

Hello Eurekians,

For those of you that have been taking some vacation time, welcome back to this issue of *Eureka Briefing*, which focuses on open science and sharing within science. We chat to open-science advocate Frank Miedema, look at recent news related to open science and highlight some publications from Eurekians.



Tapas is a style of food that is commonly shared (image from Pixabay)



Portrait of Frank from ScienceGuide

[Frank Miedema](#) is Vice Rector for Research at the University of Utrecht and University Medical Centre Utrecht. He is chair of the University's Open Science Program and has published an open-access book called [Open Science: the Very Idea](#). Eureka Briefing spoke to Frank about his vision for open science.

How did you become an advocate for open science?

My driver for open science began as a young scientist doing HIV/AIDS research in the 1980s and 1990s in Amsterdam. I was involved in a [project that researched](#) HIV-1 infection in men who have sex with men and drug users. These individuals contributed blood samples and filled out questionnaires regarding their lifestyle and health.

Our results seemed very relevant for understanding the risks of HIV infection and developing AIDS. We presented at meetings, but we published our findings behind the paywalls of academic publishers. The people that needed answers to their problems couldn't access our research. This included people in low and middle income countries in Latin America, Africa and elsewhere that had high HIV-1 prevalence.

I made a [TEDx talk](#) about this issue back in 2014. In that talk, I highlighted that when I was first doing HIV/AIDS research, I was very much focused on producing research papers – these were needed to make a career in academia.

At that time, one of the questions from the HIV community was “Are you making a career or are you making a cure?” That comment really stuck with me. The fact that I researched the safety of blood products helped me to get out of that trap, I believe.

Open science is about more than just open access to publications, isn't it?

Yes. Open access and the [FAIR principles](#) are enablers; open science is far more – its is the movement to publicly disseminate all scientific research – publications, data, physical materials, educational materials, software/code and so on wherever possible.

Importantly, it's about how scientists can better engage with people in society, listen to them and learn about their problems, and how our research can contribute. Open science is an integral, comprehensive approach to how we are doing science, how we are setting the agenda for research and teaching. It's also very much a culture change.

You mentioned a culture change; what are the barriers to this?

Doing science for society is not the default in most universities. We still mostly publish science for our colleagues and to make a career for ourselves. We have these hierarchies of research types and journals where we publish — high and lower impact — and we play a game to get promotions and funding.

Within the university system there is still a classical mythical idea that basic science is better than translational and applied science. We are fighting this myth that to large degree still determines what excellence is. If you want to make the transition to open science, then you have to change the incentive and reward system. You have to appropriately adapt to academic outputs other than just papers.

This notion is gaining traction – as part of [DORA, the Declaration on Research Assessment](#) and more recently as part of [COARA, the Coalition for Advancing Research Assessment](#). Both these international initiatives recognize the need to improve how research outputs are evaluated.

How do we assess research in an open-science environment?

Rather than counting publications, there is a shift toward narratives and societal impact. Researchers are being increasingly asked to describe what they have added to science, the impact and contribution of their work in the real world, whether their papers and data are open access and who has re-used their data.

This shift is very much in line with open science.

The [European Union explicitly adopted open science](#) in 2016, including changing the indicators used for incentives and rewards. That international adoption was a major game changer for open science.

So the open science movement is growing?

Open science is now unstoppable. It's an international initiative, for example the [United Nations/UNESCO is engaged](#) as part of sustainable development goals. People involved realize this is how we can put university research on the map in a much more impactful way.

Countries and continents with less mature and less rich research systems such as Latin America and Africa recognize the benefits of open science. They realize that they don't have to make *Nature* or *Science* papers but that research can be aimed more at local societal problems and needs.

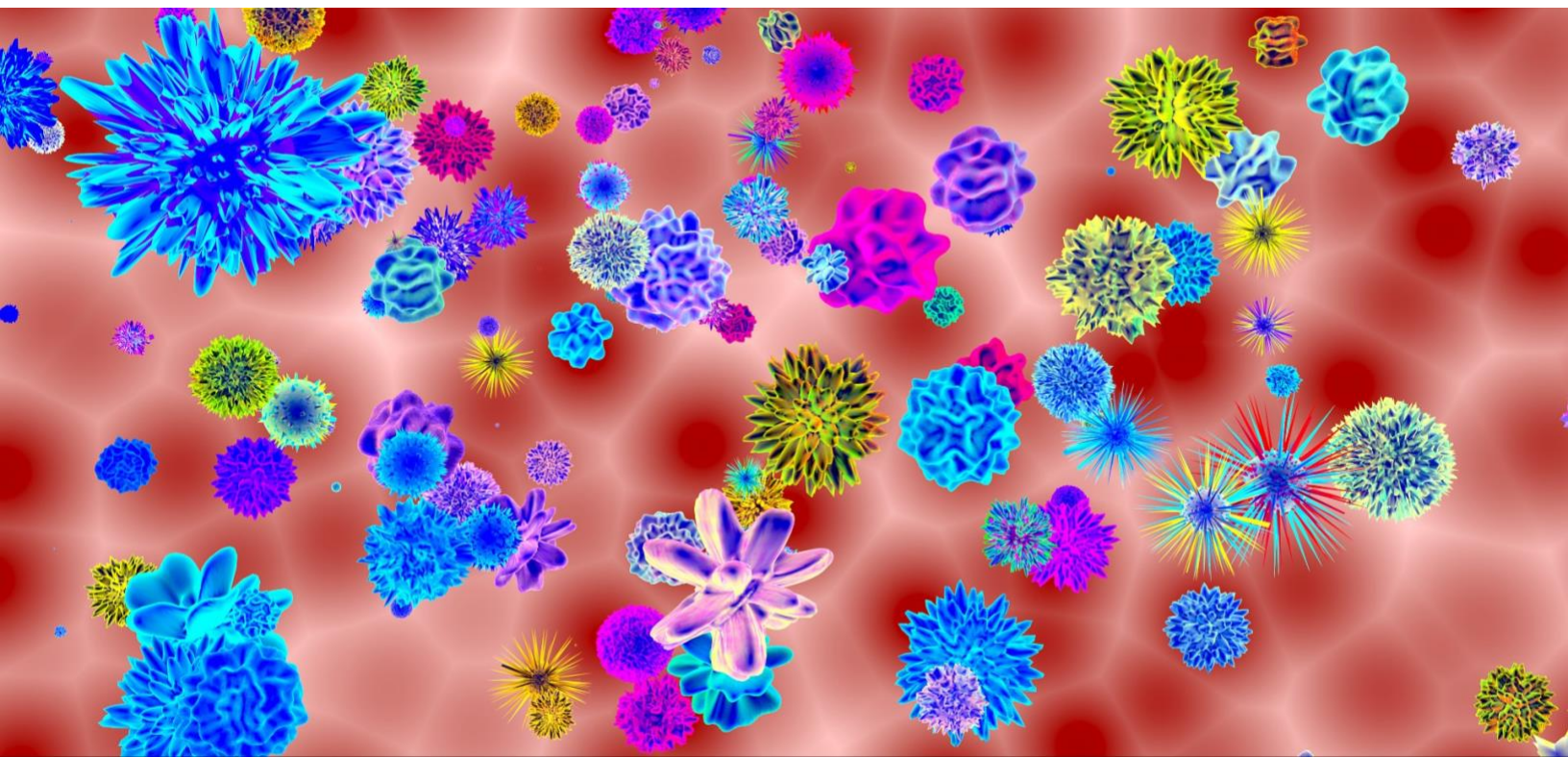
There are still a lot of issues to be solved, such as who is benefiting from open data or how we facilitate open-platform publishing. These will be ongoing projects for 10-15 years, perhaps a lifetime. But we now realize we can change the system.

How does open science fit in with Eureka?

Eureka is a movement very much in the spirit of the open-science transition; for example by acknowledging societal impact in addition to publications. Some Eureka members may get more exposure to open science than other Eureka members at their home institutions, but the important thing is that open science is discussed among Eureka members.

It's wonderful that Eureka is going in this direction and that Eureka and Eureka members can take advantage of the open science movement wherever they are.

To delve deeper into the topics discussed by Frank, check out his book, which is of course open access; [Open Science: the Very Idea.](#)



Abstract viruses. Frank's enthusiasm for open science came from his work on HIV-1 (image from Pixabay).

Do you have a story to share? Then please get in touch! I'll arrange to chat with you for 15-20 minutes, then write up our conversation as a Q&A (editing for clarity and length) and you can check this before it's published in *Eureka Briefing*.

Open science in the news

Below are some recently published articles related to open science that you might find interesting.

[The future of academic publishing](#)

Academic publishing is the backbone of science dissemination -- but is the current system fit for purpose? We asked a diverse group of scientists to comment on the future of publishing. They discuss systemic issues, challenges, and opportunities, and share their vision for the future.

Free to read/share link: <https://rdcu.be/dimuz>

[To share is to be a scientist](#)

Wrangling big data is now part of being a biomedical scientist, and mandates on data sharing have entered the scene. Mandates can alter behavior, but data sharing also needs incentives and shifts in science culture.

Free to read/share link: <https://rdcu.be/dimuM>

[Shared science's time to shine](#)

Sharing research tools and data with other scientists brings many benefits, such as using fewer animals, improving reproducibility and increasing study sample size, but the practice still needs to be more widely adopted.

This feature focuses on research that uses animals (you might recognize the author....)

Free to read/share link: <https://rdcu.be/dildx>

[How to make your scientific data accessible, discoverable and useful](#)

Specialists offer seven tips for effectively sharing your data – craft metadata, over-share, embrace standards, consider the format, include code, think accessibility, take the plunge

[Publications by Eurekians](#)

Below are some recent publications by Eurekians whose first names begin with the letters S–Y (in bold). **In future Eureka Briefings, I'll be changing the way publications are presented, so don't forget to send details of your recent papers!**

[Fluid biomarkers and neuroimaging in mild traumatic brain injury: current uses and potential future directions for clinical use in emergency medicine.](#)

Newcombe V...Lecky F. doi: [10.1136/emermed-2023-213111](https://doi.org/10.1136/emermed-2023-213111).

[Neurological diseases in intensive care.](#)

Newcombe V...Sonneville R. doi: [10.1007/s00134-023-07150-4](https://doi.org/10.1007/s00134-023-07150-4).

[Multi-Modality Imaging of Atheromatous Plaques in Peripheral Arterial Disease: Integrating Molecular and Imaging Markers.](#)

Wang X...Hausenloy DJ. doi: [10.3390/ijms241311123](https://doi.org/10.3390/ijms241311123).

[Multimodal diagnostics in multiple sclerosis: predicting disability and conversion from relapsing-remitting to secondary progressive disease course - protocol for systematic review and meta-analysis.](#)

Statsenko Y...Ljubisavljevic M. doi: [10.1136/bmjopen-2022-068608](https://doi.org/10.1136/bmjopen-2022-068608).

[Unraveling Lifelong Brain Morphometric Dynamics: A Protocol for Systematic Review and Meta-Analysis in Healthy Neurodevelopment and Ageing.](#)

Statsenko Y...Ljubisavljevic M. doi: [10.3390/biomedicines11071999](https://doi.org/10.3390/biomedicines11071999).

[Novel effects of Ras-MAPK pathogenic variants on the developing human brain and their link to gene expression and inhibition abilities.](#)

Rai B...Green T. doi: 10.1038/s41398-023-02504-4.

[Unveiling the hidden battlefield: dissecting the invasive zone in liver cancer.](#)

Chew V. doi: 10.1038/s41422-023-00855-7.



Some scientific journals are many years old (image from Pixabay).

And finally.....some trivia. This *Eureka Briefing* has focused on open science, which includes open access to journals. Do you know **the year in which the first two scientific journals were founded?** And bonus points if you can name them (one is in English, one is in French). The answers can be found in this humorous look at the [origins of the scientific journal](#) from the *Scientific American* blog.

Thank you for reading!

[Charlotte Harrison](#)

Freelance Science writer and editor

This week, as well as looking at a few journal articles, I've been reading the deceptive novel the [Black Spectacles](#), which has a surprising amount of chemistry in it.