CCR Fellows & Young Investigators Newsletter

Center for Cancer Research
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Winter 2021

In this new year, we have a renewed and strengthened commitment to bring you, Fellow Reader, articles of value for your career advancement and professional development to continue on the path of a successful scientist!!
In this edition of the Newsletter we feature tips on job searching, advices for effective scientific communication (in chalk-talks and grants writing) as well as important discussions about diversity and inclusion in Science with successful scientists from NIH and beyond. I hope you enjoy reading the Winter 2021 Newsletter. – Alida Palmisano (Editor-In-Chief)

(Background image created with BioRender.com and picture by Ravi Patel on Unsplash. Personal pictures from Editorial Team and other NIH people included in various articles.)

CCR-FYI Association is supported by the Center for Cancer Training (CCT) and CCR Office of the Director (NCI).

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Inside this issue

2021 CCR-FYI Colloquium

MARK YOUR CALENDARS FOR THE 2021 CCR-FYI Colloquium

From Mechanisms to Therapies: Current Highlights in Cancer Research

April 19th-20th, 2021

Meeting will be held Virtually

• Keynote Speakers •

J. Carl Barret, Ph.D. (AstraZeneca), Dr. Alexandra Newton, Ph.D. (UC San Diego), Michael Gottesman, M.D. (NIH, Deputy Director, LCB), Barbara Felber, Ph.D. (NIH, VB)

• Outstanding Postdoctoral Fellow Presentation •

Dr. Sachi Horibata (NIH, LCB)

• Survivor Speaker •

Dr. Marty Tenenbaum (Cancer Commons, CollabRx)

• Career Networking and Development Workshops •

Management Techniques with Shannon Bell, M.S.W. (NIH, OWPD)
Interview Techniques with Scott Morgan, M.A. (CSIS)
Networking and Scientific Communication with Phil Ryan, Ph.D. (NIH, OITE)

• Career Networking and Development Panels •

Academia
Drug Discovery and Industry
Nonprofit

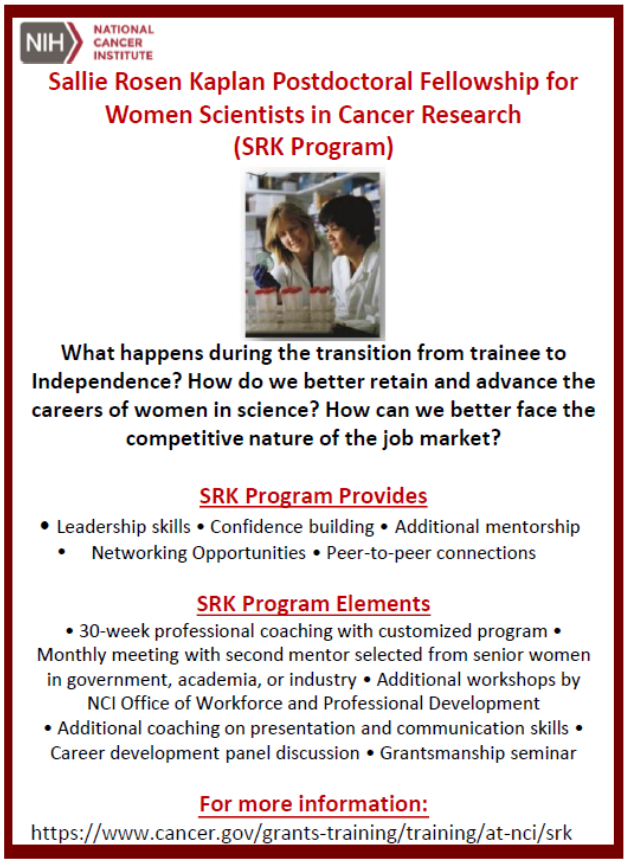
• Oral and Poster Presentations from NIH Fellows•

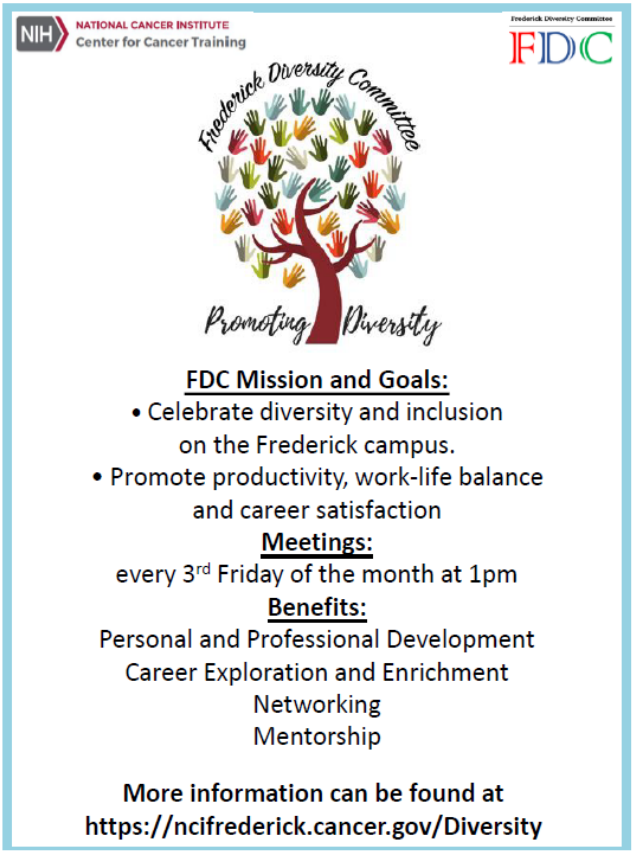
Registration Deadline with Abstract: February 15, 2021 (closed)
Registration Deadline without Abstract: April 9, 2021
Register at https://events.cancer.gov/cct/fyi-colloquium

For more information, please contact:
Katelyn.Ludwig@nih.gov and Srikanta.Basu@nih.gov

Important resources: spotlight

- "Structural Racism in Academia and Medicine: A Conversation with CURE Scholar Dr. Rachel Issaka" https://www.cancer.gov/about-nci/organization/crchd/blog/2020/issaka-qa
- "Saying YES: Inspiring a Diverse Generation of Cancer Scientists" by Norman E. Sharpless and Sanya Springfield https://www.cancer.gov/news-events/cancer-currents-blog/2020/diversity-cancer-research-training-nci-yes-program
- Dr. David R. Williams' talk on structural racism is available on NIH Videocast (https://videocast.nih.gov/watch=40140 NIH only). His talk "The Science of Structural Racism" was sponsored by the National Institute on Minority Health and Health Disparities and the National Institute of Nursing Research. Dr. Williams is a professor of public health and of African and African American Studies at Harvard University and is an internationally recognized authority on social influences on health.
- Both recent and historical events reveal the need for continued work on issues of diversity, inclusion and social justice. The NIH OITE offers a series of webinars and small group discussions focused on helping postbacs, graduate students, and postdoctoral fellows address these issues as they impact individuals, groups, and communities, as well as the larger society – including the world of science. Learn more and register at this link https://www.training.nih.gov/diversity_and_inclusion_seminar_series
- The NIH Office of Equity, Diversity and Inclusion (EDI) is collecting a list of NIH Institutes and Centers, special projects, and initiatives that are building an equity, diversity, and inclusion foundation in their own spaces. Read more about resources exploring health disparities, work-life balance, workforce development, grants, learning and education at the following link https://www.edi.nih.gov/people/get-connected





Black Scientists at the NIH: in conversation with Dr. Sadhana Jackson

by: Mukta Nag

Introducing the series – Black Scientists at the NIH

2020 was a year for the history books! On the one hand, the entire world was grappling with the COVID-19 pandemic, and on the other hand, we saw thousands of men and women take to the streets standing up for their right to equality against years of systemic racism. The pandemic revealed the effect of stark health disparities in the Black and Latinx communities, where the morbidity and mortality rates were disproportionately high. These biases and inequities pervasively plague the biomedical science community (1,2,3). Per the NIH workforce demographic data published in March of 2019, Black staff constitute only 20.6% of the total workforce compared to 57% of Caucasian staff (4). While there are many reasons for this difference, one of the reasons is the lack of guidance and mentorship for black trainees and young investigators. This series aims to feature successful black scientists at the NIH, highlighting their academic journey, scientific accomplishments, and life achievements. We hope these exemplary individuals will inspire and guide all trainees at the NIH in preparation for scholarly pursuits and successes.

We will be kickstarting this series interviewing **Dr. Sadhana Jackson, M.D.** Dr. Jackson is a double board-certified pediatric neuro-oncologist with clinical and laboratory research expertise focusing on the blood-brain barrier (BBB). As a tenure-track investigator, she has a dual appointment in the Surgical Neurology Branch of the National Institute of Neurological Disorders and Stroke (NINDS) and the Pediatric Oncology Branch of the National Cancer Institute (NCI). She has been working at the NIH since 2015. Let's learn a little bit about her journey!

What is your current research interest?

responds with a super warm smile early in the morning

I am a pediatric neuro-oncologist by training. I have been at the NIH since 2015, where I work in the clinic and run a research laboratory. My clinical expertise and research interests are geared towards understanding the BBB specifically within the context of malignant gliomas. My team aims to maximize the penetration of therapies across the BBB to enhance survival in aggressive pediatric brain tumors. To increase BBB permeability, we modulate the tumor microenvironment to improve drugs' entry into the central nervous system. We utilize sophisticated tools to measure the concentration of these drugs in the brain by transiently disrupting the BBB.

You can learn more about Dr. Jackson's research focus here or on the radio or two NIH Facebook Live Q&As about her medical journey and mentorship. Below are the links for the NIH Facebook Q&A and radio sessions:

https://www.youtube.com/watch?v=b3ZtIO32U9A

https://orwh.od.nih.gov/about/newsroom/events/facebook-live-qa-mentorship-and-women-color-science

https://www.youtube.com/watch?v=2AAo6zxKRxo&t=637s

What has been your career trajectory?

I grew up in Maryland. I went to Gaithersburg High School where I was a participant in the Howard Hughes Medical Institute (HHMI) Scholars Program in my senior year of high school. Through this program, I got my first taste of formal laboratory research. I attended senior classes during the morning and for the second half of my day, I rode the bus/metro down to NIH where I conducted head and neck cancer research at NCI. I was fascinated by all the scientists/experts walking around and performing cool things in the lab and at the NIH. That's when I knew I wanted to be a scientist! Next, I was awarded with the NIH Undergraduate Scholarship Program (NIH UGSP), which is an academic scholarship program by the NIH specifically for students from underrepresented communities who wish to pursue a career in biological/health sciences. With this scholarship, I attended Hampton University where I received my Bachelor of Science in Molecular Biology and interned in Dr. Carter Van Waes' lab over the summers. While working at the bench, I realized I was also a people person and wanted to become a physician-scientist. I decided to attend Eastern Virginia Medical School, which was a good fit for me as the institution prioritized community-focused training. We volunteered in soup kitchens and free health clinics during medical school, where we had an opportunity to genuinely engage with our community both inside and outside the clinic. I then completed my residency in Pediatrics at Orlando Health followed by a three-year pediatric hematology/oncology fellowship at St. Jude Children's Research Hospital. Orlando was unique experience as we encountered a wide range of diseases due to tourism at the various amusement parks! While at St. Jude Children's Research Hospital, I cared for patients with a wide array of blood disorders and treated kids with varied cancer types, but it was the care of brain cancer patients that excited me. So, after spending two years in the lab at St. Jude, I further specialized in pediatric neuro-oncology and clinical pharmacology during a two-year fellowship at Johns Hopkins Medical Institute, before coming to the NIH as an NCI Assistant Clinical Investigator in the Clinical Investigator Development Program in 2015. It felt great to be amongst leaders in the field and being back at the NIH allowed me to complete the full circle of service that I once began in high school.

What are some essential parts of your early career training that helped you get to where you are today? Which of these aspects do you think are most valuable?

Working with the community and giving back to society are two crucial aspects of my upbringing and academic training. Book knowledge needs to be complemented with passion for your work. It is this combination that sparks curiosity and allows you to achieve your goals.

Having a sense of humor especially in difficult times also goes a long way in life. These life lessons definitely made me the person I am today.

In addition, finding the right mentor-mentee fit can make a big difference in your overall experience as a trainee. Peer mentors have played a vital role in my training. I am very grateful to my peers for their support through every phase of

my life. It is imperative to have a peer community that can uplift you and help you navigate through different milestones in your career. I would definitely advise young scientists to seek guidance from peers in addition to senior mentors in their field.

How many students and fellows have/did you mentor?

Being the only black female pediatric neuro-oncologist at the NIH, I believe I have a duty to mentor young minds that look like me. I have mentored and continued to mentor many students/fellows at different stages in their careers. This includes students in advanced degree programs such as ones in the Medical Research Scholars Program, post-docs, graduate students from the NIH-Johns Hopkins Graduate Partnerships Program, and those in their early phases of training such as post-bacs from the Intramural Continuing Umbrella of Research Experiences (iCURE) program and undergraduate students from the UGSP program that holds a special place in my heart.

Apart from my direct mentees, I try my best to help out other students and fellows that reach out to me via emails or Twitter (@DrSadhanaJ). I'm happy to meet with them in person or over a video call to direct them to the best of my abilities.

What are some of the things you prioritize as a mentor?

Integrity in science and honesty in communication are essential. As a mentor, I emphasize developing a team player attitude and kindling a student's passion for science.

Did you ever have a black mentor?

No, I did not have a black mentor during my training that I could relate to for career decisions and successes. However, I did have black peers who were and are very supportive and help me stay motivated through challenging times.

Do you think it would have helped to have a black mentor at an early career level?

Yes, it would have been useful to have a black mentor, to help me prioritize expectations, and pathways to success. That's why I want to be that person (officially or unofficially) for others.

Did you feel supported by your academic institution and mentors as a black scientist?

Not all the time. It is important to remember that even if people are betting against you, one needs to define success for themselves and not let others define it for you. The next step is to keep working towards your goals with confidence.

How important is it to have conversations about race issues in labs and more broadly in the scientific community?

PIs and heads of clinics need to encourage their teams to have discussions on health disparities and race issues. These conversations encourage people to be introspective and increase awareness about social inequities around them. Diversity needs to be present at every level of the power chain, starting from leadership down to the administrative and support staff in labs/clinics. For example: increasing diversity in the clinical team could instill more confidence in people from underrepresented communities to participate in clinical trials, specifically in the

evaluation of the COVID vaccine which has disproportionately affected black and brown Americans. Constructive discussions on race issues are essential to promote equity and diversity at the NIH and globally.

Any resource, conference, initiative, or society promoting diversity and inclusion that deserves more publicity and broader exposure?

Here are links to some initiatives and resources that fellows might find useful:

- https://www.support8cre.com/
- https://www.soc-neuro-onc.org//SNO/Women_and_Diversity.aspx
- https://www.asco.org/practice-policy/cancer-care-initiatives/diversity-oncology-initiative
- https://www.aacr.org/professionals/membership/constituency-groups/minorities-in-cancer-research/message-from-the-micr-chair/
- https://www.aamc.org/services/member-capacity-building/diversity-and-inclusion-strategic-planning-toolkit

What is your advice to young scientists, particularly scientists of color?

You got this! Be gracious and kind to yourself. Be confident about getting things done. Give yourself a "pat on the back."

Dr. Jackson's recipe for success is all about having a positive attitude, creating a nurturing and supportive group of peers and mentors, and diligently working towards your passion with a warm, beaming smile on your face. I was definitely energized and inspired after talking to Dr. Jackson. Here's to hoping our fellows and students will also draw motivation from Dr. Jackson's journey thus far!

References:

1. https://www.nature.com/articles/s41562-020-0917-7
2. https://www.cancer.gov/about-nci/organization/crchd/blog/2020/issaka-qa
3. https://pubs.acs.org/doi/pdf/10.1021/acscentsci.0c01120
4. https://www.edi.nih.gov/data/demographics

A Reflection on the *Reclaiming STEM* workshop - a training series for the future of inclusive and diverse STEM

by: Tam Vo

To say it was a challenging year is an understatement: 2020 saw a global pandemic where health disparities – especially for Black and Brown people – were highlighted. In addition to the pandemic, international outrage over the unjust killing of many unarmed Black individuals exposed racial injustice that has persisted for far too long. Even though many universities and institutions have publicly condemned racial discrimination and bolstered their commitment to enhancing diversity and inclusion, Science, Technology, Engineering, and Mathematics (STEM) are not insulated from the systemic racism weaved into the fabric of society. For instance, Black and Hispanic employees made up more than a quarter of the

total US labor workforce in 2016 but only 16% of them worked in STEM fields, according to Pew Research Center analysis. On the other hand, individuals representing sexual minorities (gay, lesbian, transgender, and/or queer) are less likely to pursue a STEM career than their heterosexual counterparts. This lack of diversity needs to be addressed with training, policy, and advocacy that focuses on creating safe spaces for scientists of marginalized backgrounds, including all races and sexual or gender minorities.

There is a gap in diversity training regarding policy and communication in the STEM field for scientists from underrepresented groups, who often face many challenges that can prevent them from participating in science communication (scicomm) and science policy (scipol). *Reclaiming STEM*, a workshop created in 2019 by Evelyn Valdez-Ward and Linh Anh Cat, addresses the need for scicomm and scipol training for marginalized scientists by diverse scientists (POC, Womxn, LGBTQ+ individuals, people with disabilities, first-generation immigrants, etc. You can find more information on topics and details at this link). This workshop creates a safe space for marginalized scientists to learn and share our unique stories and challenges. The workshop in 2020 moved online over four Saturdays in September due to the COVID-19 pandemic. As a scientist from an underrepresented background, I was grateful for the opportunity to educate myself and network with other scientists in our community.

Each day of the workshop started with a wellness section, where we focused on our mental wellbeing and set our goals for each day of the workshop series. Several workshops stood out to me. The first one was "Decolonial Theory" led by Hailey Devi, Danielle Kalani Hentz, and Robin D. López. Throughout the session, I learned about different ways to acknowledge the indigenous people and the land I currently reside on, which once belonged to the Piscataway and the Nacotchtank tribes. The second was a panel discussion on "Disabled in STEM" led by Newton Nguyen, Alyssa Paparella, Karen Tang, Ariana Elena Castillo, and Megan Lynch. The panelists took turns discussing their upbringing and discrimination from the ableist community. I was touched by their stories and the panelists' openness and candor in sharing their unique challenges, and it helped me become more conscious of my ableism. The third webinar that caught my attention was "Comedy in Scicomm", led by Kyle Marian. I learned how to construct a storyline, using my own laboratory research experience, to convey an attractive and entertaining scientific message to our audience; with proper preparation, we can broadcast our message in an informative and enjoyable way. Effective communication is a critical skill, and the workshop taught me a valuable lesson on how to deliver my message as an engaging story with a sense of humor.

Reclaiming STEM is a unique, one-of-a-kind workshop that emphasizes the immense need for increasing diversity and inclusion training in STEM for all scientists. I learned that science thrives on the collective effort of scientists from diverse backgrounds, including those with intersectional identities. I learned to be proud and unapologetic of my identity. I learned to leverage my uniqueness to strengthen my science and advocate for more diversity in STEM. I hope to use the skillsets learned from the workshop in my life through research, communication, and advocacy.

Tips to prepare your NCI Pathway to Independence Award (K99/R00) application

by: Md Masud Alam

The National Cancer Institute (NCI) intramural research program is committed to train fellows with diverse backgrounds as they advance in their career. The K99/R00 is one of the career transition pathways where applicants with less than four years of postdoctoral research training can apply and utilize this grant to facilitate a timely transition to tenure track (or equivalent) faculty position. This grant is awarded to outstanding applicants who have made a significant contribution to research under the supervision of a Principal Investigator (PI) and who aim to extend their research beyond their postdoctoral fellowship in a path that complements their PI's research studies. The theme of these extended research studies needs to comply with the respective Institutes/Center specific Funding Opportunity Announcement which are circulated in February, June, and October of every fiscal year. The submitted applications go through rigorous evaluations that usually take about eight to ten months between the time the application is received to the earliest project start date. The maximum five year duration of the awarded grant is divided into two phases: 1) The initial (K99) phase where the Awardees need to perform mentored research under the supervision of a PI (this phase is supported for one to two years) and 2) the second (R00) phase where the Awardees need to transition to independent research with a faculty position (this phase is supported for one to three years). Eligibility requirements are listed on the official pages of the K99/R00 grant application (https://www.cancer.gov/grants-training/training/funding/k99#eligibility).

If you are interested in applying for this career transition award, you may want to know some tips to prepare and give yourself the best chance to receive a positive result. One important element that demonstrates your readiness to embark on the path to independent research is to have at least one first author publication (published or in press) during postdoctoral training before you decide to submit the application. For this grant application, you need to write one page with 2 to 3 specific research aims based on supportive preliminary data to clearly demonstrate your research in both the mentored and independent phases. Your specific aims should be concise with broad research goals and address a critical scientific problem using novel ideas, methodologies, and technologies relevant to your research field. These specific aims should be independent of each other and driven by hypotheses. To write effective specific aims, you should start by summarizing previous studies and highlighting current research challenges followed by your hypothesis to overcome these difficulties. Each specific aim should be outlined in the context of at least one research project with some summarized expected results within the timeframe of the award period. The next part of the grant application package is to write a nine-page research plan based on both phases' specific aims with bibliography and references to be submitted above the page count. In your research plan you must describe in detail the significance and innovation of your proposal within one to two pages. The remaining seven to eight pages should be used to expand on the approach of each specific aim.

A well-written approach of each specific aim should start with the background and rationale of the study. Aims should describe preliminary results and critical barriers to further process, propose hypotheses to overcome the barriers, and outline an experimental design with data analysis. Lastly, it is imperative that the anticipated results of each specified aim be stated and that alternative approaches to challenges that may arise are clearly outlined. All approaches should be focused, and hypothesis-driven, with the clear goal of answering critical scientific questions.

Stating the background of the candidate - career goals and objectives - as well as career development and training activities are additional important steps for this grant application process. A maximum of three pages should outline your proposed plans for a successful scientific career in academic research. Your "candidate background" should start with your undergraduate education and identify the topics and events that inspired you to become a scientific researcher. You must clearly tell the story of your entire training path in research without forgetting to mention peer-reviewed scientific publications, technical experience, and general scientific productivity. You need to show the award committee your ability to become an independent scientist in your next career step in research, as well as how this award maximizes your chances to become an independent investigator. Your "career goals and objectives" should be separated into short and long-term training and research, and you need to express how you aspire to be a leader in your field and contribute to the breakthrough discoveries in cancer research. Lastly, you need to include the "activities" required to continue in your research path such as grant writing, communication, and laboratory management. Here, you need to describe how you would split your time between research and administrative activities which must be within reasonable limits as expected for an independent scientist. In addition, it is important to outline how you will seek advice from advisors and collaborators periodically to discuss your research objectives, identify methods of overcoming problems, as well as use their guidance in attaining a tenure track position and preparing for interviews. To ensure the proper utilization of this award for the proposed research, you need to create a timeline for both the mentored and independent phases on a yearly basis where some helpful tips are to demonstrate a progress report of the K99 phase at the end of year 2 to secure the funding for the R00 phase. Also demonstrate a plan to attend the NCI grant writing workshop in the year 2 to learn how to write an effective R01 proposal in year 3, submit an R01 grant application at the end of year 4, and evaluate all the research data in the mentored and independent phases of the award period at the end of year 5 to submit for other grant applications and opportunities for new collaborations to make this grant application more competitive and likely successful.

To summarize, you need to 1) prepare to publish (or have in press) at least one first author manuscript before applying for this grant, 2) generate supportive preliminary data for two or three specific aims for your research extension to become independent, and 3) invite at least two to three members of an advisory committee able and willing to support you during the mentored phase of award, collaborators based on each specific aim as well as three to five referees to provide a positive recommendation regarding your abilities to

become as an independent researcher. You should clearly discuss your intention with your current PI to get the most relevant advice on how to propose a research plan that would complement the scientific question you are currently exploring in your laboratory. Lastly, you should make sure to complete the full list of documents that are part of the application several weeks before the application due date so that the training officers and/or directors are able to check the documents for any errors or missing information before the final submission. The Center for Cancer Training of NCI regularly offers K-class workshops that are a great source of information for the various parts of the application as well as for the technical steps of the submission process (e.g., SF424 (R&R) package, eRA commons, electronic submission to Federal Grants Administration).

More information about the program and specifics about the application process can be found in the following links:

- https://grants.nih.gov/grants/guide/pa-files/PA-20-188.html
- https://www.cancer.gov/grants-training/training/funding/k99#eligibility
- https://grants.nih.gov/grants/guide/contacts/parent-K99-CT-not-allowed.html
- https://grants.nih.gov/grants/how-to-apply-application-guide/due-dates-and-submission-policies/due-dates.htm#review
- https://www.cancer.gov/grants-training/training/funding/k99
- https://grants.nih.gov/grants/how-to-apply-application-guide.html
- https://report.nih.gov/funding/nih-budget-and-spending-data-past-fiscal-years/success-rates
- https://grants.nih.gov/grants/how-to-apply-application-guide/forms-f/career-forms-f.pdf
- https://www.cancer.gov/grants-training/training
- https://commons.era.nih.gov/commons/
- https://public.era.nih.gov/assist/public/login.era?TARGET=https%3A%2F%2Fpublic.era.nih.gov%3A443%2Fassist%2F

Job Searching During a Pandemic

by: Molly D. Congdon

The past year has been full of many unexpected challenges and stressors. We have had to step away from the bench for a while, adapt to teleworking, virtual conferences, alternate work schedules, social distancing, mask wearing, and canceled vacations. In some cases, we have also had to juggle home schooling our children and taking care of family members. For those of us getting ready for the next phase of our careers, these adjustments and an unpredictable job market due to the pandemic amplify the tension of an already stressful process. If you are on the job hunt or getting ready to start, here are some tips to help reduce the stress and set you up for success.

1. Set a schedule or goals

Our time as NIH fellows is finite. Eventually we will all need to find another position of employment. In today's fast paced world, it is easy for time to get away from us. Loosing time seems even more pronounced during the pandemic. If you find yourself in this situation, then it is time to become more organized and set aside a block or blocks of time for job searching during the week. Having scheduled, uninterrupted time to search for and edit your applications will improve productivity. If you find yourself being worn down by the never-ending process of applying for positions, set a manageable, weekly goal. Applying for jobs is like running a marathon, not a sprint.

2. Use services available to you

As NIH fellows, we have a large amount of services available to us. Do not let them go to waste. Attend career and professional development workshops offered by OITE to build up transferrable skills needed for the position you strive to obtain. Meet with staff in the career service center. These NIH staff members are here to help you with a wide range of topics, including but not limited to investigating career options, reviewing application documents, practicing informational interviewing and networking skills, imposter syndrome and confidence issues, as well as how to approach difficult conversations with your supervisor. You can start your job search by visiting the OITE Jobs Database (https://www.training.nih.gov/career_services/jobs), or careers blog (https://oitecareersblog.od.nih.gov/) and continue to grow your network with the help of the alumni database (https://www.training.nih.gov/alumni).

3. Notify your network

While finding and successfully obtaining a new position is up to you, many jobs are filled through networking. You have spent your entire scientific career networking. Now is one of those times you can put that network to good use. Let your network know when you are entering the job market. Your next interview may result from a direct or indirect connection helping you get your foot in the door. Furthermore, you will need to call on members of your network for letters of recommendation.

4. Join or form a job search work group

Applying for a job requires a lot of documents. Depending upon the position these could include cover letters, resumes or CVs, research proposals, diversity statements, teaching philosophies, writing samples, and research presentations. Once you make it to the interview

stage, you will be asked a range of questions regarding the position, overcoming challenges, etc. Successfully finding a job requires not only a lot of work, but a lot of editing and practice. To help stay on task, catch editing errors, practice presentations and improve your answers to frequently asked interview questions, join or form a job search work group. These work groups could be teams organized by OITE, a professional association, or one you create yourself with friends and colleagues who are also preparing to transition into a new position. By supporting each other and working together to edit and practice presentations or interview questions, your applications and interviewing skills will improve, as well as your confidence. Remember, practice makes better.

5. Be patient

The process of applying, interviewing and obtaining a job takes time on both sides. Be patient. Just as we have personally been adjusting to life with a global pandemic, employers are adapting their interview processes and timelines for filling positions. Furthermore, you are not the only applicant for a given position. It takes time to schedule interviews with multiple candidates and committees. However, you want to show enthusiasm and interest in the position. If you have not heard from your human resource contact or the search committee chair, follow-up on the status of the interview process after approximately 2 weeks.

6. Take time for yourself

Finding your next position is a lot of work. Searching for positions, filling out applications, writing proposals, preparing presentations, and constantly adjusting your resume and cover letter for each position takes time. There is a reason people say finding a job is a full-time job itself. In the middle of it all, remember to take time for yourself to relax. Step back from the computer. Get outside and get some fresh air, exercise to loosen your muscles, clear your mind with meditation or watch an episode of your favorite show. How you spend your "me time" to release stress or boost your mood is up to you. The abundance of activities available online, through local businesses and the weekly wellness workshops offered by OITE are endless. Taking time for yourself is especially important when you feel yourself getting frustrated or down. If you let yourself run ragged and get over-stressed, it will be reflected in your body language, enthusiasm, and presentations during your interview.

7. Don't give up hope

Despite these extraordinary times, new positions are being posted and filled. People are finding jobs across the country. Don't give up hope. Seize every opportunity that comes your away and apply. You only get out what you put in.

References:

- How to Follow Up on a Job Application. Indeed 2021. Accessed 09 Jan 2021. https://www.indeed.com/career-advice/finding-a-job/follow-up-on-job-application
- Stahl, Ashley. How to Survive (and Overcome) a Tough Job Hunt. Forbes 2021. accessed 09 Jan. 2021. https://www.forbes.com/sites/ashleystahl/2017/08/04/how-to-survive-and-overcome-a-tough-job-hunt/?sh=2c05f92976cb
- OITE Career Services, About Us. NIH, HHS 2021. accessed 09 Jan. 2021. https://www.training.nih.gov/career_services

Chalk Talks unraveled: by the Frederick Diversity Committee

by: Mukta Nag

In the long process of a faculty job interview, chalk talks are an essential yet remain one of the most mysterious components of the entire process. While graduate and postdoctoral trainings ensure fellows are well equipped at presenting their research to a large audience in both written and oral form, fellows are very rarely exposed to a faculty candidate chalk talk. So how does one prepare for an academic job interview without knowing what constitutes a chalk talk?

Typically, chalk talks are conducted after a public "job talk" or a seminar by the candidate on their current work. Using a chalkboard or whiteboard or PowerPoint slide in a closed-door session, the candidate is expected to convince the current faculty members that their proposed research is exciting, and they are the best fit for the job. Chalk talks are "talks" about your future research plan as a faculty member in the academic institution at which you are interviewing. The candidate dons the hat of a principal investigator and highlights their main research focus in two to three specific aims with a realistic timeline for each aim, and most importantly conveys their enthusiasm for the proposed project. Chalk talks typically include one's plans for acquiring funding, personnel and equipment needed for the project, in addition to identifying collaboration avenues with current faculty members or extramural investigators. These "talks" are more like discussions where the candidate is very often interrupted by the current faculty to gauge if the candidate has thought through the caveats and issues with the current plan. This allows the interviewing members to see not only if the candidate is a good fit for the department and if their research interests are aligned or complementary to the ongoing projects, but also if the candidate can engage in an open-ended conversation about the field in general. These discussions can last anywhere from 20 minutes to two hours. While it sounds daunting, it is essential to understand that the chalk talk is the gateway for your future colleagues to see your vision and passion for your research and how you may contribute to the department. Here are a few articles and examples of chalk calks that might be helpful:

- https://www.asbmb.org/asbmb-today/careers/092520/chalk-talks
- https://www.ascb.org/careers/academic-chalk-talk/
- https://pdco.med.jhmi.edu/job_search_toolkit/academic/chalk-talk/
- https://gladstone.org/news/preparing-chalk-talk-faculty-position

Now the question is how do we prepare for a chalk talk? Every new faculty member I have spoken with emphasized on one thing: Practice! Practice! Practice! Set up a mock chalk talk with your lab members and with the PIs in your department. Practice the illustration and/or text to go on the chalk/whiteboard. Make a list of all possible questions you think could come up and prepare answers for them – all of them! Pay attention to the questions and treat the interviewers as colleagues. While this may seem like a formidable task, there are resources available to prepare for chalk talks. For example: The Frederick Diversity Committee (FDC) based out of the National Cancer Institute (NCI) at Frederick Campus aims to provide hands-on experience in chalk talks to current graduate

students and fellows at the NIH. The chalk talk seminar series hosted by the FDC is a three-part series:

Part I: Interviewing Tips: Master the Art of a Chalk Talk

This session covers the essential features of a chalk talk followed by two mock chalk talk practice sessions using a white board where each participant spends 15 minutes presenting their future plan to a peer/moderator of the session. The last session held on February 20th, 2020 was led by Mr. Scott Morgan, a distinguished science communications coach at the NIH.

Part II: Interviewing Tips: Experiences from Successful Applicants

In the second session of this series, two new tenure-track faculty members give sample chalk talks followed by an interactive session with the fellows on their experiences on the do's and don'ts of giving a chalk talk. This exercise provides the fellows with a unique opportunity to learn from a successful chalk talk. Drs. Meera Murgai and Euna Yoo were the latest tenure-track NIH Stadtman investigators that shared their experiences with the fellows on October 14th, 2020.

Part III: Interviewing Tips: Chalk Talks: Insights from the Interviewers

In Part III of this series, the trainees get a sneak peek at the interviewers' perspective on a chalk talk. Experienced faculty members get candid about what constitutes an impressive chalk talk that can land you the faculty position you desire. Our panelists, Drs. Tom Misteli, Kylie J. Walters and Matthew T. Wolf mediated an enlightening discussion for over 80 fellows in our last session held on January 28th, 2021.

Through this series, the FDC hopes to unravel chalk talks' mystery for the NIH fellows, thereby helping them prepare better for their dream faculty job interview! If you are interested in pursuing an academic career, go ahead and explore the links in this article and attend the FDC's fantastic chalk talk seminar series to learn more about preparing for a chalk talk.

Picture of Scott Morgan with FDC Fellows

History of Women in Science – Nobel Laureates Part 7

by: Molly D. Congdon

The *Women in Science: Nobel Laureates* series highlights the life, career and contributions of incredible women scientists who have made enormous contributions to the fields of chemistry, medicine, physiology, and physics. In this edition, we focus on Drs. Emmanuelle Charpentier and Jennifer A. Doudna, who were jointly awarded the 2020 Nobel Prize in Chemistry for "the development of genome editing" or, as we commonly refer to it, CRISPR-Cas9.

Emmanuelle Charpentier, Ph.D.

Emmanuelle Charpentier was born in Juvisy-sur-Orge, France in 1968 and grew up in the Paris suburbs. During her childhood, her parents encouraged her to pursue her academic interests. She became interested in science at an early age and at the age of 12, declared that she would one day work at the Pasture Institute. She attributes her love of the natural sciences, biology and microbiology to her parents and biology teacher. She attended the University of Pierre and Marie Curie, studying biochemistry, biology, genetics and microbiology. After graduating in 1992, she attended the Institut Pasteur in Paris, France studying traits of antibiotic resistance and mobile genetic elements. In 1995, she received her Ph.D. in microbiology under the guidance of Dr. Patrice Courvalin.

Charpentier traveled to the US to continue her scientific career. She was a postdoctoral fellow with Dr. Elaine Tuomanen at Rockefeller University for a year studying mobile genetic elements in bacteria, before becoming an assistant research scientist for Dr. Pamela Cowin at New York University Medical Center. She left New York in 1999 for a research associate position with Dr. Elaine Tuomanen at St. Jude Children's Research Hospital in Memphis but returned a year later to work with Dr. Richard Novick at the Skirball Institute of Biomolecular Medicine. Finally, Charpentier returned to Europe in 2002 to begin her independent career in Vienna, Austria. She first worked at the Institute of Microbiology and Genetics at The University of Austria and later assumed the role of assistant professor at the Max Perutz Labs of the University of Vienna and the Medical University of Vienna. Throughout her career, her research has focused on understanding the molecular aspects of bacterial gene regulation on a basic level.

Since returning to Europe, Charpentier has continued to travel across the continent. In 2008, she relocated to Sweden, where she was an associate professor at the Laboratory of Molecular Infection Medicine Sweden (MIMS), at Umea University until 2013. She then moved to Germany to serve as a professor and department head at the Helmholtz Centre for Infection Research and Hannover Medical School. In 2015, she moved to Berlin where she served as the Director of the Max Planck Unit for the Science of Pathogens until 2018. Throughout these career advancements, she remained a visiting professor at the MIMS until 2017. In 2018, Charpentier founded the Max Planck Unit for the Science of Pathogens where she is the acting scientific and managing director.

> "People outside of science are often surprised when they learn that the discovery of the CRISPR-Cas9 gene editing technology is a result of basic science." - Emmanuelle Charpentier

Charpentier's scientific career spans the globe. She is a strong advocate for stepping outside your comfort zone, encouraging young scientists to "take risks and cross as many borders as they possibly can – because what lies behind these borders, expands your mind-set and is a very enriching experience." She considers herself to be a curious, persistent scientist, "always trusting my instinct that I have to concentrate on the basic science, and the rest will follow eventually." These are traits that she hopes to pass on to the next generation of scientists.

Jennifer A. Doudna, Ph.D.

Jennifer A. Doudna was born in Washington, D.C., USA in 1964 and spent much of her childhood growing up in Hilo, Hawaii. Her interest in science began in a high school chemistry class and during a seminar focused on the chemistry of biological systems. She was encouraged to pursue her passion by her parents, both academics, who provided her with books and opportunities to explore the scientific world. She completed her undergraduate career at Pomona College in California, earning a B.S. in Chemistry in 1985. Joining the laboratory of Dr. Jack W. Szostak (2009 Nobel Prize in Physiology or Medicine) at Harvard Medical School, she began studying self-replicating RNA and its functions. She earned her Ph.D. in biochemistry in 1989.

Doudna completed her postdoctoral training with Dr. Thomas R. Cech (1989 Nobel Prize in Chemistry) at the University of Colorado. During this time, she focused on crystallizing RNA molecules. Her independent career began in 1994 when she joined the faculty at Yale University. She became an investigator for the Howard Hughes Medical Institute in 1997. In 2002, she joined the faculty at the University of California, Berkley, as a professor of biochemistry and molecular biology. Much of her research has focused on understanding the basic structure and functions of RNA.

Drs. Charpentier and Doudna began their collaboration in 2011 after meeting at a conference. A year later, they reported the amazing power of CRISPR technology in their paper "A Programmable Dual-RNA-Guided DNA Endonuclease in Adaptive Bacterial Immunity" published in Science on June 28th, 2012. Since its relatively recent discovery, CRISPR gene editing technology has had a profound impact on the advancement of scientific research. Scientists now have the capability to precisely cut any target DNA strand in a target organism. Furthermore, the long, cumbersome, expensive process of gene editing has become widely accessible to scientists who can easily order guide RNAs and CRISPR kits. Numerous startup companies have focused on advancing CRISPR technology to treat disease boosting economic growth and medical advancement, providing hope for a healthier future. As a result of their remarkable breakthrough, Charpentier and Doudna have been the recipients of numerous independent and joint awards including the Breakthrough Prize in Life Science (2015), TIME's "100 Most Influential People" (2015), Kavli Prize (2018), and Wolf Prize in Medicine (2020).

> "I think for many women, there's a feeling that no matter what they do, their work will never be recognized as it might be if they were a man. And I'd like to see that change."
> - Jennifer A. Doudna

Despite the advantages and scientific accomplishments, CRISPR technology has also required the scientific community to discuss and establish ethical guidelines regarding its use. This was highlighted when a scientist in China edited human embryos in April 2015, resulting in the birth of three genetically modified children, including a set of twins. Outside the lab, Doudna leads public discussions on the ethical application and implications of gene editing, serves on advisory panels of biotech companies, and advocates for the ethical application of CRISPR. She also organized a moratorium on human genome editing in 2015 and assisted in designing guidelines to protect human embryos from genetic modification.

The awarding of the 2020 Nobel Prize in Chemistry is monumental. For the first time in the 120-year history of the Nobel Prizes, a prize has been jointly granted solely to two female scientists. As Doudna stated "It's great for especially younger women to see this and to see that women's work can be recognized, as much as men's." The prize is also a significant achievement for basic research. As Charpentier stated in her 2018 Kavli Autobiography, "The CRISPR-Cas9 discovery is a very good example why basic science is fundamentally important. Without the deep understanding of its basic mechanisms, we would not have been able to develop it into the innovative technology it is today."

References:

- Press release: The Nobel Prize in Chemistry 2020. NobelPrize.org. Nobel Media AB 2021. Sun. 10 Jan 2021.https://www.nobelprize.org/prizes/chemistry/2020/press-release/
- A Tool For Genome Editing. NobelPrize.org. Nobel Media AB 2021. Sun. 10 Jan. 2021. https://www.nobelprize.org/uploads/2020/10/advanced-chemistryprize2020.pdf
- Cohen, Jon. CRISPR, the revolutionary genetic 'scissors,' honored by Chemistry Nobel. American Association for the Advancement of Science 2021. Sun. 10. Jan 2021. https://www.sciencemag.org/news/2020/10/crispr-revolutionary-genetic-scissors-honored-chemistry-nobel
- The Kavli Prize: An Autobiography by Emmanuelle Charpentier. Mon. 11 Jan 2021. http://kavliprize.org/sites/default/files/Emmanuelle%20Charpentier_autobiography.pdf
- Max-Planck-Gesellschaft: Prof. Emmanuelle Charpentier, Ph.D. Max-Planck-Gesellschaft 2021. Mon. 11 Jan 2021. https://www.mpg.de/9343753/wissenschaft-der-pathogene-charpentier
- Jinek, M.; Chylinski, K.; Fonfara, I.; Hauer, M.; Doudna, J. A.; Charpentier, E., Science, 2012, 337 (6096), 816-821. DOI: 10.1126/science.1225829
- Berkeley College of Chemistry. Jennifer A. Doudna. UC Regents 2021. Sun. 10. Jan 2021. https://chemistry.berkeley.edu/faculty/chem/doudna
- Bio Jennifer Doudna. Doudna Lab 2020. Sun. 10. Jan 2021. https://doudnalab.org/bio/
- Marino, M., PNAS, 2004, 101 (49), 16987-16989, DOI: 10.1073/pnas.0408147101
- Rogers, K. Jennifer Doudna, American Biochemist. Britannica 2021. Mon. 11 Jan 2021. https://www.britannica.com/biography/Jennifer-Doudna

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