THE DOSSIER

The Digest on Staff Scientists and Staff Clinicians: Information, Employment and Research

December 2012 Issue 11

From the Editor

Welcome to the December issue of The Dossier, a newsletter dedicated to the Staff Scientists and Staff Clinicians (SSSC) of the CCR!

This issue contains important messages from the Director's Office and a special article by Cheryl Ann Winkler, Ph.D. Our SSSC Bethesda Co-Chair, Christophe Marchand, Ph.D., summarizes the Second Bienniel SSSC Professional Development Day and Eric Stahlberg, Ph.D., introduces us to the CCRIFX Bioinfomatics Core. We also highlight a study conducted at the Cryopreservation and Assisted Reproduction Laboratory by Stefan Ambs, Ph.D., Arthur A. Hurwitz, Ph.D., and G. Charles Ostermeier, Ph.D. We hope to continue to provide pertinent information to aid in the success of SSSCs. Please send your contributions, suggestions and comments to budhua@mail.nih.gov.

Anuradha Budhu, Ph.D. (SS)
Editor-in-Chief
Laboratory of Human Carcinogenesis

In This Issue

SSSC Co-Chairs

Marybeth Hughes, M.D., FACS, Clinical Co-Chair, Surgery Branch, hughesm@mail.nih.gov

Christophe Marchand, Ph.D., Bethesda Co-Chair, Lab of Molecular Pharmacology, marchand@mail.nih.gov

Anu Puri, Ph.D., Frederick Co-Chair, CCR Nanobiology Program, puria@mail.nih.gov

From the Office of the Director

Career Development Through Additional Funding

During most of their workdays, Staff Scientists and Staff Clinicians (SSSCs) use their sophisticated skills and knowledge to further the research goals of the Principal Investigators (PIs) they work with. However, you may not be aware that highly productive SSSCs may, with PI approval, devote some of their time to conducting independent research, and may also apply for supplemental funding and grants for this purpose. I encourage you to investigate these opportunities and discuss them with your PI, as establishing a successful competitive funding history can be beneficial to your career in a number of ways, including but certainly not limited to serving as an accomplishment to cite in your quadrennial review.

Several opportunities exist. The funding sources range from organizations as large as Avon Foundation for Women or as small as Alex's Lemonade Stand Foundation. Most are cancer-type specific in focus, but a few fund basic biomedical science. And there are grants available within government, but outside the CCR budget. Among these are funding mechanisms available from the Department of Defense and from Congressionally Directed Medical Research Programs.

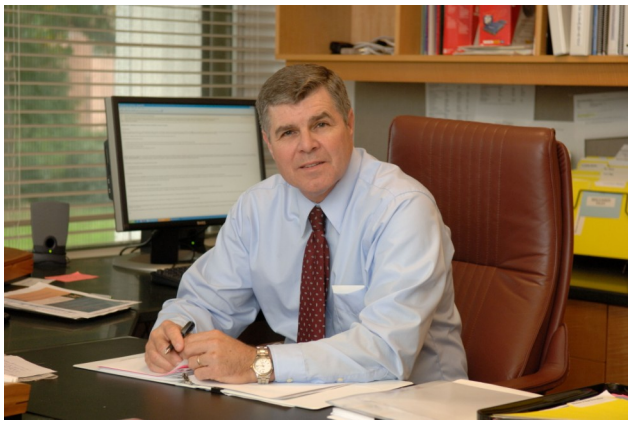
Training opportunities are also available. Should SSSCs discover that their research requires new skills, or wish to transition into new careers, such as teaching you can apply for training grants, including K grants. Many of these grants encompass mentoring as well as research to help you develop your overall scientific career. The process for applying for these grants is quite straightforward, thanks to the help available from NCI's Center for Cancer Training (http://www.cancer.gov/researchandfunding/cancertraining).

Another opportunity for SSSCs is the NCI Director's Innovation Awards. These one-shot awards are granted to NCI intramural researchers who offer proposals aimed at difficult problems in cancer research with potential for high impact. Letters of Intent and applications for these awards are due in the early fall of each year and recipients are announced at NCI's PI retreat.

> *" ...highly productive SSSCs may, with PI approval, devote some of their time to conducting independent research, and may also apply for supplemental funding and grants for this purpose….these opportunities...can be beneficial to your career in a number of ways…"*

Interested SSSCs can access the list of approved awards—for research support and training—by visiting the CCR SSSC Web site: https://ccrod.cancer.gov/confluence/display/CCRSSSCArchive/Practical+Information.

Please consider taking full advantage of these valuable resources that can accelerate your research progress and your careers.



Robert Wiltrout, Ph.D.
Director, Center for Cancer Research

Please share this newsletter with your colleagues and visit the SSSC website at sssc.nci.nih.gov

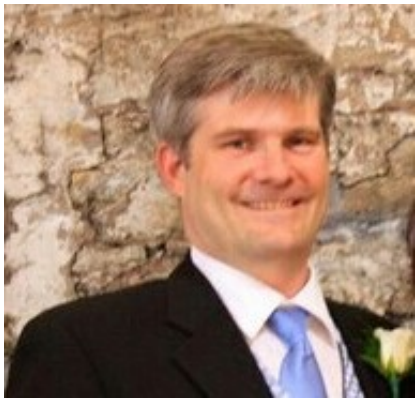
The Core Corner

Section Editor: Anne Gegonne, Ph.D. (*SS*)

The influence of nicotine on the metastatic phenotype is investigated utilizing Assisted Reproductive Technologies to produce a large cohort of age-matched TRAMP mice.

Nicotine activates signaling pathways in non-neuronal mammalian cells by receptor-mediator mechanisms. Several of these pathways are cancer-related and promote cell survival, angiogenesis, and metastasis. Because prostate cancer patients who smoke develop extra-prostatic disease and distant metastasis more frequently than nonsmokers, a collaboration between the laboratories of Drs. Stefan Ambs (Laboratory of Human Carcinogenesis, Breast and Prostate Unit) and Andy Hurwitz (Laboratory of Molecular Immunoregulation and the Cancer and Inflammation Program) tested the hypothesis that nicotine accelerates disease metastasis in a mouse model of prostate cancer called the TRAMP model.

With support provided by the Cryopreservation and Assisted Reproduction Laboratory (Cryo Lab; http://ncifrederick.cancer.gov/rtp/lasp/intra/cryo) which is part of the Laboratory Animal Sciences Program (LASP) at the Frederick National Laboratory for Cancer Research, a study population of more than 100 same-age male TRAMP mice was established through *in vitro* fertilization (IVF). Portions of this population received either physiological concentrations of nicotine for 12 weeks or tap water only. Both tumor development and cancer metastasis to the lung were examined. The NCI researchers found that after 12 weeks of treatment, TRAMP mice that received the nicotine, leading to low nanomolar blood concentrations, had a significantly increased burden of lung metastasis when compared with TRAMP mice on tap water. This finding shows that nicotine can in fact increase metastatic disease in this mouse model of prostate cancer, further supporting previous findings by the Ambs laboratory that nicotine readily activates oncogenic pathways in human prostate cancer cells. Ongoing studies are characterizing the mechanisms by which nicotine might exert this unique effect. Together, the data provide preliminary evidence that nicotine may enhance the metastatic phenotype in human prostate cancer.



As described in the example above, the Cryo Lab has the capacity to conduct IVF for rapid colony expansion and the production of large cohorts of age-matched mice for experimentation. This service can save months over traditional breeding approaches and requires only a few mutant males from the original colony. *In vitro* fertilization is also utilized to eliminate unwanted pathogens from research colonies and to rescue strains that have quit breeding from potential extinction.

In addition to these and other Assisted Reproductive Technologies (ARTs), the Cryo Lab also offers the ability to safely archive mouse lines utilizing embryo, sperm, and (or) ovary cryopreservation. It is recommended that all mouse strains be cryopreserved as a matter of standard colony management. Doing so can minimize the risks and costs associated with live mouse colony maintenance. For all cryopreservation projects conducted by the Cryo Lab, success is confirmed by generating offspring of the correct genotype from the archived germplasm. Once preservation is established, breeding colonies can be safely removed from the animal facility. Utilizing an assortment of ARTs, the Cryo Lab can aid investigators with colony management situations that may seem arduous or even unattainable using traditional breeding approaches and thus play key roles in the establishment, maintenance and preservation of valuable

The Core Corner Continued

Section Editor: Anne Gegonne, Ph.D. (*SS*)

research colonies. For more information about the Cryopreservation and Assisted Reproduction Laboratory, please contact: Chuck Ostermeier, 301-846-6221 or ostermeiergc@mail.nih.gov.

G. Charles Ostermeier, Ph.D.
(pictured on previous page)
Principal Scientist, Laboratory
Animal Sciences Program
SAIC-Frederick Inc.

Stefan Ambs, Ph.D.
Head, Breast and Prostate Unit
Laboratory of Human Carcinogenesis

Arthur Andrew Hurwitz, Ph.D.
Head, Tumor Immunity and Tolerance Group
Laboratory of Molecular Immunoregulation

The SSSC Professional Development Corner

The Second Biennial NCI SSSC Professional Development Day

The second Biennial NCI SSSC Professional Development Day was held on September 13, 2012, in the Natcher Building at NIH. During this all day event, SSSC were presented with information pertinent to their position in relation to professional development.

The first presentation "Dos and Don'ts of Grant Submissions" was offered by Erika Ginsburg from the NCI Center for Cancer Training. Erika gave a very detailed walkthrough on grant applications available to SSSC and on the specific procedure of grant applications at NCI. Erika's presentation slides are available at the SSSC website (sssc.nci.nih.gov).

The second presentation "Licensing and Patenting at the NIH" was offered by Tara Kirby from the Office of Technology Transfer, NIH. In this presentation, Tara gave an extensive description of the patenting and licensing mechanisms at NIH and how SSSCs have an important role to play in these processes. Tara's presentation slides are also available at the SSSC website (sssc.nci.nih.gov).

In the afternoon, Shannon Connolly and Caroline Crum from the NCI Office of Workforce Development and Management steered a very interactive training session on "Leading from Any Level". This activity was very eye opening for most of us and demonstrated that the greatest leaders around the world usually did not became leaders because of titles or authority. This session culminated in the projection of a TEDx video from Drew Dudley about "Leading with Lollipops":http://www.youtube.com/watch?v=hVCBrkrFrBE&playnext=1&list=PLAE0930911A4CA121&feature=results_video).

The last session was an interactive discussion with a panel of former NCI SSSC. The NCI SSSC Professional Development Committee has been working on the assembly of a NCI SSSC Alumni database and this networking conversation is the perfect example of what a SSSC Alumni group can offer to the SSSC community. The discussion was very enlightening and demonstrated that a majority of former NCI SSSCs continue to offer their expertise at senior leadership positions across NCI and NIH.

Christophe Marchand, Ph.D. (SS)
Laboratory of Molecular Pharmacology

The PI Corner

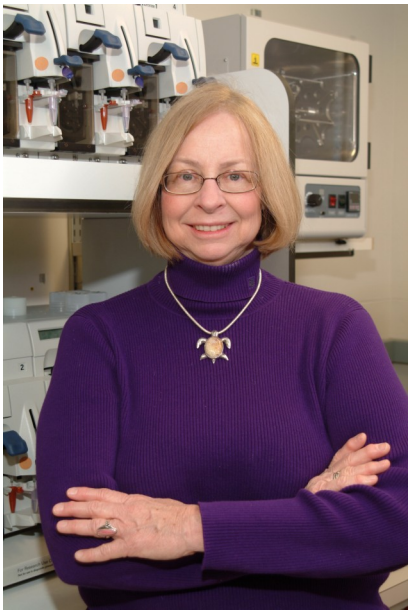
Section Editor: Lakshmi Balagopalan, Ph.D. (*SS*)

The challenges of conducting relevant and cost-effective biomedical research in this –omics era are both exciting and daunting. Those of us involved in genomics and other –omics research must stay current of the evolving technologies, navigate through the vast amounts of information available in various browsers and databases, and select the best available bioinformatics and analytical tools to analyze our data. Surprises, upending our previous assumptions, occur nearly daily as our genomes are sequenced and our metabiomes revealed. It goes without saying that the practice of science today is multidisplinary and highly collaborative—much of it driven by new technological advances.

I find that on a near daily basis I have benefited from the broader array of viewpoints and experience offered by CCR Staff Scientists. In addition to Dr. An Ping, a Staff Scientist with expertise of the genetics of infectious diseases, in my own laboratory, I often seek advice or tap into the expertise from Staff Scientists outside my own team. Dr. Kathy Jones, a virologist, during a recent seminar asked a series of virology questions that led me back to the literature to reconsider certain assumptions. I've had many spirited conversations with Dr. Bert Gold, Board Certified in Clinical Molecular Genetics, on the utility of genetic testing and screening for complex diseases. Recently my research has opened up a number of evolutionary selection questions that have led to frequent, stimulating conversations with Dr. Colm O'Huigin, a quantitative and evolutionary biologist of the Cancer and Inflammation Program Genetic Core. While many of the interchanges with CCR Staff Scientists are infor

"It goes without saying that the practice of science today is multidisplinary and highly collaborative—much of it driven by new technological advances. I find that on a near daily basis I have benefited from the broader array of viewpoints and experience offered by CCR Staff Scientists."

mal, they do provide opportunities for intramural collaborations. Our Staff Scientist community is scientifically diverse with considerable breath and depth—to the greater benefit of the entire CCR research community.



Cheryl Ann Winkler, Ph.D.
Head, Molecular Genetic Epidemiology Studies Section,
Basic Research Laboratory

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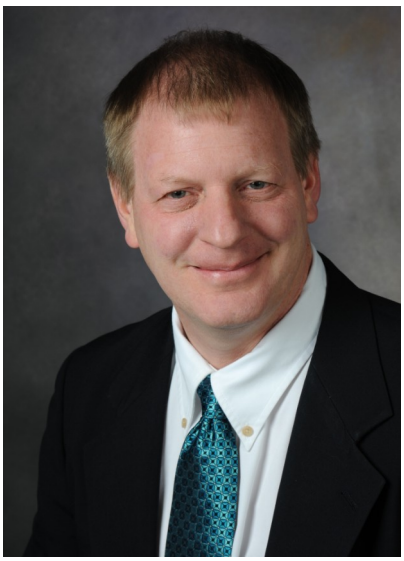
The Bioinformatics Corner

The CCRIFX Bioinformatics Core: Supporting Bioinformatics Analysis Across CCR



There is no doubt that analysis of bioinformatics data has become essential to cancer research. As experimental technologies have evolved over time, the complexity and combined expertise needed for the analysis has also grown, creating a challenge for many labs when working with experimental results. The challenges in connecting the experimental data to biological insight have only grown larger as Next Generation Sequencing (NGS) technologies have come of age.

Anticipating this widespread need, the Center for Cancer Research (CCR) approved the creation of a bioinformatics core focused on helping researchers across CCR. With the shared input of Dr. David Goldstein, Dr. Sean Davis, and the Advanced Biomedical Computing Center (ABCC) operated by SAIC-Frederick, the new bioinformatics core began operations in January 2011, supporting CCR scientists on a wide variety of bioinformatics analysis needs. To date, the core has provided analysis and support to over 60 individual laboratories from over 25 different branches and programs. These laboratories are employing a spectrum of high-throughput technologies, most commonly NGS and microarray platforms.

The bioinformatics core operates as a shared effort between CCR and ABCC, each bringing their expertise and interests to deliver a critical service to the entire CCR research community. CCR establishes policies and priorities while the ABCC brings its operational and management expertise to deliver a quality service. Working together, both organizations join their scientific insight and experience when addressing key challenges and establishing best practices.

CCR has held that services of the CCR Informatics (CCRIFX) bioinformatics core should be readily accessible to CCR investigators, especially those without current bioinformatics expertise in their labs. To emphasize this commitment, the services of the CCRIFX bioinformatics core are available to CCR scientists at no charge to the laboratories.

The core maintains a collaborative website (http://ccrifx.cancer.gov) open to all CCR scientists where support requests can be submitted. With each submitted request, a simple project environment is established where information and ideas are shared among the core staff and requesting scientist as the collaboration on the request proceeds. Additional information is available at this website regarding frequently asked questions, prioritization policies, request tracking details and other information, such as links to the new Bioinformatics Training and Education Program (BTEP:http://genome.nci.nih.gov/btep/).

The CCRIFX core emphasizes four key areas at the present time–support for microarray analysis, ChIP-seq analysis, RNAseq analysis and data integration. In addition to analysis, the core also provides guidance on experimental design. In each request, CCRIFX staff work closely with scientists in meeting the analysis needs. By collaborating, exchanging ideas, and sharing experience and knowledge, the core is able to help CCR scientists meet the challenging demands of transforming the latest experimental data into meaningful biological insight to advance cancer research.

For more information, please visit the CCRIFX bioinformatics core website, http://ccrifx.cancer.gov. Questions, comments, and suggestions about the core may be directed to David Goldstein, Ph.D., at 301-496-4347 or goldsted@mail.nih.gov or Eric Stahlberg, Ph.D., at 301-594-1395 or stahlbergea@mail.nih.gov.

Eric Stahlberg, Ph.D.
Director, CCR Bioinformatics Core
Advanced Biomedical Computing Center (ABCC)
Information Systems Program
SAIC-Frederick, Inc
Frederick National Laboratory for Cancer Research

Announcements

Attend!

The NCI Intramural Investigators Retreat

January 10, 2013, 8:30am-5:45pm

Ronald Reagan Building &

International Trade Center

http://palladianpartners.cvent.com/d/y-U0-pY2NEOTaQ1mhQKoow/8nfg/P1/1Q

Registration Deadline: December 14, 2012

Thanks!

Your votes are in for the new SSSC

Co-Chairs and Secretaries

Announcements of the winners are forthcoming!

Looking for Editorial Experience?

The Dossier is looking for SS or SC to participate as Section Editors. If interested, please contact Anuradha Budhu at budhua@mail.nih.gov

A Call for Content

We need your input! Send your articles or suggestions with subject title "The Dossier" to budhua@mail.nih.gov

This newsletter is an avenue for you to express your ideas and thoughts regarding being a Staff Scientist or Staff Clinician at CCR and to make pertinent announcements.

Your contribution is very important to the success of The Dossier. Please send us your commentary, announcements, and suggestions for topics/subject manner and we will do our utmost to include your material in upcoming issues.

Join one of these SSSC Committees

Professional Development: Contact Christophe Marchand, Ph.D.

Communications: ***SSSC Website:*** Contact Sharon Moore, Ph.D.
***The Dossier*:** Contact Anuradha Budhu, Ph.D.

SSSC Retreat: Contacts: Rimas Orentas, Ph.D.
Aleksandra Michalowski, Ph.D.

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