Visions, needs and requirements for (future) research environments: An exploration with ERC grantee and research group leader Monika Wolkers

Katharina Flicker (TU Wien), Monika Wolkers (Sanquin)

Researchers are at the very heart of the EOSC: So what do researchers really need to do cutting-edge research? How do they think the EOSC could support them in their endeavours? Let's see what medical biologist Monika Wolkers has to say.

"Move science forward by getting rid of excessive data protectionism"

TU Wien: What does your work currently focus on?

MW: I am primarily interested in how the immune system works and how it responds to infections and cancer cells. I work primarily on T-cells and study how - cells respond to tumours and infections as well as how these responses are maintained and how we can exploit immune responses for treatments.

TU Wien: What data sets are you working with?

MW: We use different types of data sets. We work with different RNA-Seq data types and with mass spectronomy data, which we also combine to determine the protein output from a given mRNA. We also work a lot with flow cytometry data, which is pretty much, like mass data as well. Imaging is not yet in our portfolio, but we are planning to use it in the near future. Overall, we generate our own data but we also re-use published datasets from other scientists.

TU Wien: Is it easy to access other people's data in your field?

MW: It works, but it could be better. It is good that funding agencies and journals now require access to raw data. However, not all data are reusable, for instance because the data acquisition is not well described or because they are not well annotated.

TU Wien: How could you improve that?

MW: It is crucial to make sure how data should be annotated so that they are reusable for other researchers. Researchers need to be aware of the necessity to do so. In addition, a culture change would help a lot. We should get rid of too much data protectionism. Is it not fantastic, when other people make use of our data, and that they can answer questions that you have not even thought of? Besides that, we scientists are all in the same boat and we want to move science forward. I think we would achieve much more if we'd rather see us as a community than as competitors. Don't get me wrong. Some competition is important, because it keeps us moving, but the emphasis on it is too strong.

TU Wien: Ok. So what would ideal (future) research environments look like?

> "All scientists should embrace the FAIR (findable, accessible, interoperable, reusable) principles"

MW: I am working in two different fields of research. The RNA biology field is definitely competitive, but it is primarily knowledge- and curiosity driven. The immunology field is much closer to the clinics and to patient treatment, so other interests are at stake and that attracts different types of people.

EOSCsecretariat.eu has received funding from the European Union's Horizon Programme call H2020-INFRAEOSC-2018-4, grant Agreement number 831644

Collaborations with pharmaceutical companies are common. There is nothing wrong with it, but we also need our independence in doing our research. Dependence on money can kill free thought and open discussion. I think if research funding was more independent from industry and more driven by governmental funding, it would already help a lot. In addition, all scientists should embrace the FAIR (findable, accessible, interoperable, reusable) principles.

TU Wien: Are there any other challenges that you are facing in your current research environments?

MW: Communication between researchers and experts that are setting up infrastructures and / or services is sometimes suboptimal. You may get services that you do not need or cannot work with because no one bothered asking about the pipelines you are using. Then again, we scientists may not be aware what is even possible in terms of infrastructures and services. Therefore, good communication between researchers and experts is key to get the appropriate infrastructure.

> "Good communication between researchers and [research infrastructure] experts is key to get the appropriate infrastructure"

In my institute, we are still working on the infrastructure for big data. We are not there yet, but people are working hard on it, which I really appreciate. Moreover, having better access to robotics for e.g. instance screening of genetic modifications would be great.

TU Wien: So having said all that, what would you want the EOSC to be or to offer you so that it would really be helpful to you as a researcher?

MW: Perhaps getting good guidelines would help quite a bit. Ensuring that people know what type of data are out there that they can actually use. Also to emphasize what it takes to do open or FAIR science, and emphasize its value to the scientific community and the society. Perhaps EOSC could also play a role in highlighting research results that comes from interdisciplinary approaches. This could inspire and encourage scientists to take new paths in their research and to strike out in new directions.

Dr. Wolkers started her research group in 2010 at Sanquin Research Institute. She focuses both on fundamental aspects of T cell effector function, and the development of T cell products for clinical use. Dr. Wolkers aims to unravel how the production of effector molecules of T cells to infection and tumors is mediated, a critical feature to kill infected and tumorous cells. In particular, she focuses on post-transcriptional gene regulation. Furthermore, in close collaboration with the ATMP facility of Sanquin, the Laboratory of Cell Therapy, her groups aims to develop T cell products for the clinic. These studies also includes the definition of the most suitable T cell populations for generating potent T cell products for the clinic. Dr. Wolkers is an ERC consolidator grant laureate and member of the Oncode Institute.

EOSCsecretariat.eu has received funding from the European Union's Horizon Programme call H2020-INFRAEOSC-2018-4, grant Agreement number 831644