

PEOPLE & IDEAS

Moving a research lab during the COVID-19 pandemic

Melina Casadio  and Dan Simon

The COVID-19 pandemic has created additional challenges for mid-career investigators seeking new academic opportunities. *JCB* asked scientists to share their experiences of uprooting their research careers and laboratories during the pandemic.

The COVID-19 pandemic has affected all aspects of our lives, and the repercussions of this unprecedented global health crisis will likely be felt for many years. While most of the world put most activities on hold in 2020, some scientists faced the additional, and unique, challenge of moving their lives and research laboratories across countries and continents. We contacted Katherine Aird, Senthil Arumugam, Prachee Avasthi, Asma Hatoum-Aslan, Fumiyo Ikeda, G.W. Gant Luxton, and Jill Wildonger to learn about their career moves and how the pandemic affected them.

Katherine Aird

Katherine Aird's lab is interested in the metabolic and epigenetic changes that occur during cellular senescence in the context of cancer initiation and progression. Katherine moved her laboratory from Penn State College of Medicine in Hershey, PA, to the University of Pittsburgh School of Medicine in Pittsburgh, PA, in September 2020.

Katherine: When I went for on-site interviews, I never imagined moving my lab during a global pandemic. To say that this has brought about "unique challenges" is an understatement! First, I broke the news of the move to my lab, department, and chair over Zoom. After working alongside these treasured colleagues, I didn't have the chance to say a proper goodbye. The impact of this didn't hit until the day I got in my car and drove away without a single acknowledgement of the occasion.

Moving the lab and our lives during the pandemic required flexibility and patience. I was fortunate that four lab members moved

with me, and we were lucky that the move was only a three-and-a-half-hour drive. Even so, finding accommodations was hard, and some of us rented apartments sight unseen. Furnishing the lab has also been challenging because COVID has created some unusual backlogs. Luckily, multiple labs offered up incubator space and other equipment so that we could get our research restarted. As the lab settles in, we are taking advantage of this virtual world to engage with our new colleagues. There's no doubt that moving is challenging at any time, but with the added stress of the pandemic on both our lives and resources, we have had to be creative to keep science moving forward and our spirits up. To integrate into our new institution, I have set up informal Zoom chats and more formal joint lab meetings and journal clubs with other labs here, including two labs working on metabolism and the epigenome in aging. Although we are all "Zoomed out," this has been a great way to meet many people, and we already have a few collaborative projects in the pipeline. To help with morale, the lab has been keeping in touch through Slack. I've noticed an uptick in our #random channel traffic, with recent posts on gender diversity, announcement of an award, and a link to first-year highlights of the Cincinnati Zoo's Fiona the hippo. This channel has been a great way to bond and has brought me many desperately needed smiles.

Senthil Arumugam

Senthil Arumugam's lab aims to understand the "molecular language" of cell communication networks at the single-cell and multicellular levels. In particular, Senthil's group



Aird group photo during the pandemic: masked, with one student on Zoom. Image courtesy of Katherine Aird. <https://airdlab.com/>

focuses on the role of endosomal trafficking as the logistical machinery of signal interpretation by employing various advanced fluorescence-based imaging techniques. Senthil moved his lab from the University of New South Wales (UNSW), Sydney, Australia, to the Monash Biomedicine Discovery Institute in Melbourne, Australia, in September 2019.

Senthil: Microscopy is a very central part of my lab. COVID-19-imposed lockdowns in Melbourne made it evident that going full steam was not possible; my microscopes would have delays, and I had to re-strategize. The move also meant that I would leave all the instruments, big and small, behind. To restart the lab with a dedicated microscope to train students, and to be able to perform some experiments, I scavenged through old microscope parts at our imaging facility and

mcasadio@rockefeller.edu.

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An end-of-year get-together after lockdowns are lifted in Melbourne in December 2020 following zero COVID cases. Image courtesy of Senthil Arumugam. <https://www.monash.edu/discovery-institute/arumugam-lab>

various other storages and put together a wide-field microscope to perform live-cell studies. Monash Faculty of Nursing, Medicine, and Health (FMNHS) and Monash Microimaging (MMI) helped provide access to other specialist microscopes with COVID-safe protocols in place, allowing us to complete impending experiments for the revision of a manuscript. Post-acquisition movie making and analysis of large datasets kept us busy under lockdown. We also moved our analysis computers home, allowing us to work remotely. We managed to parse through various other datasets that we had acquired at UNSW but were awaiting analysis, figures, movie making, et cetera—allowing us to move forward with collaborative projects and our own pending stories. The move, restarting the lab again, and adapting to lockdowns and safety restrictions while moving forward with experiments was certainly made to look easier than it was by my team. I am incredibly lucky and proud to lead a very adaptable and persevering group.

Prachee Avasthi

Prachee Avasthi's lab asks how complex cytoskeletal assemblies are built and regulated. They study microtubules, actin, and how the two work together using the green alga *Chlamydomonas reinhardtii* as a model system. Prachee moved her lab from the University of Kansas Medical Center, Kansas City, KS, to the Geisel School of Medicine at Dartmouth in Hanover, NH, in August 2020.

Prachee: COVID-related cancellations of all travel plans happened just days prior to my second visit to Dartmouth in March 2020. That meant that my husband and son never set foot in the town we would potentially be moving to, and I only had the opportunity to see limited parts of campus

during my first visit. While this was cause for great anxiety for myself, my family, and my lab, there were also surprising benefits: (a) my husband, who was already working remotely due to the pandemic, was able to easily negotiate working remotely from a different state; (b) my seven year old was already not seeing his friends due to school cancellations, which made it easier for him to leave the people he knew locally; (c) because I had no expectations of where we would move, the subsequent appreciation for the spectacular summer and fall in Upper Valley New Hampshire and Vermont was much more rich and exciting; and (d) as most labs including ours were shut down during the pandemic, our loss of productivity during the move was not much more severe than what everyone else was experiencing. Now that the move is complete, I could not be more thrilled that we set aside our fears to take the leap of faith!

Asma Hatoum-Aslan

Asma Hatoum-Aslan's lab studies the molecular mechanisms and biotechnological applications of bacterial viruses (phages) and the immune systems that target them. *Staphylococcus* species and their phages are Asma's favorite model organisms. Asma moved her lab from the University of Alabama, in Tuscaloosa, AL, to the University of Illinois at Urbana-Champaign, Urbana-Champaign, IL, in August 2020.

Asma: At the risk of disappointing readers who may be expecting stories of high adventure, moving a lab during a pandemic proved to be quite uneventful—a ton of work on both sides but nothing out of the ordinary. Perhaps the most difficult part was actually overcoming the dread of the idea that moving during a pandemic would



Unpacking the new Avasthi lab. Image courtesy of Prachee Avasthi. <https://www.avasthilab.org/>



Virtual lab meeting at the University of Illinois at Urbana-Champaign. Image courtesy of Asma Hatoum-Aslan. <https://mcb.illinois.edu/faculty/profile/ahatoum/>

be extremely difficult and messy. However, in the end, the decision to move to Illinois all boiled down to what would be best for my lab in the long run. Once decided, the rest was about carefully planning and executing the move. For example, before completing each task (e.g., shipping items, visiting places, etc.), we had to consider how the pandemic situation might possibly make things more difficult and then plan to take extra precautions or allocate more time as necessary. For work that had to be completed in the lab before the move, we carefully coordinated efforts with the limited number of students allowed in the lab at any given time. Generally speaking, our move during the pandemic was all about risk and time management. The red-hot housing market worked in our favor when selling, but not so much when we were buying. Most importantly, four of my students decided to move with me. When things partially opened back up in July, we were able to get our former BSL-2 lab space at the University of Alabama decommissioned relatively quickly. My students also played a key role in getting the new lab set up so that we could hit the ground running. Aside from a few minor glitches, such as delays in equipment deliveries, there were no major setbacks. In hindsight, I am pleased with the decision, and I have no regrets.

Fumiyo Ikeda

Fumiyo Ikeda's lab aims to understand how the ubiquitin system regulates various biological functions, particularly inflammation. The lab moved from the Institute of Molecular Biotechnology (IMBA) in Vienna, Austria, to the Medical Institute of Bioregulation in Fukuoka, Japan, in December 2019.

Fumiyo: My move from IMBA occurred just before SARS-CoV-2 started to spread. Regardless, the process in itself was tough. Closing a lab is simply more stressful than



Before and after the move of the Ikeda lab. Image courtesy of Fumiyo Ikeda. <https://ikedalab.bioreg.kyushu-u.ac.jp/>

starting up a new one. The actions required for closing a lab do not help anyone's science or produce anything. So, I tried to reduce the tasks of my members as much as possible and help them transition smoothly to their next steps; this expanded my duties dramatically. Of course, I also had to arrange my personal move after living in the European Union for 15 years. The process was overwhelming, and I reached the limit of my psychological and physical capacity during that time. Soon after moving to Fukuoka, we were alerted of this new virus. I was now a head of a small new division and had to quickly make every decision on how to deal with this irregular situation without enough information. On top of these responsibilities, I needed to organize research tasks while setting up my lab. These included dealing with customs and importing lab items from Vienna, installing every new piece of equipment, organizing research plans with students left in Vienna, handling the revision of a manuscript, recruiting people, and rebuilding lab culture and routines.

The major challenge for me has been to keep our spirits up. Because of the travel ban and social distancing measures, it has been difficult to recruit new people, organize seminars, educate students, and motivate people by physically sending them to conferences. Online communications are good; however, they cannot fully substitute

for actual in-person communications. I am still trying to find ways to keep my team members motivated. I hope that my implementation of a joint journal club and research progress meetings with two neighboring labs is helping my lab members stay motivated. In addition, it's important for me to continue to be the team's cheerleader. To this end, I make efforts to stay well psychologically by enjoying everyday life, which luckily is very easy to do in Fukuoka.

G.W. Gant Luxton

G.W. Gant Luxton's laboratory investigates the role of the nuclear envelope-spanning molecular bridge known as the linker of nucleoskeleton and cytoskeleton complex during mechanotransduction, or the fundamental ability of cells to sense and respond to mechanical forces, using a suite of cutting-edge biophysical, cell biological, quantitative imaging, and synthetic biological approaches. Gant moved from the University of Minnesota, Twin Cities in Minneapolis, MN, to the University of California, Davis, Davis, CA, in June 2020.

Gant: Moving a lab is difficult and stressful under "normal" circumstances. Then there's moving your Minneapolis-based lab across the country during the COVID-19 pandemic and the George Floyd protests. The combination of the COVID-19 pandemic and the George Floyd protests created quite a surreal and painful backdrop to the end of my time in Minnesota. Given the seriousness of these world-changing events, I feel rather ridiculous describing how they impacted my ability to move my lab cross-country. These tragic events impacted me in many ways, the least significant of which may be their negative impact on the logistics of my move. My heart goes out to everyone who lost loved ones due to this virus as well as the family and friends of George Floyd.

Logistically, the pandemic negatively impacted my move in two ways. First, the pandemic increased the amount of time necessary for me to go through and pack up my lab. I returned home to Chicago to take care of my family during Illinois's shelter-in-place order. Since I was in Chicago until the end of May, I was unable to leisurely prepare for the upcoming move, which was scheduled for early June. Moreover, when I did return to campus, the University had limited the number of employees who were able to physically be in the lab at the same



G.W. Gant Luxton. Packing up the Luxton lab at the University of Minnesota, Twin Cities. Images courtesy of G.W. Gant Luxton. <https://luxton.faculty.ucdavis.edu>

time. While these limitations were important for slowing the spread of the virus, they significantly slowed down our ability to pack and move my lab. Second, the pandemic significantly elevated our stress levels by making it difficult to deal with our -80°C freezer's unfortunate death a week before our move. Trying to find dry ice and enough Styrofoam containers to safely store precious frozen samples is an experience that I hope never to have to repeat.

Civil unrest also exploded in the U.S. during this time. I was saddened and disgusted by the news that George Floyd, a 46-year-old African American man, was killed by a white member of the Minneapolis Police Department. Words cannot explain the various intense emotions sparked within me by hearing about this heinous act and witnessing the thousands of peaceful protesters who took to the streets to protest police brutality and racial inequality. I completely support these protests and their message. The city changed in several ways during the protests, including practically; the curfew enforced in Minneapolis during this time prevented me from working late into the night on boxing up my equipment and supplies. The citywide closure of stores and restaurants during the protests made it



Jill and her son Cal enjoying a hike in Devil's Lake State Park, Baraboo, WI. Image courtesy of Jill Wildonger. <https://www.wildongerlab.org>

challenging to get last-minute supplies, not to mention food. It was often hard to drive from my apartment to my lab due to road closures. A particularly memorable and

terrifying example of this was when I was trapped in my car on an entrance to Interstate 35W by thousands of peaceful protesters while a tanker truck driver coming from the other direction sped head-on into the group. Thankfully, no one was hurt by this reckless and disgusting behavior.

Jill Wildonger

Jill Wildonger's laboratory aims to understand how molecular motors and microtubules build functional neurons. The lab capitalizes on the strengths of a fruit fly model to precisely manipulate protein function in vivo and to image neurons live in intact animals. Jill is moving her lab from the University of Wisconsin-Madison, WI, to the University of California, San Diego (UCSD), San Diego, CA, in December 2020.

Jill: Even under normal circumstances, a move is a daunting undertaking. One of the biggest impacts of the pandemic has been on interactions with friends and colleagues. I sorely miss those everyday connections that make science fun. The switch to virtual meetings and get-togethers, however, has had a few upsides with regards to moving. A

couple graduate students in my lab will stay in Madison to wrap up their projects, with the generous support of faculty colleagues and the Biochemistry department. Due to the pandemic, we have been meeting virtually one-on-one and in small groups for over six months; we are getting more and more comfortable with the virtual format, which is great preparation for long-distance mentoring. Another upside is that I am able to join in faculty meetings and seminars at UCSD before moving, and I've really enjoyed interacting with my future colleagues (and meeting some of their pets). But it is tough to contemplate leaving Madison knowing that I won't be able to get together for one last chat over coffee. I'm squeezing in as many walks and outdoor activities as I can before the Madison weather turns uncomfortably cold (we had our first light snowfall in mid-October). We've held a couple lab get-togethers outside, but we likely won't be able to throw a proper goodbye party, which I'm already missing. Happily, however, the university dairy store just reopened, and I now have big plans to fill up on ice cream in snowy Wisconsin before the move to sunny San Diego.