Center for Cancer Research
Volume 17 | Issue 1
Spring 2018

CCR Fellows & Young Investigators Newsletter

Spring forward!...

From the Editor-in-Chief's Desktop

Manasi S. Apte

Hello all! We present to you our spring CCR-FYI newsletter issue with the hope that our selection of articles will be enjoyable for fellows at all levels (postdocs, postbacs, interns, clinicians and physicians).

In this issue, we have for you a commentary by Poulami Majumder on how to beat the imposter syndrome; an important issue that needs to be discussed within

fellows' community at large. Celebrating women's history month-March, we are starting a new series called – 'Women in Science' highlighting contributions by female researchers across the globe and throughout the history. In this issue, we present stories of some outstanding women Nobel laureates compiled by the team of Molly Congdon, Colleen Connelly and Allix Sanders!

If you are gearing up for long, beautiful summer days outside the lab but want to stay just within DC area, Brittany Haynes has highlighted various interesting and fun local activities and places for you to consider. If you are searching for a great but affordable summer vacation spot, you might want to know all things "Iceland" in a travel diary by Julie Nyman.

It is also a season of many scientific conferences and meetings. While attending a scientific conference can be exciting but sometimes can also feel intimidating. Do you want pointers about how to make most of your experience attending a meeting? We got you covered! In this issue, Melissa Fernandez shares her experiences attending a conference in Barcelona, Spain where she interacted with her fellow virologists across Europe and United States (look for an awesome souvenir she got from the meeting organizers!) while Mariana Mandler gives us a flavor of her favorite meeting at the Cold Spring Harbor Laboratories in New York (also an easiest way to meet a Nobel laureate! ☺). Finally, we have Christopher Rice discussing why and how international fellows decide about their future plans post-NIH tenure in our ongoing series – The Expat's Experience.

Many of us go through numerous life transitions either on a personal or professional front during our NIH tenures. May it be finding a life partner or deciding to buy a house or publishing the research in high impact journal or finding the next job, during these transitions, life can seem completely stressful and utterly chaotic! A strong support system of friends and family makes a positive difference when celebrating changes or staying strong in the face of adversity....On a personal front, I went through a beautiful transition recently. Becoming a mother for the first time for me was a wonderful experience but also quite a daunting one! I could not have imagined navigating this transition to motherhood without a great support system including: my husband, family, friends, my post-doc advisor, and lab mates. I want to thank all of them for making sure that I was able to enjoy the first few weeks of motherhood with our new bundle of joy - baby Aabha. As I present this issue to you, a big shout-out also goes to our managing editor, Melissa Fernandez for taking care of all things in my absence and helping me put together this great issue.

As one wise man has said – ‘Change in the only constant!’ Now that the cold, brutal winter weather has (almost!) changed into rejuvenating spring times, nature is making a way for beautiful breezy summer. So, let’s spring forward in lab as well as outside! On behalf of the entire CCR-FYI newsletter team, we wish you all happy spring! Don’t forget to put down those pipettes for a bit, get out and enjoy a little!

Cover Image- Cherry Blossom, Courtesy: Melissa V. Fernandez

CCR-FYI Association is supported by the CCR Office of the Director, National Cancer Institute.

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Washington D.C. in Full Bloom

By Brittany Haynes

Washington, D.C. is a smorgasbord of historical, cultural, and budget friendly events. With spring in our midst and summer on our doorstep, there is no better time to take advantage of all that D.C. offers.

For the fellow with a love for history, a guided tour around the National Mall is ideal to see all the attractions on your bucket list. My personal favorite is the World War II Memorial, especially at night when it is lit up in its full glory! Other historical attractions along the National Mall are the twelve Smithsonian Institute Museums, which generally offer special summer exhibits shows and concerts (https://www.si.edu/museums). Highly recommended are the Natural History Museum, the Air and Space Museum, and the newly opened National Museum of African American History and Culture. I would be careless not to recommend the National Portrait Gallery where one can check out the newly added Obama portraits.

While the Cherry Blossom festival and its associated events have already passed, D.C still has plenty to offer during coming months if your interest lies in nature, art, music or even food. D.C is home to the United States Botanical Garden and the United States National Arboretum, my personal favorite. Aside from the beautiful gardens, D.C. offers hiking trails of varying lengths to suit your walking, biking, and jogging needs. To begin, I recommend visiting the Rock Creek Park which offers over 25 miles of hiking trails. For added fun, Rock Creek Park also features the National Zoo, a nature center, a planetarium, and much more(https://www.nps.gov/rocr/index.htm). I also highly recommend spending time at the newly developed and renovated District Wharf along the Southwest Waterfront where you can relax on modern swing sets overlooking the Washington Channel, rent a kayak, or stand-up paddleboard to get out on the water, enjoy food and drinks, and live shows and concerts. (https://www.wharfdc.com/waterfront/)

"…D.C still has plenty to offer during coming months if your interest lies in nature, art, music or even food"

For the summer holidays, be sure to check out the Memorial Day Parade (http://www.americanveteranscenter.org/avc-events/parade/) and Fourth of July firework display at the National Mall.

For those with an interest in the arts, D.C. hosts numerous annual and monthly art events. First Friday Dupont (http://www.firstfridaydupont.org/) is a collective of 12 art galleries in Dupont Circle which open their doors to the public every first Friday of the month. With offers of wine and cheese, this is a perfect way to begin your weekend. ARTECHOUSE, a new attraction, creates an art space specializing in immersive large scale art installations by blending art, science, and technology. (https://artechouse.com/)

Art All Night: Made in D.C. is a free overnight art festival that typically runs from 7pm to 3am. It features visual and performing arts in seven neighborhoods throughout D.C. This year's dates have not been solidified; however, the event generally takes place in September and serves as a nice close to the summer season. Lastly, explore the free and season shows at the Shakespeare Theatre Company and Kennedy Center, two staple performance areas in the D.C area apart from numerous other venues around DMV area including Wolftrap, Strathmore and others.

With so many free attractions and events, D.C. is the perfect place to shake off your winter time blues. Take a step outside and feel yourself blossom!

How to Beat the 'Imposter Syndrome'

By Poulami Majumder

During a recent Gordon Research Conference, I was at the breakfast table with an old friend from college. She was recounting a terrifying story of waking up in a cold sweat after realizing that she did not have an alternate plan to address the inevitable denial for an extension of her postdoctoral fellowship. The perceived reason for this denial of her extension was shocking: "Well, what if my advisor discovers that I am the wrong hire. I might have fooled him with my accomplishments, but surely that is not due to my genuine ability, but mere luck." I realized how well she described the irresistible fear faced by many of us, the fear of feeling inadequate or phony, regardless of our accomplishments. These thoughts, often identified as 'imposter syndrome' are quite common among highly qualified PhDs,

irrespective of their roles in academia or industry. As PhDs, we are expected to be the experts of our specialized fields of research where success is measured by solving tricky problems, defending results, getting our research published, and securing competitive grant funding. The expectation for intellectual excellence while in an environment surrounded by a host of incredibly smart scientists could be overwhelming. Postdocs can be particularly susceptible to chronic self-doubts while they transition from a graduate student to a standalone fellow who is required to work independently with minimal supervision. In our field of scientific research, where experimental failure may be quite common, trying to be an exemplar postdoc can produce crippling feelings of shame, guilt, and doubt whenever setbacks are encountered. Imposter feelings can grow even stronger when fellows are in the process of applying to permanent job positions and may have to deal with piles of rejection letters.

"…The expectation for intellectual excellence while in an environment surrounded by a host of incredibly smart scientists could be overwhelming."

These so-called imposters are overwhelmed by the feelings of not being smart enough compared to their peers. A lack of self-confidence can often cause them to avoid challenges, including entering a grant competition, applying for an award, or sometimes even asking for a recommendation letter. It might also be hard for these high-achievers to receive constructive criticism, which they may consider as signs of their own inabilities. Sometimes these individuals avoid applying to a position they are well-qualified for, believing they are just not competent enough. With a general tendency to set the bar extremely high, they believe their own past achievements are just due to luck, while the performance of the peers is attributed to their intelligence. Instead of enjoying hard-earned success these individuals become anxious of maintaining the similar standard in future. Having such self-doubts among PhDs can play important role in diminishing career ambitions. According to a 2013 study[1] conducted among 461 PhDs, 11% of women and 6% of men were found to have curtailed their ambition for tenure-track positions and moved into non-academic jobs. A correlation was found between this group and those who were suffering from imposter syndrome.

Though occasional imposter feelings may be helpful for sharpening our skillsets, pervasive tendencies of self-doubts can cause individuals to procrastinate indefinitely or simply quit research. So how can we ride out the uncertainties of recognizing ourselves

and thrive in the prospective careers? The key is to remember that no one in the scientific community has all the answers. Every single problem we try to address in the lab generates a new question that even the leading expert in the world may not yet have the tools to understand. If it were not so, we would not consider experimental science as exciting as it is, right? It is completely acceptable for us to face dead ends in projects sometimes, get little anxiety over it, but believing that the setbacks are due to our own incompetence can only bring disaster. It is good to remind ourselves that we are not all experts, but trying to achieve this goal after a few years of postdoctoral training.

One of the most effective ways to deal with the inner critic is to be a part of a postdoctoral community and bring the topic to a discussion. Knowing many of us are in the same boat can be very reassuring. Conferences could be the great place to learn the art of exploring our professional identities. As we present our work in front of an interview panel, being unable to answer all questions with correct replies does not make us any less smart, we need to remind ourselves that we were capable enough to make it there by outcompeting several others. Reading success stories and keeping track of the testimonials can tune your mind towards positivity. Remember, the most brilliant minds on earth have made mistakes and you do not need to be perfect! Keeping a diary to note down the smallest everyday accomplishments (be it a positive assay result or one successful step towards synthesizing a complex chemical) might prove to be of enormous benefit in the long run. Besides self-motivation, Employee Assistance Programs offered across NIH campuses are always ready to help overcome your lone struggle.

“Remember, the most brilliant minds on earth have made mistakes and you do not need to be perfect!”

At the end, I would like to leave you an inspirational quote by Denis Waitley, a respected motivational speaker: “It’s not who you think you are that holds you back, it’s who you think you’re not.”

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Iceland -The Land of Fire and Ice

By Julie Nyman

After graduating in the summer of 2017, I was awarded a year-long position at the National Cancer Institute in the laboratory of Stuart le Grice, starting November 13th, 2017! I began working with Regan LeBlanc, a post-doc fellow in Stuart's lab who is using nuclear magnetic resonance spectroscopy to elucidate the 3D structure of a section of the pre-genomic RNA material of the hepatitis B virus.

Before beginning this amazing research opportunity, I had the chance to travel abroad with a friend. We decided to visit Iceland. Our reasons were: there were cheap international flights via Wow air to Iceland ($220 one way), and many available tours through Reykjavik Excursions in Iceland's capital of Reykjavik, and off course there would likely be no language barrier!

After six weeks of planning, we boarded a purplish pink WOW airlines plane bound for Iceland. Six hours later, we landed at Keflavik International Airport and called the guesthouse at which we booked a room. Within a few minutes, we received a ride to the guesthouse. After settling into our room, we stepped out to get some supplies. In one direction, a barren and cold landscape greeted our eyes- in the other direction, the colorful buildings of the nearby town of Reykjanesbær stood! After shopping, we rode to Reykjavik where our first guided tour would begin. The capital of Reykjavik was approximately 50 minutes distant, and the bus ride to it harbored more barren and beautiful landscape on both sides of the road. There was so much empty land, untouched and un-spoilt by humanity; it was mind-boggling! Eventually, the city approached. Towering mountains surrounded the buildings, and the ocean sparkled in the distance. When the bus reached the bus terminal, we disembarked and began exploring the city before our Northern Lights tour. We walked around the streets of Reykjavik and enjoyed some traditional Icelandic food. Alas, our Northern Lights tour commenced and ended without any sightings of the *aurora borealis*.

The next day, we took the day long Golden Circle tour that took us to several points of interest in the South of Iceland. We visited a large tomato and horse farm made up of long greenhouses and rolling fields, and the Gulfoss waterfall whose mist drenched observers admiring its beauty. The tour guide mentioned that Gulfoss Waterfall rivaled Niagara Falls in estimated power outage. There have had been discussions about harnessing the power of Gulfoss to

(Left: Gulfoss waterfall, Right: view of the closest town near Keflavik International Airport. Courtesy: Julie Nyman)

generate electricity for the nearby region but thankfully, the beautiful waterfall still remained unexploited. On the same trip, we also visited a geysir field full of steaming holes out of which sulfur laced water surged and finally, we stopped at Thingvellir National Park where the rifts between the Northern American and Eurasian tectonic plates were most evident. The following morning, we visited the Blue Lagoon, a natural hot spring and spa. As the hot water emerged from the earth, steam was generated, and it created a mystical atmosphere. We had the privilege of watching the sun rise over the jagged rocks bordering the water. After enjoying the Blue Lagoon, we caught a bus heading to Reykjavik and again explored the city. We took many pictures of the mountains and of the quaint houses. As we walked the streets, we visited Hallgrímskirkja Cathedral. The church had an interesting architecture whose tower offered a panoramic picture of the surrounding city. A statue of the explorer Leif Erikson who reportedly was the first to discover North America sat at the entrance. After experiencing as much of the city as possible, we went to the bus terminal and tried our luck once more with the Northern Lights tour. Unfortunately, the clear skies and cold temperatures conspired against us, and we went back to our guesthouse without experiencing the surreal beauty. Sadly, our time in Iceland ended before we could go on another Northern Lights tour, and once back in the U.S., my friend returned to work and school, and I jumped into my post-baccalaureate experience and have learned a lot in the following months!

Looking back on my experience in the land of fire and ice, I

already want to return! But apart from the natural beauty and tourist attractions, it might also be exciting to think about what else Iceland has to offer. There are many opportunities to study the genesis of life as well as to study renewable and environmentally friendly energy sources. Additionally, there are many research opportunities to improve human health and that support the goals of the National Cancer Institute! For example, the biomedical 3D imaging department at Reykjavik University partners with clinicians and works to refine the usage of 3D imaging techniques for treating tumors and cancers. Another example describes the University of Iceland and its holdings of a large repository of genetic information from a large fraction of the island's population. Armed with this genetic information on the fairly inbred and homogenous population of Iceland, the University draws connections between genes and disease that may be overlooked in a diverse population and shares the information with the National Institutes of Health.

For those of us budding scientists who are still in school or are looking for additional research opportunities, studying abroad in Iceland would be a fantastic opportunity! If you are interested, you can visit your university's international education Office and also peruse these links https://en.ru.is/international/ and https://english.hi.is/university/international_collaboration for more information

History of Women in Science – Nobel Laureates

By Molly D Congdon, Colleen Connelly and Allix Sanders

Science is a systematic discipline that uses data and observations to build on existing knowledge and improve our understanding of the world around us. As a fact-based discipline, science does not inherently exhibit gender bias. Men and women are both capable of making groundbreaking scientific discoveries.

Since 1903, a Nobel Prize has been awarded eighteen times to women for their scientific achievements: twice in Physics, four times in Chemistry, and twelve times in Physiology or Medicine. The contributions made by these women had profound impacts on the scientific community, as well as humanity. In

honor of Women's History month, we would like to take the time to highlight the impact of a few of these exceptional, Physiology or Medicine Nobel Prize winning, female scientists and their contributions to medicinal research.

1988 - Gertrude B. Elion, M.S.

In 1988, Gertrude B. Elion, M.S. received the Nobel Prize for her discoveries of important new principles of drug treatment. After graduating high school at the age of 15 and the death of her beloved grandfather from cancer,

Elion decided to study chemistry with the hope of one day helping to find a cure for the disease. She obtained her B.S. when she was only 19; however, her career in chemistry nearly ended due to a combination of job scarcity brought on by the Depression and the gender biases of the time which barred her from the few available laboratory positions and prevented her from obtaining financial aid fellowships for graduate school. In her words, "I hadn't been aware that any doors were closed to me until I started knocking on them". She was eventually able to land temporary teaching positions and laboratory assistant work, which allowed her to continue her Master's education at New York University where she was the sole female in her graduate class. During WWII, with the resulting shortage of male chemists, more scientific career opportunities became available for women. After short stints as a food quality control chemist at major supermarkets and a research position at Johnson & Johnson, Elion met George Hitchings and began working in his laboratory at Burroughs Wellcome pharmaceutical company. Elion pursued a Ph.D. while working with Hitchings; however, when the school demanded she leave her job to study full-time, she left to continue her work with Hitchings. She stayed in this position for the rest of her career.

"…I hadn't been aware that any doors were closed to me until I started knocking on them"

Hitchings hypothesized that, instead of using trial and error to

establish new drugs, one could exploit the differences in nucleic acid metabolism between invading or diseased cells and normal, healthy cells to design therapeutics. Elion began designing and synthesizing novel drugs, mainly based on purines, to treat a variety of diseases including cancer and infections. She developed the first immunosuppressive drug (azathioprine), the first successful antiviral drug (acyclovir), the first treatment for leukemia (mercaptopurine and thioguanine), which led to her receiving the Nobel Prize. Later in her career, she also oversaw the development of the first AIDS drug azidothymidine (AZT).

In addition to the Nobel Prize, Elion has received a multitude of other prestigious awards for her work, including the Garvan-Olin Medal, American Cancer Society Medal of Honor, and the National Medal of Science. She was the first woman to be inducted into the National Inventors Hall of Fame. Elion continued her work at Burroughs Wellcome even after her official retirement in 1983. She also remained active in other roles within the scientific community by serving as President of the American Association for Cancer Research, and advisor to the National Cancer Institute and the World Health Organization.

2008 -Françoise Barré-Sinoussi, Ph.D.

Françoise Barré-Sinoussi is a French virologist who performed the foundational work identifying the human immunodeficiency virus (HIV) and was awarded the Nobel Prize in 2008. She was born in 1947 in Paris, and possessed an interest in science from an early age. After contemplating careers in either medicine or biomedical sciences, she attended the Faculty of Sciences at the University of Paris to obtain a degree

in Natural Science. During her undergraduate studies, she decided to pursue a career in research and wanted to gain laboratory experience. After a long search, she was finally accepted as an undergraduate volunteer in Jean-Claude Chermann's lab at the Institut Pasteur. Chermann's passion and enthusiasm for research led Barré-Sinoussi to spend the majority of her time

in the lab, and she only attended her classes enough to pass the exams. Following her undergraduate education, Barré-Sinoussi rapidly completed the doctoral project proposed to her by Chermann and received her Ph.D. in 1974 from the Faculty of Sciences at the University of Paris. During her Ph.D., she asked the assistant to the director of the Institut Pasteur if she would be able to apply for a position, but she was told that, as a woman, she should consider an alternate career path. Although there were no more than five female professors at the institute when she began, she did not take his advice. After meeting Dr. Robert Bassin from the NCI during a research sabbatical at the Institut Pasteur, she joined Bassin for a post-doctoral fellowship at the NIH. While in the US, she was awarded an INSERM (National Institute for Health and Medical Research in France) position to return to the Institut Pasteur in the unit of Professor Luc Montagnier to study the link between retroviruses and cancer. In late 1982, after the emergence of a new disease epidemic that appeared to attack immune cells, investigators at the Institut Pasteur were tasked with determining if a retrovirus was responsible. Luc Montagnier, Barré-Sinoussi, and colleagues discovered an unknown retrovirus in patients with generalized lymphadenopathy through an increase in reverse transcriptase activity. The visualization of the particles, isolation, amplification, and characterization of the virus rapidly ensued. Their first report was published in the May 1983 issue of *Science*. The virus was named Lymphadenopathy Associated Virus (LAV), which would eventually be proven to be the causative agent of AIDS and renamed HIV. Their discovery was crucial in improving treatment for AIDS patients and revealed the urgent need for diagnostic tests. For this discovery, Barré-Sinoussi and Montagnier were awarded the Nobel Prize in 2008.

"…She was told that, as a woman, she should consider an alternate career path… she did not take his advice"

Barré-Sinoussi continued to work at the Institut Pasteur and was later named the head of the Regulation of Retrovirial Infections laboratory. Her research focused on investigating the mechanisms of host control of HIV infection and studying natural protections against infection, such as HIV-exposed but uninfected individuals and the placental barrier against HIV in-utero transmission. Throughout her career, Barré-Sinoussi has been passionately involved in collaborations with resource-limited countries in Africa and Asia, promoting interactions between native young scientists and researchers in Paris. She has co-authored more than 280 original publications, received

dozens of national or international awards, was elected a member of the National Academy of Science, and served as President of the International AIDS Society.

2015 - Youyou Tu, Ph.D.

In 2015, Youyou Tu received the Nobel Prize “for her discoveries concerning a novel therapy against Malaria”. She was born in Ningbo, a

coastal city in eastern China, in 1930 to a family that valued the education of children. Driven by her passion to discover new medicines, she graduated from the Beijing Medical College department of pharmaceutics in 1955 and has subsequently spent the rest of her career at the Institute of Chinese Materia Medica, an Academy of Traditional Chinese Medicine within the China Ministry of Health, now known as the China Academy of Chinese Medical Science. Following the mission of the Academy, she has spent her career studying and developing traditional Chinese medicines for modern day healthcare.

In 1969, Tu was recruited to work on a secret medical research project known only as “523”. The project was established in 1967 to combat antimalarial drug resistance and aide Communist troops fighting in the mosquito-ridden jungles of Vietnam. In the late 1960s and early 1970s, Tu studied thousands of traditional Chinese medicine recipes for the treatment of malaria and interviewed Chinese medicine practitioners. During this time, she reduced over 2000 potential treatments to 380 which she tested in mice. This systematic, thorough research led her to study the Chinese herb Qinghao, within the *Artemisia* family. Through numerous trials and inconsistent results, Tu realized that the extraction process was vital for maintaining the activity of the isolated compounds from Qinghao leaves. After analysis of the multitude of extracts collected, her team identified an extract that inhibited malaria parasites with 100% efficacy. In preparation for clinical trials, Tu and her team worked 24/7, and to the detriment of their own health, to produce the necessary quantities of the extract, since most pharmaceutical labs in China were closed due to the coinciding Chinese cultural revolution.

Unfortunately, towards the end of the malarial season, conflicting results were observed in animal toxicological studies and threatened to delay the clinical trials

"For the potential benefit of humanity and to expedite the safety evaluation for the extract, Tu bravely petitioned to test the extract on herself. Luckily, no ill effects were observed..."

until the following year. For the potential benefit of humanity and to expedite the safety evaluation for the extract, Tu bravely petitioned to test the extract on herself. Luckily, no ill effects were observed. Afterwards, additional members of her team also volunteered to test the extract. These selfless acts and lack of side effects allowed the clinical trials to remain on schedule. Concurrently with the clinical trial, efforts to isolate, crystalize and identify the active component of the extract were undertaken. The compound was finally isolated in November 1972 and later named artemisinin (Qinghaosu in Chinese). Since its discovery, artemisinin and artemisinin combination therapies have saved the lives of hundreds of millions of malaria patients.

During her career, Tu was known as "the Professor of Three Nos". She had no post-graduate career, no extramural research experience outside of China, and was not a member of the Chinese Academy of Science. Nonetheless, her impact to both the scientific community and humanity has been felt around the world. She is sincerely grateful to the scientific community for acknowledging the importance of the work and has been granted numerous awards, including the Lasker Award in 2011 and the Noble Prize in 2015. Despite all the praise, she modestly acknowledges that the work was not solely her doing, but "an example of successful collective efforts".

Collectively, these women had profound impacts on world health through their research efforts establishing principles of drug design, discovering HIV, and identifying a treatment for malaria. They overcame many personal, financial and scientific challenges during their careers, some of which are still applicable to researchers today. Despite these challenges, they blazed their own career paths, inspiring and leading the way as role models for female scientists across the world. In coming issues of the newsletter, we will continue highlighting the careers and contributions of other remarkable female Nobel laureates and leading scientists.

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Photo sources: National Cancer Institute Visuals Online for Dr. Elion, Ulla Montan, copyright: The Nobel Foundation for Dr. Barré-Sinoussi and copyright: Nobel Media AB 2015/ Alexander Mahmoud For Dr. Tu

Meeting Report: 2018 Eukaryotic mRNA processing at Cold Spring Harbor laboratories, USA

By Mariana Dalit Mandler

My favorite meeting entitled "Eukaryotic mRNA processing", takes place every two years at Cold Spring Harbor laboratories (CHSL) in New York. Here, some of the most exciting research regarding the regulation of gene expression is deliberated and discussed before publication. In line with the title, the topics of this particular meeting are related to many aspects of the cell

involved in the central dogma (DNA to RNA to protein), with a heavy focus on various aspects of RNA biology, to understand the regulation of gene expression. Any cellular mechanism that might impact the production, processing, stability, localization and translation of a messenger RNA to in turn impact a cellular function in eukaryotes, is of main interest to the attendees. Discoveries range from newly solved structures, novel molecular interactions and cellular mechanisms, as well as large computational data to functional output.

This meeting attracts many of the senior and upcoming leaders in the field of RNA biology, but is well-balanced with a large percentage of postdoctoral fellows and graduate students. The meeting is fully scheduled for 5 days, and accommodates a smaller crowd of around 300 attendees. There are usually about 11 sessions of oral presentations from Tuesday evening to Saturday afternoon, grouped by topic and led by session heads. Graduate students and fellows are encouraged to submit abstracts for talks and are often prioritized upon selection. Each session contains 10 oral presentations of 12 minutes each, that occur consecutively throughout the meeting. As a result, attendees can enjoy all the presentations without having to pick and choose from tandem talks, as would happen at larger conferences. One can enjoy the talks in the main auditorium, outside on the patio under a covered tent supplied with chairs and a large screen T.V., or at the bar on campus. During the meeting, there are two evening poster sessions, and a wine and cheese party. Every Friday at CSHL a quartet is invited to play a concert, which is open to attendees of the meeting. The concert is followed by a cocktail hour and banquet, and later in the evening by a dance party featuring the regular on campus DJ. Housing for the meeting is provided either on campus in cabins or dorms, or off campus with readily available transportation to hotels or gorgeous houses that belong to CSHL located on a branch campus. Additionally, all meals are included in the registration fee. The meeting occurs at the end of August, and the weather is usually hot, humid, and sunny in the beautiful sound of Cold Spring Harbor, NY.

This past August was my fourth time attending this particular CSHL meeting. Over the last 8 years, I attended twice during graduate school and twice as a postdoctoral fellow. I usually present a poster, but one year I was selected for an oral presentation. I find it comforting to attend the same meeting regularly within my field of study, to get a sense of progress, celebrate the successes of my peers, and catch up with my mentors. CSHL meetings are fun, and full of leading edge science and discussion. I highly recommend checking out a meeting at CSHL. If you are lucky, you may even run into James Watson, who resides on campus. Refer to for information on upcoming meetings https://meetings.cshl.edu/meetingshome.aspx

Conference Review: 2018 Viruses at Barcelona, Spain

By Melissa V. Fernandez

One of the more exciting conferences for virologists this year was the 2018 *Viruses* conference in Barcelona, Spain. The title of this conference is pleasantly simple and all-inclusive to the field – Viruses. Whether you were a retro-, adeno-, or onco-virologist, you were welcome! Fish, plant, invertebrate, and mammalian model-based research was also equally respected. The all-inclusivity of this conference offered all attendees ample learning opportunities by exposure to a wide variety of virology subfields.

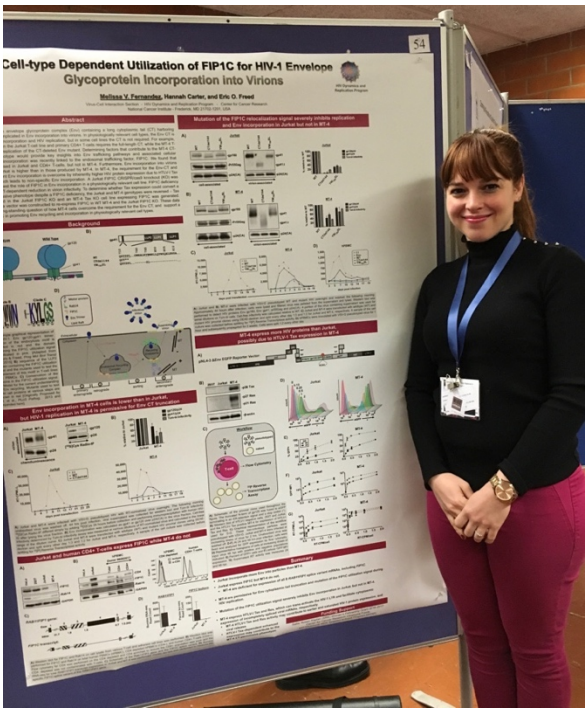
The conference was organized by a dedicated team led by two investigators committed to promoting and fostering virology in all research fields: the Director of the CCR's HIV Dynamics and Replication Program (HIV-DRP), Dr. Eric O. Freed, and a professor at the Universitat de Barcelona, Dr. Albert Bosch, co-chaired this three-day conference. Viruses 2018 was hosted at the Universitat de Barcelona's Facultat de Biologia where Dr. Bosch's group conducts their research on enteric viruses, like HepA and norovirus. As my lab colleagues and I arrived on the first day of the conference to register and check in, we were uncertain of which building the conference registration was located in until we came upon the DNA statue outside. As soon as it came into sight we knew we were in the right place.

("I got mumps and HepB!" – Melissa exclaimed upon finding the pins gifted by the organizers)

Being in Spain, *Viruses* 2018 offered American virologists a unique opportunity to network with European researchers and learn about their ideas and perspectives. As co-chair of the CCR-FYI and the Fellows' Colloquium Planning Committee, I encourage the

(Left: DNA statue outside *the Facultat de Biologia* greeting visitors as they arrived, Right: Group photo of the 2018 Viruses conference attendees)

fellows to network extensively to make new friends, connections, and collaborations, as well as practice their elevator speech. I did not let myself off the hook from taking my own advice and committed to handing out at least five business cards. My main objective was to identify potential secondary (and tertiary) mentors, ideally researchers I could identify with on either a cultural or gender basis to discuss my strengths and weaknesses and reach out to throughout my career for advice. Since I was not familiar with most of the attendees, I decided to identify potential second mentors by speaking to presenters whose talks I connected with. Admirable talks were delivered from American women virologists, including my personal favorites Dr. Carolyn Coyne from the University of Pittsburg, Dr. Sara Cherry from the University of Pennsylvania, and Dr. Moriah Szpara from Pennsylania State University. In addition to the contacts I made between sessions, I committed myself to meeting Drs. Cherry, Coyne, and Szpara in person while at the conference before I lost my nerve. The coffee breaks, lunch, and poster sessions were all bustling with



(Melissa Presenting her research work during the poster session)

virologists meeting one another, exchanging information and contacts, and expressing admiration for great talks. Catching sight of Dr. Szpara just after a morning oral presentation session, I approached her and gathered all my courage to introduce myself and thank her for her engaging talk on genomic and phenotypic diversity associated with neonatal HSV-2 disease. She was very gracious and encouraging of my career aspirations. Drs. Cherry and Coyne were occupied, so I opted to introduce myself to them via the much less preferable e-mail method. Mentors and role models perform distinct yet important functions for trainees. Role models show trainees how one can be successful. As a Latina in science with a terrible fear of public speaking, it was inspiring to see a strong representation of Spanish virologists presenting at the conference, including Dr. Rosa Pintó (Universitat de Barcelona), Dr. Ana Joaquina Perez-Berná (ALBA Synchrotron), and Dr. Diego Sebastian Ferrero (Institut de Biologia Molecular de Barcelona, CSIC). They spoke with confidence and presented their work clearly. These distinguished Hispanic scientists are my new role models.

Role models can also be found in awardees who have combined multiple approaches and techniques to achieve impactful findings. Late into the conference, Dr. Andrew Ward from the Scripps Research Institute, La Jolla delivered an inspiring talk on identifying and characterizing vulnerable sites on the HIV glycoprotein and the structural constraints that shape the immune system's response during viral infection. Dr. Ward's talk represents a small fraction of his contributions to virology; his research has led to significant advances in understanding the structure and function of HIV-1, Ebola, and coronavirus glycoproteins and antibody-mediated neutralization. His extensive work was recognized during the award ceremony where he was presented with the well-deserved 2017 *Viruses* Young Investigator Award. During Dr. Ward's talk, I took notice of the funding mechanisms that supported his work, the collaborations that made the findings possible, and how he framed his research questions and interpreted his data. All conferences must have an overarching theme, and *Viruses* 2018

was no exception. The theme of the conference was clear from two oral presentations, one research-based and descriptive, and the other a generalized overview. Dr. Freed's postdoctoral fellow in the HIV-DRP, Dr. Rachel Van Duyne, gave an incredible talk whose title was based on her postdoctoral research, "*HIV-1 Envelope Glycoproteins Confer Broad Resistance to Antiretrovirals* in vitro.*"* Dr. Van Duyne discovered that the application of integrase-targeting antiretrovirals during spreading infection in cultured T-cells resulted in escape mutations that were, surprisingly, not associated with the HIV-1 integrase gene! The escape mutations she identified were, in fact, found in the HIV-1 envelope glycoprotein. Furthermore, these escape mutations were proficient for cell-free infectivity and cell-to-cell transfer. Her findings may have important clinical implications in understanding how HIV-1 escapes current antiretrovirals and how combination therapies can be better designed to prevent escape from therapeutics. Dr. Eric O. Freed presented an overview of the HIV replication cycle titled, "*HIV-1 Assembly, Release, and Maturation.*" In his synopsis, Dr. Freed concluded with the statement that, "Basic science informs translational research and translational findings inform the direction of basic science." Together, these two talks reinforced the inherent need for both basic (or "discovery") science, along with translational research.

Attending this international conference was a valuable experience. Before attending I had committed myself to meeting at least five new investigators and exchanging contact information. I exceeded this goal and was met with tons of encouragement to pursue my research interests in cellular trafficking of viral proteins as an independent researcher. At the start of the conference I was beginning to become highly reliant on caffeine to get through frustrating western blots but I left the conference with a renewed passion for virology and inspired by the fantastic work of others to pursue new topics in HIV replication.

(**Images courtesy**: Melissa V. Fernandez)

The Expat's Experience (Part Three: The future)

By Christopher Rice

Here at the NIH, many early career scientists are short term visitors from overseas. Dealing with the pressures of chasing a career in a competitive research field with an uncertain future, while also dealing with life in a foreign country means that expats face a distinct set of challenges. To construct this four-part series and to gain further insight beyond my own experiences, I interviewed visiting fellows about their experiences of moving to and living in the USA. In this third edition, we discuss the future beyond the job opportunities that started our great American adventure, what we learn and take with us when we leave and why some of us build lives here forever.

Perhaps the hardest subject to broach with visiting scientists is their plans for the future. Many of us are still trying to figure this out and much depends on the success of our years spent in research here. Although this pressure is not unique to expats in science, an additional level of stress is applied when you are not even sure which continent you will be calling home the following year. When I first moved here, I still had the two-year home residency clause, which prohibited my permanent stay, reverberating around in my head. This was repeated so often during the visa application process that it came as quite a shock when multiple people asked me if my plan was to stay permanently. I was not even aware a more permanent stay was ever a possibility. This change in tone became apparent on multiple passages through the US border, where the language changed from "what is your business here", to "welcome back". Even the US Embassy changed its approach and encouraged me to think of a more permanent stay when applying for an extension to my temporary visa. Indeed, some expats do end up building their lives here with the hope to stay indefinitely.

'I will stay in the USA forever or at least until retirement, since my husband is American, doesn't speak French and works in a very specific field that makes finding a job outside of the US complicated for him.' -LN, France

'I like living here very much. Time has flown since I've been here, and it means that I enjoyed my time… I will probably apply for other jobs in the area or on the west coast after this one. I'd love to stay in research, so I'll see if I find something that I like in this field that is also located in an enjoyable part of the country.' –E, Italy

Despite the positives of life in the USA and encouragement to stay, the majority of fellows questioned aimed to relocate at the end of their contracts, either returning home or to another country. Some fellows cited career opportunities as their main reason to leave the USA, while others required social services which the USA does not offer to the same extent as other countries.

'I am moving back to Europe (not to Spain, there are not many opportunities). I will probably move to Germany since I think that the country and government understand that supporting science is important for the development of a country. Also, I would like to be closer to my family and the mountains!' – A, Spain

'If I find a good position in India, that would be my first option. Even if I do find a job in the US, my intention is to eventually move back home.' – V, India

'For personal and professional reasons, it is better for me to have a short experience in the USA. So, I plan to stay for about a year or so. The ideal plan will be to go back to France but going back to Europe will be at least the minimum.' –LS, France

'It is important for me to move somewhere with longer holidays, paid sick leave, maternity leave, guaranteed health insurance, state pension and similar securities.'- A, Germany

Regardless of whether scientific expatriates choose to leave or stay, all of us learn valuable lessons from our time in the USA. Despite the stresses and challenges involved with relocating to another country for work, the experience is truly a once in lifetime opportunity.

'Being able to adapt and embrace change is key, and not to stress about the little things.'- M, Puerto Rico

'Overall the US was a great experience that made me learn a lot and grow up. I would recommend everyone to come to the US for a postdoc.' –A, Spain

'It is an exciting experience... it is important to embrace the culture and make the most of your experience.'-A, Germany

'I met amazing people and a country full of diversities with natural beauties, such as the national parks, and different types of landscapes (mountains, deserts, canyons, forests...)' – LN, France

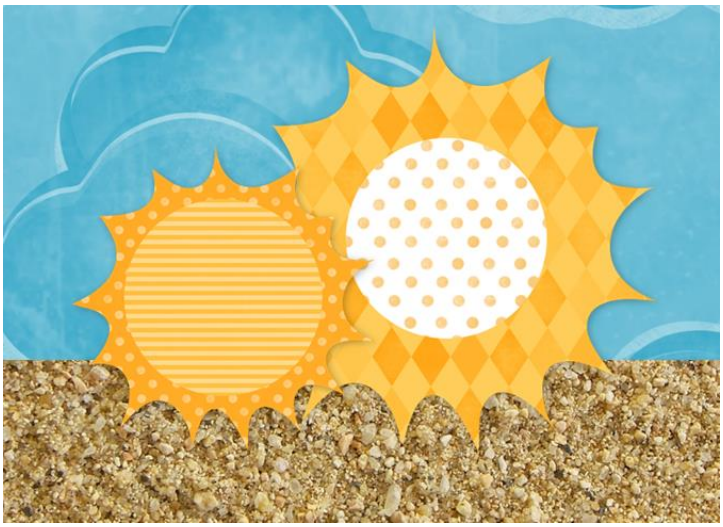
I myself will return home soon. Unfortunately, despite maintaining a great social life, I was never able to fully reproduce the social community feel I had living in my last country. When looking to put down more permanent

roots, it is important to me that life outside of work is equally enjoyable. The USA has been a great adventure, but for me it has never felt much like home, more a very long happy holiday. I will miss the big skies, the thunderstorms, the sunsets and of course the great friends.

In final part four of this series, I will offer advice for other expats looking to make the most out of their time in the USA and discuss improvements that can be made to the expat experience, from our first arrival, to everyday life and our departure.

CCR-FYI Summer Outing

Boating on Little Seneca Lake in Black Hill Regional Park



July 2018 - Final Date to Be Determined

20920 Lake Ridge Drive Boyds, MD 20841

Come on out for some fun in the sun! Join the CCR-FYI and other fellows as we enjoy summer and relax on the water by boating around Little Seneca Lake in Black Hill Regional Park. Everyone is welcome! We will meet on the grass next to the boathouse for a group photo before renting boats. Boat rentals are $13/hr for a kayak (single or tandem), canoe (up to 3 people), rowboat (up to 5 people) or paddleboard and include personal flotation devices. Remember to pack sun screen and plenty of water and snacks.

For more information contact

molly.congdon@nih.gov

CCR-FYI Frederick Social Chair

Join the Colloquium Planning Committee!

Are you interested in networking with extramural scientists, exploring alternative careers in science, or giving back to the community? The 2019 planning committee forms in May 2018. To join, begin attending the CCR-FYI monthly meetings in Bethesda and Frederick on the last Thursday of the month, at 11am.

Subcommittees and descriptions:

- **Schedule** – Plans and maintains the meeting schedule
- **Theme** - Selects the theme for the colloquium
- **Survey** – Manages surveys to vote for speakers, themes, and workshop/panel topics
- **Keynote speakers** – Invites extramural and intramural speakers, the survivorship speaker, and the training directors for opening and closing remarks
- **Panels and Workshops** – Invites panelists and presenters
- **Abstract Book** – Prepares the Colloquium abstract book
- **Abstract Judging** – Manages abstract judging and notifies selected abstracts for oral and poster presentations
- **Logistics and Publicity** – Raises community awareness about deadlines for abstract submission and registration. Improves awareness throughout the CCR community to strengthen attendance and participation.
- **Awards** – Manages nominations and judging for Outstanding Postdoctoral Fellow, Outstanding Postgraduate Fellow, and travel awards

Providing Valuable Training Experiences for CCR Fellows

For more information, please contact:

Molly.Congdon@nih.gov and Sarwat.Naz@nih.gov

Join the CCR-FYI Newsletter Team!

Are you interested in a career in science journalism or mass media communication? Join the CCR-FYI Newsletter Team to gain valuable experiences and skills!

Open positions:

- **Writer** – propose article ideas and spearhead article writing
- **Editor** – proofread and copyedit articles
- **Advertisement Designer –** recruit and design adverts for the CCR Newsletter

Skills:

- Professional writing
- Presenting academic information in a popular manner
- Non-science investigatory writing
- Communicating non-science related topics to the public

Benefits:

- Supportive team environment
- Flexible writing topics
- Gain experience in non-scientific writing
- Share your personal experiences to benefit other fellows
- Network with fellows outside of your group
- Positively influence the training experience with valuable information
- Plump up your resume

Providing a Voice for CCR Fellows

To join, please contact: Manasi.Apte@nih.gov

National Postdoctoral Association

What the NPA Does:

- Promote positive change in the postdoctoral experience.
- Develop and provide resources that postdoctoral scholars and administrators need for success.
- Provide opportunities for the postdoctoral community to connect.

NPA Highlights:

- Recommendations for postdoctoral policies and practices
- International postdoc survival guide
- Resources for developing mentoring plans for postdocs
- Responsible conduct of research toolkit
- The Elsevier Foundation New Scholars Grant
- PDA and PDO toolkits

NPA Membership Benefits:

- Leadership and professional development opportunities through volunteer service
- Opportunities to make your voice heard on national postdoctoral issues
- Subscriptions to the NPA e-alerts and The POSTDOCket (quarterly newsletter)
- Reduced meeting registration fees, as well as other discounts
- Access to members-only Web content

Providing a National Voice and Seeking Positive Change

To join the NPA, please visit: www.nationalpostdoc.org

FYXI SPECIAL EVENT

WORKING TOGETHER TO OVERCOME UNEXPECTED CHALLENGES

Friday May 11th, 2018

Location:
Bethesda Campus, Bldg. 60 - The Cloisters Chapel/Lecture Hall

Time: 11:30am-5pm

Social Networking at 6pm:
Rock Bottom Restaurant and Brewery
7900 Norfolk Ave. Bethesda, MD 20814

SCHEDULE

11:30 AM
Outstanding Postgraduate Fellow Presentations

1:00 PM
"Mentoring Up" Workshop from OITE Deputy Director *Dr. Philip Ryan*

2:00 PM
"Career Fair Preparation" Workshop *from Scott Morgan, M.A.*

3:00 PM
Science Administration Career Panel

4:15 PM
CCR Director Town Hall with *Dr. Glenn Merlino, Dr. William Dahut*, and *Dr. Jonathan Wiest*

5:00 PM
Closing Remarks

6:00 PM
Social Networking