

NCI CENTER FOR CANCER RESEARCH



Fellows & Young Investigators Newsletter

Volume 14 Issue 1

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From the Editor's Desk

Welcome to the Winter edition of the Fellows and Young Investigators Newsletter. In this edition, we bring you details of what to expect at the 15th Annual CCR-FYI Colloquium: please don't forget to register! Also included are details of what the CCR-FYI association did during the 2014 holiday season, including the 3rd Annual Food, Toy and Gift Drive and the decoration of the Woodmont House for kids at the Children's Inn, NIH Bethesda. Many thanks to all those involved in the organization and execution of these events. Additionally, this issue features articles on resources available at the NIH to cope with work-related stress, work-life balance and practical tips for new parents. Learn about off-the-bench careers in a scientific interview conducted by one of the fellows as well as a fellow's experience at a recent conference. Finally, a regular feature of our newsletter is the NCI CCR research highlight in which we bring to you a recently published research article that was featured on the cover page of *Journal of Cell Biology*. We hope you will enjoy reading this compilation. If you have any comments or suggestions or are interested in contributing to the CCR-FYI Newsletter, please send an e-mail to smita.kakar@nih.gov.

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CCR-FYI Association is supported by the CCR Office of the Director

CCR-FYI News

15th Annual CCR-FYI Colloquium: Basic Research to Precision Medicine

The CCR-FYI Annual Colloquium is one of the most important events that should be on your calendar, if it is not already! Why? Where else can you hear world-renowned cancer biologists speak, network with potential collaborators, find out about current jobs, learn about critical skills to help you get that job, and potentially win \$1000? These are just a few of the perks of attending the colloquium. Another perk is that this year, the colloquium will be held at the beautiful new NCI campus **Shady Grove National Cancer Institute, Rockville, MD, March 23-24th, 2015**, which is approximately 30 minutes from both main campus and Fredrick facility and an easy shuttle ride from each.

The submitted abstracts will be selected for poster and oral presentations, as well as, other prestigious awards. Those presenting will be eligible for one of eight travel awards. In addition, PIs nominated their post doctoral fellows for the prestigious "Outstanding Post Doctoral Fellow" award, in which the awardee is given a one-on-one coaching session by Scott Morgan before they deliver their keynote address at the colloquium. This year, Dr. Eric Tran with the Tumor Immunology section of the Surgery branch, CCR, has been selected to receive this prestigious award. We are looking forward to hear about his recent work on cancer immunotherapy.

Our keynote speakers this year include Dr. Christina Annunziata, Investigator in the Women's Malignancies Branch and Head of the Translational Genomics Section at the NCI. She will highlight her work on mechanisms underlying NF-kappaB molecular signal transduction in ovarian cancer. We will also hear from our extramural keynote speaker, Dr. Joanne Murphy-Ullrich, Professor in the Department of Pathology and Cell Biology at the University of Alabama, Birmingham. She will be presenting her seminal work on thrombospondin 1 (TSP1) and the extracellular environment, and its contribution to cellular regulatory processes.

One of the most exciting and inspiring events of the colloquium each year is the Survivorship Speaker. This year we have the pleasure of hearing Shelby Robin, who is a childhood cancer survivor of Ewing's sarcoma. As a result of this can-

cer, she had a below the knee amputation, but this did not slow her down. She now works at MD Anderson Children's Cancer Hospital as a Clinical Nurse. Shelby is also involved with the Children's Art Project at MD Anderson, and visits the children speaking about amputation and what they will experience. Also, she works with the Sunshine Kids, an international non-profit organization dedicated to children with cancer.

In addition to our speakers, we have a fantastic line-up of workshops that will provide several types of information to meet everyone's needs. Whether you are looking to improve your CV, scientific writing, or grantsmanship, we have a workshop that will suit you. If you are planning to transition to your next position soon, we also have a 'can't miss' line-up of highly successful scientists from academia, industry, FDA and small biotech firms. This is your chance to meet and network with the people, that might hold the key to securing your next job, or even give you the confidence to start your own business! Especially for those looking to enter the next phase of their career, we have curated an excellent career fair that's on par with AACR. The list of companies in the past has included MedImmune, BioRad, Qiagen, Leidos, and others. In fact, some of our own fellows have obtained jobs from this career fair! Don't let this opportunity pass you by!

We have to thank the CCR Office of Training and Education for sponsoring this event, as well as the members of the Fellows and Young Investigators Colloquium Committee for organizing this event.

All members of the CCR community, including postdoctoral and clinical fellows, graduate students and post-baccalaureate fellows are welcome at the colloquium. It is not too late; you can still register by **March 2nd**. Please visit our website <http://ncifrederick.cancer.gov/events/CCRFellows2015/> for more information and to register!

Contributed by:
K. Leigh Greathouse, PhD, MPH
FYI Co-chair
Laboratory of Human Carcinogenesis

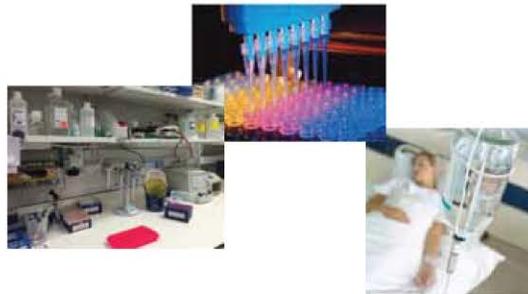


The Center for Cancer Research Fellows and Young Investigators
Steering Committee Presents



15th CCR-FYI COLLOQUIUM

"BASIC RESEARCH TO PRECISION MEDICINE"



**March 23rd - 24th, 2015,
NCI Shady Grove Campus
Rockville, MD**

FREE TO ALL CCR TRAINEES

**** ABSTRACT REGISTRATION CLOSES ON FEBRUARY 2nd****

General registration closes on March 2nd

Kenote Speakers:

- Christina M. Annunziata, M.D., Ph.D
Head, Translational Genomics Branch
- Joanne E. Murphy-Ullrich, Ph.D.
University of Alabama Birmingham

Survivorship Speaker:

- Shelby Robin, R.N.
MD Anderson Children's Cancer Hospital

Career fair with local employers

**Career development workshops
and round table discussions**

Travel awards

Visit our website <http://ncifrederick.cancer.gov/events/CCRFellows2015/>

for more information and to register!

Supported by the Office of Training and Education and the CCR Office of the Director

Food, Toy and Gift Drive for the Children's Inn

The CCR-FYI Outreach Committee hosted its Third Annual Food, Toy, and Gift Drive to benefit the NIH Children's Inn on the Bethesda campus. The NIH Children's Inn opened in 1990 as a residence for pediatric patients and their families, who travel from all over the world to receive treatment at the NIH when other conventional therapies for their illnesses have failed. The drive was held from December 1-18, 2014 at the Bethesda, Frederick, Advanced Research Technology Facility (ATRF), Shady Grove, and Industry Lane-Frederick campuses. As in the past two years, this year's drive was an enormous success! We collected over 600 items between the five campuses. The donated food items went towards restocking the Inn's "Help Yourself" Pantry, a 24 hour amenity available to the families. The toys and gifts provided an opportunity for families to "shop" for their loved ones at no cost in the "Gingerbread Gift Shop". Meredith Daley, Community Outreach and Volunteer Program Assistant at the Inn, estimated that 25 families will be spending the holidays at the Children's Inn. Your donations ensured these families enjoyed the holidays, even though they are far from home. The CCR-FYI thanks all who donated, for their continued support of this outreach event. We also want to thank Terry Schulz and the Industry Lane campus of NCI-Frederick, for their continued enthusiasm for this project. A special thanks to Leigh Greathouse, Lei Sun, Lily Xia, Rami Doueiri, Smita Kakar, James Hocker, Khadijah Mitchell, and Jonathan Wiest for their help with coordinating the event.

Contributed by:
Emilee Senkevitch PhD
FYI Co-chair
Outreach Sub-committee Chair
Laboratory of Molecular Immunoregulation



Emilee (top), Khadijah (middle) and Erik, Jenny, Dennia and Rami (bottom) with the donations for Children's Inn.

Halloween celebration at Woodmont House

The Children's Inn at NIH is a home for families whose children are undergoing treatment at the National Institutes of Health (NIH). The Woodmont House, adjacent to the NIH campus, is a transitional home for up to five families whose children are no longer in the acute phase of their illnesses, yet still require treatment at the NIH Clinical Center. To help these families celebrate Halloween, a group of six volunteers, Anja Bloom (NCI), Daniel Tadeo (NIDCR), Julia Scheiermann (NCI), Katie Clark (NCI), Nikki Delino (NCI) and Ravi Yedidi (NCI) organized a Halloween party at the Woodmont House with kid-friendly "Haunted House" decorations. The volunteers coordinated activities such as face painting, paper cutting, preparing lollipop ghosts, pumpkin carving, and dancing. Here are some of the comments from the volunteers:

"I had an amazing time organizing and performing at the event 'Halloween party' at The Children's Inn. Our team was full of ideas, and the staff at The Inn was helpful and encouraging. It was entertaining to cover the place in spider webs and other decorations. On the night of the party, the children and their families were really excited and had some fantastic costumes, from Star Wars characters to Super Mario Brothers to Transformers. Pumpkin carving, face painting and the sheer presence of balloons were also a big hit. The dance session at the end was the highlight of the event for many kids! To conclude, I hope that the children and their families had as memorable an evening as I had." (-Anja Bloom)

"Ever since I started my post-baccalaureate position, I've always wanted to volunteer at The Children's Inn. After helping out, I'm even more envious of those lucky enough to interact with these awesome kids and their loved ones on a weekly basis. I had an absolute blast! It was an incredible party and I hope everyone left with memories of an epic night." (-Daniel Tadeo)

"During the Halloween party at the Woodmont house I offered face painting as an activity for the

kids. Each child could choose the option he/she liked the most out of the available templates and I tried to reproduce the chosen design on their faces. Interacting with children was a very interesting experience for me as a clinician, since I know what they and their families have been living through with the diagnosis. It was so wonderful and encouraging to see that the kids could still find the energy and optimistic attitude to have fun, enjoy and to live in the present moment. I was happy to see a smile on many faces with the face painting activity. I admire all the parents and relatives, who were so optimistic and supportive for their children that evening. Altogether, I hope I have contributed to the fun factor of the evening and that the children enjoyed the face painting as well." (Julia Scheiermann)



Anja Bloom, Nikki Delino, Julia Scheiermann, Katie Clark, Daniel Tadeo and Ravi Yedidi (left to right) at the Woodmont House on Halloween.

"I was standing in the kitchen talking to the father of a tiny, adorable "Supergirl". He had a huge smile on his face as he recalled how his daughter was the highlight of the dance party just moments ago. 'It's so wonderful to see her in that kind of environment,' he said with amazement, 'considering that several years ago she could barely even walk.' I knew this Halloween party was for the kids, and I know Supergirl, like many others, had a great time. I just didn't realize how important it could also be for the parents." (-Katie Clark)

"I was very excited to help organize a Halloween party for patients and their families at The Children's Inn. I enjoyed seeing the enthusiasm of the children as they entered the house with their costumes. They took a moment to look at the decorations and Halloween themed food before partaking in activities such as pumpkin carving and face painting. My favorite part of the night was dancing alongside the children to Halloween music and seeing them express themselves as they demonstrated their favorite dance moves. It was a rewarding experience and I hope this event will continue in the future." (-Nikki Delino)

(Continued on page 8)

Articles

You are not alone: Postdocs living with stress

Not to state the obvious, but stress has a fair share in a postdoctoral fellow's daily life. We continuously learn how to cope and deal with it; however, on several occasions, the situation becomes unbearable. As I have witnessed first-hand and from talking to several fellows, increasing amounts of stress takes a severe toll on our work and overall well-being. In this article, I will highlight some prevailing reasons for work related stress and how to leverage the available resources provided by the NIH and NCI to cope with this stress.

As a postdoc at the NIH, we constantly strive to be on top of our game and up to the reputation of the NIH. However, the stress created from this situation has been previously encountered during graduate school. The best way to cope with it is to set achievable, realistic, short-term and long-term goals and be flexible; always have contingency plans. This way you will also ease the stress of your next step, which is usually the job search. Thankfully, the economy is recovering and with this, we hope to see greater funding for researchers in academic research. However, with the large number of qualified PhD holders, the job market will be unable to employ all of them in industry and academia. Thus, looking into other career tracks becomes a necessity. I would recommend a job search strategy, and a way to get your mind off job-search-related stress, is to acquire additional skills by attending classes at FAES, online training or even part time internships beginning in the first year of your postdoctoral training. OITE and the CCR Office of Training and Education offer great advice for job searches, CV and resume writing, interview skills and career planning that should be taken advantage of by the postdocs. As a piece of advice, do not wait until your final year of training to plan; start from the first year, you might realize that your goal requires a different path.

The other type of stress is related to the work environment. Usually this stems from miscommunication and differences in management styles between mentors and mentees. This kind of stress is detrimental for a postdoc's career if not remedied by creating an appropriate mentor/mentee relationship. Unfortunately, I fell into this category, so I started seeking help. The first line of help was TRUSTED friends and co-workers that I could talk to. I found out that each person internalizes it and reacts differently for so many reasons. Then I asked for advice from people who are familiar with

these issues. At NIH, the postdoctoral fellow has several options: 1- the NCI Center for Cancer Training, 2- the Ombudsman's office (ombudsman.nih.gov) 3- the Employee Assistance Program (www.ors.od.nih.gov/sr/dohs/EAP) 4- OITE (<https://www.training.nih.gov/home>). Each offers a different type of help and perspective, (1) you can confidentially discuss your situation with the director, while (2) and (3) will direct you to counselors and (4) has workshops on stress management. The first step recommended by them will be to bring up the subject with your advisor in a constructive manner (e.g. I am having problem X and it is affecting my work. I would like to discuss the situation with you to improve our relationship and eventually my productivity), then bring up rational solutions for how you would like things to be. Hopefully this will be enough to improve the situation. If not, then ask yourself this question; can I handle this until the end of my training? If the answer is yes, then see how you can make the best of it. However, if the answer is no, try to find a second mentor with whom you can discuss your situation and get advice on how to proceed and navigate through your training. If all fails, do you really want to stay in this place or is it better to find another lab? If you decide to find another lab, do your due diligence and ask around. Ask lab members what they like, dislike, management style, support, so that you don't end up in the same situation again! Further, please talk to them away from the lab and keep the information confidential!

As a final note, the postdoc is a training period that has to propel us into the job market. Wasting a few years dreading a poor choice made is not helpful. If stress is a must, let it come from the need to excel and not from a difficult advisor/advisee relationship. Have your plans ready and be ready to readapt them according to the market needs. Remember you are not alone in this. Get active in the postdoc community and join the CCR -FYI, Felcom, NPA and clubs so you can better navigate your postdoc.

Contributed by:
Anonymous

Coping with the Perils of Modern Parenthood

The road to a successful science career is long and tortuous. We are inundated with anecdotes about principal investigators who close down their labs due to lack of funding and the increasing pressures from academic careers (publish or perish!). Common sense would dictate that we should maintain a laser-like focus on our career goals to climb our way up. **Is it then considered career suicide for a newly hired, female postdoctoral fellow to have children?**

What I thought was a lingering stomach bug turned out to be quite something else. Typical of my training, I repeated the early home pregnancy test 3 times on 3 separate days before I believed it to be true. I watched, fascinated, that at 6 weeks gestational age, a heartbeat was detected by ultrasound. It reminded me of a colleague's experiment of turning pluripotent cells into cardiac cells: I saw how the microscopic beating units of cell clumps synchronize once they achieve confluence.

When I was in graduate school, I only knew of one female professor who made tenure after birthing her child. She had hers late, although, come to think of it, this didn't stop her from becoming a successful and a much respected structural biologist.

I do not know the answers. I have, however, developed some tactics to cope with the new demands on my time.

Simplify.

I agree with most of Thoreau's thoughts on a simple life (see "Walden"). I thought I was already living a minimalist life until our son was born. Now, I have further reduced and streamlined my daily routine. What does one need to live? Food, sleep, clean clothes. Oh, and daily showers.

Prioritize.

As a corollary to living a simpler life, I have also learned to discern what is essential. This is of paramount importance especially since my work hours are no longer as flexible: on weekdays, I'm back home at a certain time to resume childcare; on weekends, I have limited hours to come to the lab. Surprisingly, I think my project has finally picked up momentum. Mostly, I think it is because I'm focusing on key experiments and dropping endless troubleshooting that won't get me anywhere. I am aware of my limitations and I seek

help when needed.

Build your network.

It's true: it takes a village to raise a child. Aside from the obvious choice of child care providers, I have found it helpful to plug myself into support networks. At NIH, there is a Parenting Listserv that is a great place to score free baby clothes, books, car seats, and anything else childcare-related. More importantly, it is an active forum to get feedback and recommendations on pediatricians, dentists, and even day-care centers. While the listserv is a virtual source of support, the Mom-Dad-Docs group sponsored by OITE aims to be another kind of community-based support. Spearheaded by Ella Klenke, they are organizing meet-ups and seminars of interest to postdoctoral and clinical fellows who are also parents. Last December, they presented a seminar by Annie Scheiner (licensed family therapist) on how to handle holiday stress.

No one can have it all, all the time.

I have yet to meet the mythical person who actually has it all. I know a super-mom who has put her career in finance on hold to be the full-time caregiver to their two kids while her husband, an internist, is the main breadwinner. A celebrity radio host once described this as an ebb and flow: some seasons, you enjoy a flourishing career; other seasons, you have to concentrate on your family's needs. Personally, I have given up the guilt of not cooking all our meals from scratch (we sometimes buy hot meals from the grocery). My conversations with most of my friends are now via texting (low pressure/"answer me when you can"). And although I'm friendly with everyone in our branch, I have yet to attend a happy hour event with them.

While the lasting impact of my parenthood on my career remains to be seen, what I do know is that I am now, more than ever, motivated to be better in whatever I do so that I can prepare a better future for my child.

As I watch him sleep, his small chest rising and falling rhythmically, I am reminded by how lucky I am to have this little one in my life. He has redefined what is important and worthwhile.

Contributed by:

Anna Serquina PhD

HIV & AIDS Malignancy branch

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As the team lead and the author of this article, I am extremely pleased by the responses that we got from the kids and their parents at this event. It was a team effort and I believe that everyone on the team contributed equally to the success of this event. We sincerely thank The Children's Inn at NIH for giving us this opportunity to put a smile on

the kids' faces with the popular Halloween theme. For more information about The Children's Inn at NIH, please visit www.childrensinn.org.

Contributed by:
Ravi Yedidi PhD
HIV & AIDS Malignancy branch

A glimpse of the Postdoc appreciation week: 2014

In 2009, the National Postdoctoral Association started to celebrate the achievements and contributions of postdoctoral fellows countrywide in the form of National Postdoctoral Appreciation Week (NPAW). The US House of Representatives officially recognized the NPAW in 2010. Usually during the third week of September, institutions all around the country host events such as ice-cream socials, career development seminars and social networking events to recognize the postdoc community. NIH also celebrated the NPAW last September on all campuses including Bethesda, Frederick, Baltimore, Shady Grove and NIEHS. Postdocs took a few moments from their work to relax, network with their peers, attend research symposia and celebrate their achievements.

The National Cancer Institute in Frederick celebrated the postdoc appreciation day on September 17th. It started out with the first of the CCR-FYI

Seminar series of the fall. This was followed by an ice-cream social that the fellows thoroughly enjoyed. A few fellows stayed around for the group picture after. The CCR-FYI hosted a social networking event at Barley and Hops in Frederick on Sept 24th that was attended by a good number of fellows who had a great time networking and celebrating.

NIH, Bethesda celebrated NPAW during the week of September 22nd to coincide with the NIH Intra-

mural Science Research Festival. The week started out with the recognition ceremony for the FARE award winners by Dr. Francis Collins. FelCom hosted a career panel on Careers in Scientific Societies the next day, followed by showing of the movie, *Outbreak*. The movie and popcorn were sponsored by FAES. The CCR-FYI and FelCom hosted a joint social networking event on Sept 24th at 4935 Bar and Kitchen. The celebrations closed with an ice-cream social on September 26th, 2014.



Fellows posing for a picture and enjoying ice-cream outside Building 549.

All of us get too engrossed with lab work, manuscript writing and grant writing that a break to celebrate ourselves once in a while is always refreshing! Thanks to the CCR-FYI committee and FelCom members who organized the various events on different campuses. A big note of thanks to the CCR Office of Training and Education and

FAES for organizing and sponsoring some of these events!

Contributed by:
Smita Kakar PhD
Macromolecular Crystallography Laboratory

Conference Highlights: Fall 2014

American Society for Matrix Biology Meeting

It was a great pleasure to attend the 6th biennial meeting of the American Society for Matrix Biology (ASMB) held over October 12-15, 2014 in Cleveland, Ohio. The theme of this year's meeting was Integrating Extracellular Matrix and Cellular Network in Biology and Medicine. The ASMB meeting kicked off on Sunday, October 12th and offered a wide array of sessions, including guest symposia with both the International Society for Hyaluronan Sciences and the Tissue Engineering and Regenerative Medicine International Society. This exciting meeting once again highlighted the latest research in the field and featured around 200 posters and many oral presentations. A diverse range of subjects were covered from the tumor microenvironment to integrating extracellular matrix (ECM) and cell biomechanics, with sessions dedicated to new developments in ECM structure and function, genetic disorders of ECM, ECM receptors and the ECM-cell continuum and translating the basics to patient care.

The ASMB is a fantastic meeting for early career scientists, and scientists in training, with scholarships available for young investigators to attend the conference in addition to a number of travel awards. The ASMB offers workshops specifically aimed at students and postdocs with a focus on career development and gaining early independence, which I found especially useful. Each year the ASMB committee selects a number of abstracts submitted by students and postdoctoral fellows for podium presentations and I was lucky enough to be provided with the opportunity to pre-

sent my work on CD47 mediated inhibition of breast cancer stem cell growth by targeting EGF-EGFR signaling. My presentation was well received by the audience and I found it particularly helpful to get feedback from established senior investigators working in the field. The poster session provided an informal atmosphere for lively discussion amongst scientists in various stages of their research careers.

Personally I felt that the most interesting session offered this year was 'Women Mentor Women'. During this dynamic session female investigators discussed their career paths and experiences within the biomedical field. Female mentors, young investigators and trainees discussed difficulties they had faced, how they overcame them and offered advice on how to manage a work life with a young family.

This conference is an important calendar event for researchers working in the field of ECM and the ASMB hosted a wonderful meeting that achieved its goal of disseminating the latest research whilst also offering the opportunity for junior attendees to present their work, network and plan for future careers. Overall this meeting is significant and offers a wealth of opportunities for any researcher who has an interest in the role ECM plays in cancer and diseases – roll on 2016!

Contributed by:
Sukhbir Kaur PhD
Laboratory of Pathology

Opportunities to Practice Talks for Conferences, Seminars & Job Interviews

The **PASS (Presentation and Seminar Skills)** series has teamed up with Scott Morgan to provide CCR scientists with an hour-long session of one-on-one tutoring. During this session, you will go through your presentation with Scott, where he will provide feedback on style, content, delivery of message, etc. A week or two later, you will have the opportunity to present your talk in front of your colleagues and to receive constructive feedback. Scott will also attend and provide additional feedback following the presentation. Scott has over 15 years of valuable experience in science communication and has recently co-authored a book, 'Speaking about Science'.

We will work with you and Scott to arrange a suitable time and schedule. This is a wonderful opportunity for anyone who wishes to improve his/her presentation skills either for a meeting presentation or job talk.

If you are interested in taking advantage of this opportunity or have additional questions, please contact Barbara Rath at barbara.rath@nih.gov.

Off-the-bench Careers: Associate Director of Science Policy

Science policy is a fairly broad concept, which is concerned with issues of almost the entire natural sciences. The goal is to consider how science and technology can best serve the public. Every NIH institute has its own Office of Science Policy (OSP: <http://osp.od.nih.gov>). The OSP operates to develop and publish scientific policies as well as analyzing and fostering engagement around a range of scientific, ethical and legal issues.

Upon completion of their training at NIH, a number of postdoctoral fellows move into science policy. Dr. Joseph Laakso is one of them. Dr. Laakso joined the Endocrine Society in 2012 as a manager of science policy and currently holds the position of Associate Director.

Dr. Laakso earned his PhD in Biochemistry/Biophysics from the University of Pennsylvania. His work established Myosin as a molecular force sensor based on its ten-



sion sensitivity upon detachment from the membrane, and the results were published in *Science* in 2008. Dr. Laakso went on to join NIH/NHLBI as a postdoctoral fellow in 2009 and worked in the field of single molecule and molecular biology for approximately 3 years. Memberships in NIH science policy discussion group and the NIH fellows consulting groups provided a stepping-stone for his future. Dr. Laakso is a sports fan with interests in swimming and marathon running. We interviewed Dr. Laakso to find out how he launched his career within the field of science policy.

Why did you decide to leave bench science and go into science policy?

I had always been interested in how scientific knowledge can impact the public. As I considered where to study during my postdoctoral training period, I thought that the NIH would be a great environment to network and learn more about science policy. During my postdoc, as an active member of the Science Policy Discussion Group at NIH, I became increasingly convinced that a career in science policy would be a good fit for me.

What skill set acquired during your postdoctoral training have aided in your current job?

Many of the day-to-day activities of a postdoctoral appointment are very different from the tasks that I work on at the Endocrine Society. However, because I interact with scientists and clinicians on a regular basis, in order to respond to issues that impact our membership, it is important to understand the scientific priorities of our members and the work that they are doing. I need to write about and discuss scientific issues with a variety of audiences, and the ability to quickly digest scientific information and present it is a valuable skill.

What do you do on a typical workday?

“Writing” is the single most important word in my daily work. I work with a committee consisting of 16 Endocrine Society researcher members. Routine jobs include: identifying areas of science interests and potential expansion; monitoring and managing science policy issues; contributing to the identification and prioritization of research policy strategies and advocacy opportunities; contributing to strategic plans; representing our society by writing testimony or other letters to congress, or to research organizations. For instance, we have advocated for the expanded use of central institutional review boards for multi-site clinical research studies. We were therefore excited that the NIH recently announced a draft policy to expand the utilization of single IRBs for multi-site studies.

How much flexibility do you have in terms of work hours, address, etc?

The Endocrine Society has an excellent downtown location and our leadership works to maintain an appropriate work/life balance for employees. We do have a telework policy and accommodate flexible schedules around our core office hours.

What kinds of problems/challenge do you face in your work?

It can be challenging to manage a project that has multiple interim deadlines. For instance, I try to be sensitive to the extremely busy schedules of our members, who contribute their time and expertise on a voluntary basis. Therefore, when drafting a document that needs to be reviewed by multiple committees, it is important to develop a work plan that enables everyone to review and contribute within reasonable timelines. This may require

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quickly gathering expertise, reaching consensus, and developing an initial draft weeks ahead of the final deadline for comments, e.g. on a draft NIH policy.

What do you like most about your job?

There are many things that I like about my job. I get to interact with some of the best and brightest minds in an important field. One of the most exciting aspects of my job is when the NIH or another federal agency follows-up with us to develop policies. The best thing is when a new policy or report clearly incorporates the perspectives of our members.

What is the current job market for science policy related positions?

In my experience, there are always organizations and scientific societies looking for talented people with scientific backgrounds who are demonstrably interested in applying their skills to research advocacy. Many organizations have fellowship opportunities that allow researchers to explore careers in science policy.

What suggestions would you give to current NIH postdoctoral trainees who are interested in science policy?

Volunteer experience is a common thread for people who switched from their own background to science policy. Get involved in policy forums, career symposium preparation, community outreach, and anything else that will help you get your feet wet in the policy arena. I used to be a member of the NIH science policy discussion group, which helped me to enhance my knowledge and understanding of science policy issues. It also helped me to contribute to the public discourse on specific topics of public interest. Also, the NIH community provides many volunteer opportunities in running interest groups, organizing career symposia, etc. All these activities may be used to demonstrate leadership, networking skills, and improve communication skills.

Reference:

Laakso JM, Lewis JH, Shuman H, Ostap EM. Myosin I can act as a molecular force sensor (2008) Science. 321(5885):133-6. doi: 10.1126/science.1159419.

Contributed by:

Jianhong Chen PhD

Laboratory of Biochemistry and Molecular Biology



**NCI Center for Cancer Research
Fellows & Young Investigators**



What is the CCR-FYI?

The NCI CCR Fellows and Young Investigators (CCR-FYI) Association was organized to foster the professional advancement of young scientists at the CCR and is supported by the NCI CCR Office of Training and Education (OTE).

Who can participate?

All young investigators including postdocs, postbacs, graduate students, research fellows, clinical fellows, technicians, and staff scientists.

NCI-CCR Research Highlight

CDK5 Ignites the Tumor Suppressor DLC1

The growth of a tumor is a stepwise process that occurs due to the activation of proto-oncogenes and anti-apoptotic genes and/or the down-regulation of tumor suppressor genes and pro-apoptotic genes. The loss or the inactivation of tumor suppressor genes is equally important, as the activation of proto-oncogenes, in the development of many human and animal malignancies. Deleted in Liver Cancer 1 (*DLC1*) is a tumor suppressor gene that is frequently down-regulated by deletion, mutation, or epigenetic silencing, in a variety of human malignancies, including cancers of the lung, breast, colon/rectum, prostate, and liver. The full tumor suppressor activity of *DLC1* depends on its Rho-GAP (GTPase activating protein) function, which converts the Rho GTPases from the active GTP-bound form to the inactive GDP-bound form, its localization to focal adhesions, and the binding of several functionally important anti-oncogenic proteins such as focal adhesion kinase, tensin, and talin. However, the mechanisms that regulate and coordinate these *DLC1* functions were unclear until now. Rho GTPases are key transducers of several cellular processes, and aberrant up-regulation of Rho GTPases is frequently associated with more advanced human cancers.

In a recent study (Tripathi et al., 2014), we have elucidated a molecular mechanism that the CDK5-dependent phosphorylation of *DLC1* protein activates its Rho-GAP and other tumor suppressor activities. We find that a region of *DLC1* protein that lies N-terminal to its Rho-GAP domain serves an auto-inhibitory function by binding the Rho-GAP domain and inhibiting its catalytic Rho-GAP activity. Mechanistically, when this auto-inhibitory N-terminal region of *DLC1* is not phosphorylated by CDK5, a serine/threonine kinase, it interferes with the Rho-GAP activity of *DLC1* by binding very tightly to the Rho-GAP domain. The CDK5-dependent phosphorylation of four serines in the N-terminal region disrupt its binding to the Rho-GAP domain and induces its transition from a closed to an open conformation, which in turn stimulates the catalytic activity of the Rho-GAP domain. Further, the open confirmation of *DLC1* enhances its tumor suppressor activity by facilitating the binding of anti-oncogenic proteins tensin and talin to the N-terminal region, which also contribute to *DLC1* tumor suppressor functions through a Rho-GAP independent mechanism. In-

terestingly, in the absence of CDK5 kinase activity, we found that *DLC1* has very low Rho-GAP activity as well as low binding of tensin and talin proteins. The non-phosphorytable *DLC1* is associated with an attenuated tumor suppressor activity, such as unable to suppress cell migration, anchorage-independent growth, or tumor growth in mice. Remarkably, we have observed this CDK5-dependent mechanism of *DLC1* regulation in several cancer cell lines, as well as in non-transformed epithelial cell lines.

Although CDK5 is crucial to suppress tumor growth by stimulating the tumor suppressor activity of *DLC1*, CDK5 also promotes tumor growth in some cancers, presumably by regulating other targets. Our study provided experimental evidence that the level of *DLC1* protein can be an important determinant of whether CDK5 is pro-oncogenic or anti-oncogenic. Since *DLC1* is a key player in regulating tumor growth in several human cancers, it is worthy to investigate the role of other protein kinases that might phosphorylate *DLC1* protein and control its biological functions. Currently, we are exploring few other kinases that are phosphorylating and modulating *DLC1* activities.

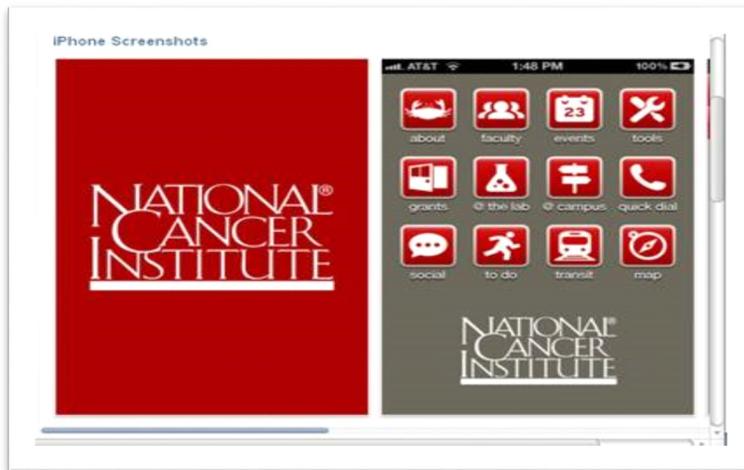
Tripathi BK, Qian X, Mertins P, Wang D, Pappageorge AG, Carr SA, Lowy DR (2014). CDK5 is a major regulator of the tumor suppressor *DLC1*. *Journal of Cell Biology*, 207(5): 627-642. doi: 10.1083/jcb.201405105. (PMID: 25452387)

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