Trends in
Microbiology

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# Scientific mobility in microbiology–17

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**Can you tell us about your research interests and scientific background?**

My research trajectory, shaped by the emergence of infectious diseases, has involved sustained mobility. I am a Costa Rican veterinarian and virologist with an academic career bridging Germany and Costa Rica, holding research positions at Charité hospital in Berlin (https://virologie-ccm.charite.de/forschung/ag_drexler) and the veterinary faculty of the National University of Costa Rica (https://www.medvet.una.ac.cr/), where I contribute to emerging infectious disease research across human and animal health. My interest in emerging infectious diseases began early during my veterinary studies, influenced by outbreaks such as Severe Acute Respiratory Syndrome (SARS)-1 in China in 2003 and the 2009 influenza outbreak in Mexico. After earning my veterinary doctoral degree in 2010, I shifted from clinical practice to research, driven by a fascination with pathogen discovery. Limited local opportunities in virology led me to pursue the only local master's degree in microbiology in Costa Rica. There, I focused on viral research on coronaviruses in Costa Rican bats, identifying viral RNA in 1% of sampled animals, and publishing my first manuscript as corresponding author [1].

Presenting my findings at the International Meeting on Emerging Diseases and Surveillance (IMED) conference in Europe marked a turning point in my career. There, I connected with leading virologists and was motivated to apply for a German-funded scholarship German Academic Exchange Service (DDAAD, by its German abbreviation) to pursue a PhD in Germany, due to the limited PhD programs in Costa Rica. After completing my master's degree and applying for the scholarship—which I ended up receiving (some very hectic years of my life)—I moved to the University of Bonn, Germany. There, I was part of the response to several outbreaks in Latin America, specifically Brazil, including the Zika virus epidemic in 2015 and later the Yellow Fever virus outbreak in 2017. These experiences allowed me to contribute to improving diagnostics and the epidemiological understanding of viral spread, while traveling extensively between Europe and Latin America. Although professionally fulfilling, constant mobility was demanding and stressful. I completed my PhD with *summa cum laude* and returned to Costa Rica for a professorship, where I struggled with readjustment before deciding to undertake further research opportunities in Germany.

In 2019, I returned to Germany for a postdoctoral position, shortly before the emergence of SARS-2. The Coronavirus Disease 2019 or COVID-19 pandemic profoundly shaped the following years of my career. I worked intensively on viral evolutionary dynamics and diagnostic improvement, and collaborated with ministries of health in several Latin American and African countries, despite travel restrictions and global uncertainty [2]. Ultimately, I remained at the Charité as a research fellow and, alongside, hold a half-time remote position as a scientist in Costa Rica. Currently, I serve as principal investigator for projects on mobility initiatives supporting Latin American academic exchange. Mobility between countries has shaped my personal and professional identity, and I remain committed to fostering international collaboration and preparing for future emerging infectious disease threats in our interconnected world.

### What have been some of the biggest mobility-related hurdles and challenges you have faced during your academic career?

Throughout my early training, limited access to structured international research opportunities significantly affected my academic development. Veterinary medicine programs are primarily focused on clinical training, with research often remaining a secondary component. During my veterinary doctoral work, I lacked both awareness of and access to research stay programs that could have expanded my scientific exposure. Information about scholarships and mobility programs was not widely disseminated. In Costa Rica, postgraduate options in virology were scarce, and regional alternatives in Latin America were limited by financing. Financial constraints, insufficient guidance on available programs, and the competitive nature of international scholarships were substantial barriers that I had to overcome. Additionally, the recognition of academic degrees in Germany is complex and bureaucratic when obtained in non-EU countries, with no guarantee of acceptance, further complicating professional mobility.

During my master's research focused on bat coronaviruses, the structural limitations in Costa Rica continued to shape my experience. With minimal funding, limited laboratory resources, and restricted access to specialized protocols or international collaborations, I relied heavily on local mentorship and self-directed learning. Obtaining reagents and technical materials required long waiting periods, and some analyses had to be outsourced abroad due to cost or infrastructure constraints. Even participation in international conferences depended on internal university funding mechanisms that were not equally available to students, but only to lecturers or professors, highlighting unequal access to networking and collaboration spaces.

I continued facing similar mobility challenges further down my research career. Pursuing a PhD abroad required leaving my home country due to limited local doctoral programs in my field, and this transition involved emotional, financial, and bureaucratic burdens. After completing my PhD, maintaining positions across countries required navigating visa regulations, contract negotiations, and institutional permissions, particularly during the COVID-19 pandemic, when travel restrictions added health and political barriers. Ultimately, to this point in my career, sustaining a transnational academic career between Europe and Latin America requires me to engage in continuous negotiation with institutional systems on both sides, demonstrating how structural, financial, and administrative factors profoundly shape scientific mobility. These barriers highlight the need for stronger institutional support, such as dedicated international offices in universities (such as the Charité International Cooperation offices; welcome.charite.de) to assist researchers abroad.

### Has it been easy for you to obtain help in navigating these hurdles and challenges? Are there any resources you would like to share that might help researchers in similar situations?

It is not easy to find information or mentors who can guide you through these challenges. It is essential to connect with researchers in your field of interest, ask questions, and actively read and search for opportunities. Knocking on many doors is necessary, and eventually, some will open. Mobility and travel can be greatly facilitated by obtaining invitation letters and official documents from the host institution, so always request all available institutional support, as even a short letter can make travel easier.

The Charité International Cooperation offices (welcome.charite.de) was extremely helpful in navigating these hurdles as a foreign researcher. Their guidance made it much easier

to schedule appointments, manage visa procedures, and focus more fully on the academic aspects of my work. I recommend checking whether the university you plan to visit has a similar office and reaching out to them early, as their support can significantly ease administrative processes.

The four DAAD Global Centres for Health and Pandemic Prevention, of which I am part as coordinator, focus on the regions of Latin America and Africa, as well as the country of Vietnam. These centers offer scholarships for students and established researchers, resources, and mobility opportunities that can support research and education (https://www.daad.de/en/information-services-for-higher-education-institutions/further-information-on-daad-programmes/globale-zentren/).

### What suggestions do you have to improve mobility in academia and make the landscape more inclusive for scientists across borders?

I can only speak from my experience as a Costa Rican, that is, a Latin American student who faced significant mobility and environmental limitations early in my career. The first and most important step that opens many doors is learning the language of science: English. Without this tool, I would have felt severely limited, and my opportunities for mobility would likely have been greatly reduced. Second, read about the subjects that interest you and identify the laboratories working most actively in those areas. Many offer student exchange programs, meaning they may be looking for students/researchers like you. Visit their websites or social media and contact them directly to express your interest.

From my current position as a more established scientist, I work to expand mobility opportunities for students and researchers in Latin America. Our DAAD project,German Latin-American Center for Infection and Epidemiology Research (GLACIER), for which I am principal investigator, seeks to support early- and established-career researchers in the region and facilitate mobility aligned with their interests. So far, we have supported more than 40 students and researchers from at least six Latin American countries. The project promotes scientific mobility and fosters institutional cooperation, with students serving as key links (https://glacieronehealth.org/).

Additionally, the inclusion of remote work, dual affiliations, and the ability to move between institutions should be further explored. As most university courses are trimester- or semester-based, establishing programs that support joint appointments and remote collaboration could enhance mobility, improve retention, and help mitigate brain drain.

### Are there any final thoughts you would like to add?

Scientific mobility opportunities often reflect broader structural inequalities in academia, where access to funding, institutional support, and visa systems shape participation in international research networks. For researchers from Latin America, mobility can be particularly valuable, as exposure to advanced infrastructure, new methodologies, specialized equipment, and different research cultures can strengthen research capacity in the long term. However, significant barriers remain, including complex administrative procedures and varying personal and academic requirements for conducting research stays across countries. Despite these financial and logistical challenges, scientific mobility plays a crucial role in establishing the foundations for long-term collaboration both across and within regions. The scientific community should therefore strengthen international cooperation to expand student/researcher mobility, making complex scientific activities more achievable.

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