales of how FSH signals in granulosa cells usurp unexpected pathways to regulate gene expression.”
Chicago campus
Lurie Bldg., Searle seminar room
4:15 pm

02/08/2012

Benita Katzenellenbogen, PhD
University of Illinois at Urbana-Champaign
Title: “Estrogen Receptors and Coregulators in Reproductive Health and Disease”
Chicago Campus
Lurie Bldg., Searle seminar room
12:00 pm

~ also on 02/08/2012 ~

John Katzenellenbogen PhD
University of Illinois at Urbana-Champaign
Title: “Estrogens and the Estrogen Receptors: Ligand Design, Selective Actions, and Imaging Receptor and Receptor Function in Cancer”
Evanston Campus
Pancoe Building, Pancoe Auditorium
4:15 pm

04/17/2012

32nd Annual CRS MiniSymposium
Susan Fisher, PhD
University of California, San Francisco
Title: TBA
Chicago Campus
Prentice – Levin Auditorium

CRS DIRECTOR:
Kelly E. Mayo, PhD

CRS ASSOCIATE DIRECTOR:
Teresa Woodruff, PhD

CRS ASSIST. DIRECTOR OF OPERATIONS:
Fern Murdoch, PhD

CRS ADMINISTRATIVE ASSISTANT:
Ingrid Miller

Please visit our website for updates on seminar events and other information.

www.research.northwestern.edu/crs