"Having a Broad Set of Responsibilities Is Energizing Because I Hardly Ever Get Bored"

Helena Ledmyr

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Abstract In our interview with Helena Ledmyr, she shares her journey from genetics research to co-director of an international neuroinformatics organization. Initially planning for more lab work, Helena moved into science administration and communication roles. She values interacting with the research community and having a variety of responsibilities. Helena continues applying project management and relationship-building skills honed during her PhD. While sometimes constrained by limited time and funding, she remains dedicated to furthering open and reusable neuroscience data. Helena encourages taking courses in areas like communication, marketing, or project management. Helena finds fulfilment in the meaningful mission of her organisation. Drawing on her experience working with academic volunteers, she stresses the importance of appreciating researchers' time and going above and beyond to support their efforts when coordinating scientists.

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Chris: Can you introduce yourself and tell me a bit about your current position?

Helena: I'm Helena and I am currently one of the co-directors of INCF (the International Neuroinformatics Coordinating Facility), a member organization and an international non-profit that aims to facilitate data sharing in neuroscience through the development and uptake of FAIR standards and best practices. FAIR stands for Findable, Accessible, Interoperable and Reusable, and basically all adds up to researchers being able to use each other's data! If the field of neuroscience were more open and FAIR, that would mean that data, such as brain scans, EEG or physiological data are collected, processed and stored in a way that makes them as useful as possible for other groups: i.e. more research could be done with less time and money spent. There are challenges at every step of this – for example, not all labs might use the same methods or the same hardware or software. And even if those things were all standardized, people might not find the data if they don't know where to find the data repositories, rendering all those other efforts useless. These are all points where an international organization like INCF can be particularly useful: we coordinate efforts around standardization and FAIR training for the global neuroscience community to facilitate data sharing. As for my job, my main responsibility is business development and communications, and I also manage our governing board and our industry advisory council. The business development part includes finding potential collaborators and maintaining relationships with members, funders, and sponsors. Communications includes everything from our website to newsletters, social media, and outreach events.

What was the focus of your PhD?

I did my PhD at the Karolinska Institute in Stockholm, Sweden, in 1999–2004. I studied the effect of certain genetic variants on cardiovascular disease and found some really interesting connections between genetic function, protein folding, and

risk of cardiac events. I looked at five different genetic variants, and it turned out that one variant in the promoter region (this region controls, for example, the activity on/off switch and level of activity of the gene) is linked to a variant in the resulting protein of the gene: meaning that the variant caused a change in amino acid in the final protein structure. I did several large cohort studies and found that these variants were associated with higher risk of death, so the next step was naturally to try to find out why? Could it have something to do with the change in amino acid in the protein? As it turned out, when we expressed this protein in bacterial cells, the change in amino acid also caused a decreased folding function of the protein. While I did not have enough time left to prove it, we speculated that this faulty folding led to a decreased binding of the protein to cholesterol particles in the blood. The protein in question is a lipid-binding protein with the purpose of transporting lipids out of cells, and we hypothesized that the variant led to faulty transport and thus increased levels of lipid in the cells, which could be one of the reasons these individuals had a higher risk of having a cardiac event.

I was lucky to have both an interesting topic and also be able to do methods development, which is my favourite thing to do in the lab. After having been out of the lab for 18 years, I can still miss setting up a PCR or running a gel sometimes!

As you were finishing your PhD, what were you thinking about your career plans?

At that point I still wanted to be active in the lab, so I did a postdoc on gene therapy for cardiovascular disease. Again it was a really interesting topic and another chance to develop a new method, this time for delivering genetic elements into human cells. It was really rewarding to have a project where the theory built on my PhD project where I could apply a lot of my knowledge in genetics to this new question. It was also exciting to think about the possibilities to 'fix' the risk of cardiac events that I had discovered during my PhD with this new gene therapy method. Unfortunately that didn't happen, since I, for various reasons, moved on to an administrative position after about a year. But it was still a fun time!

My next position was at the Royal Swedish Academy of Sciences (you might have heard about the Nobel Prizes), where I worked with science administration and communication. It was great to work with all the academic members on various projects that served to promote science to society. I was lucky to have a wide variety of committees to work with: mathematics, astronomy, chemistry, biology, medicine, education, energy, and public health. This gave me a broad insight into the Swedish science community and a network that has proven useful once I moved on to the next job.

How have your career plans changed as you've continued on to your current position?

In my current role, I still do science administration and communication but I've also moved into business development, which I enjoy very much. If I had to choose between communications and business development, now I would probably go with the latter, mainly because there are still things for me to learn in that area. (Sure, there are still things I can't do with regard to communications, but I have by now lost all hope that I'll ever be able to draw things.) I'm still very happy to be working science-adjacent and I will probably always strive to work with or around the life sciences.

Can you tell us a bit about what day-to-day life is like in your current position?

A regular day for me is split between preparing or following up on internal committee meetings, talking to potential new INCF members, overseeing INCF outreach, and managing HR or other internal administrative tasks. We are two co-directors at INCF and to simplify it a bit we usually say that the director for science and training manages the scientific resources and activities, and I (the director for development and science) manage outreach and awareness, and recruitment of new members.

What do you like most about your work?

Interacting with our fantastic community, and the variety of my tasks! Our community consists of neuroscience researchers and tool developers, all working to promote the uptake of FAIR data management practices in neuroscience through the development of standards and best practices that support open, FAIR, and citable neuroscience. It's great to be able to facilitate the volunteer work that our community is doing in order to make neuroscience more open and FAIR (Findable, Accessible, Interoperable, and Reusable – the magic words to make data sharing easier!). Having a broad set of responsibilities is energizing because I hardly ever get bored – there's always a new aspect to a task I've done a hundred times before, since our activities are always evolving and our community continues to expand.

And what do you like least about your work?

That we never have enough time or funds to do everything we want to do! It can be very frustrating when we can't offer the level of service to our community that we want to – I'm going to get up on the soapbox here for a second and say that it's great

that funders are putting out data sharing mandates but somebody needs to fund the development of the resources needed in order to share your data! Yes, that's us (at least for neuroscience).

How do you think having a PhD has helped you succeed in your current position?

While genetics methodology hasn't helped me all that much, knowing how academia and academics work have helped a lot! Knowing what drives academics and what struggle they go through makes it easier for me to be effective in facilitating volunteer work in the INCF network. Of course, experience in project and relationship management can be applied to pretty much any job and has been very helpful to me. I also believe the actual title 'PhD' gives me a certain amount of credibility in the eyes of our community since it means that I know what the life of a research scientist is about: challenges and motivations.

If someone currently finishing their PhD was considering a position similar to yours, how might they decide if it would be a good fit?

For my job you need to be service-minded, flexible, proactive, and patient. If you're looking at positions in organizations that deal with volunteers, you need to understand and respect their time and go the extra mile to support their work. For my position there's also a fair amount of international travel, more often than not on weekends, to consider whether it fits into your life or not. With regard to compensation I think there's a wide range of salaries in scientific non-profits considering the just as wide range of funding situations, but I'm guessing it's usually lower than industry.

If someone was interested in pursuing a similar career path, what would you suggest they do to better prepare themselves?

Take some courses in the specific areas you're interested in! Communications, business development, marketing, finance, project management, relationship management… there are so many online courses available, and many of them are free. Also try to find a mentor early on! I really wish I'd had someone to bounce ideas off and get advice from at the beginning of my career. I've mentored four people in the past 5 years or so and it's been really rewarding for myself but I've also gotten really nice

feedback from my mentees and it seems like they've benefitted from our discussions. If you'd like to find a mentor, usually universities have some kind of alumni network you can use, or even a mentorship program in place.

A lot of people like academia because they feel it gives them an opportunity to work on a topic that they deeply care about. Do you think this is also true in your current position?

Absolutely I'm very passionate about making research interoperable and data reusable so we can get more science done faster and for less money. There are so many scientific questions that need solving, across all fields, in order to make life better for all humans, and research funds are not easy to come by so it's important that we come up with solutions for increasing the ROI on research funds.

Another reason many like academia is that they feel it provides them with more freedom than they think they would get in other positions. How much freedom do you feel you have to work on what you think is interesting?

I have a certain degree of freedom, but probably not as much as if I were a PI. However, having less freedom doesn't mean that you won't enjoy what you're working with! For me at least, enjoying your job includes many other things such as having a meaningful goal or mission, learning new things, and being appreciated by the people you work with and for. Freedom to choose your own topics or issues to work on does not necessarily equal happiness, in my opinion.

Thank you for sharing your journey with us, Helena!