

# **Life Through the Looking Glass**

**Press kit**

## The research network: EvoCELL

The online exhibition 'Life: Through the Looking Glass' is showcasing the research of the **EvoCELL network**, a Marie Skłodowska-Curie Innovative Training Network (ITN) that includes 12 excellent research departments and institutions across Europe:

- The Developmental Biology Unit and GeneCoreFacility at the European Molecular Biology Laboratory (EMBL),
- the Museum für Naturkunde Berlin (MfN),
- the Center for Molecular Biology Heidelberg (ZMBH),
- the Stazione Zoologica Anton Dohrn Napoli (SZN),
- Genomix4Life (G4L),
- the Department of Biological Sciences at University of Bergen,
- the Friedrich Schiller University of Jena,
- the Observatoire Océanologique de Villefranche (OOV),
- the Institute of Functional Genomics of Lyon (IGFL),
- the Living Systems Institute at University of Exeter,
- the Department of Genetics, Evolution & Environment at University College London (UCL),
- and the Department of Earth Sciences at Uppsala University (UU).

## The science: Cell type evolution

The network is researching life processes that are invisible to the naked eye: the evolution of cell types and tissues which are the basic building blocks of life! This is made possible by single-cell sequencing, an exciting new tool that allows us to dive deeper into the unknown and intricate processes that occur inside different animals. The network's main questions are: How many different cell types does an animal have (e.g. muscle cells, stem cells, or neurons)? How do new cell types arise in evolution? Which cell types are shared by different animal groups? And which unique types of cells exist in different animal groups?

Starting in January 2018, EvoCELL was granted 3.8 million euros to conduct research on these issues over a four-year period. As a result, the network is able to lay the foundation for a new field of Evolutionary Developmental Biology that focuses on cell types. The 12 participating laboratories in Europe hired and trained a total of 21 young scientists, and managed to compile data from all major animal lineages as well as created new scientific analysis tools.

## **The online exhibition: *Life: Through the Looking Glass***

The inclusion of the Museum für Naturkunde has allowed EvoCELL to integrate an unique outreach programme as part of the scientists' training. Indeed, this is one of the first times that a science outreach project has been included in such a highly specialised science network. The online exhibition is the final outcome after a series of other outreach activities organised by the Museum für Naturkunde. It was developed on the basis of Siri Kellner's PhD research on science communication, along with Akanksha's Raju's expertise in product design. With it, they reimagine science exhibitions by emphasising the processual nature of science, highlighting the authors of the science, and creating an engaging and playful design that speaks to the audience.

## **The funding: EU Horizon 2020**

The EvoCELL ITN is a [Marie Skłodowska-Curie Action](#) which is part of the EU Horizon 2020 funding scheme. It is funded under EU H2020 MSCA Grant Agreement 766053.

Horizon 2020 was the EU's research and innovation funding programme from 2014-2020 with a budget of nearly €80 billion. More information about this programme can be found on the [European Commission website](#).

All news, events, programme details, project lists and more are available on the archived [Horizon 2020 website \(no longer updated\)](#).

## Quotes by the exhibition team:

**Siri Kellner**, doctoral researcher at MfN Berlin and curator of the exhibition:

“In my PhD research, I want to figure out how to better exhibit contemporary science. Creating this online exhibition with Akanksha Raju gave me the opportunity to put some of my theoretical ideas into practice. I was amazed to see how our initial ideas ended up into a finished product, one that I believe we can both be proud of given our limited resources.

With 'Life: Through the Looking Glass,' I wanted to show how science continues to delve deeper into a subject as new technologies emerge. As a result, new visual realms open up, altering one's perspective on a subject and ultimately raising new questions. I hope that visitors to our website leave with more questions than when they arrived.

As a fellow of the EvoCELL network I was able to follow the scientist's research process from the very beginning, with all their struggles, strange experiments, and engaging conversations. Moreover, for the development of the individual stories all research fellows were directly involved. This, I believe, is what sets this exhibition apart. The science is communicated from the inside, rather than from the perspective of someone who examines their outputs.

I interviewed scientists from the EvoCELL network as part of my PhD research. I asked them what prevented them from communicating their research to the public. Apart from time constraints, the scientists gave me three common reasons: The science was too complicated to communicate, their generated visuals and data were incomprehensible, and there were simply no significant results to share. All of these issues are a result of the notion that science communication is about disseminating results and the scientific concepts, with which scientists work, to the general public. Within the museum's walls, I discovered comparable expectations: Science is usually depicted as a fixed body of knowledge and practice in exhibitions. This strikes me as problematic because the authors and the cultural context in which this knowledge is produced are absent. As a result, I wanted to portray the processual nature of science, shifting people's perceptions of science from providing clear answers to continually questioning.

Focusing on the research process makes it much easier to communicate about highly complex science. We found a lot of great stories that we could have shared, but we eventually had to narrow it down to eight. What works particularly well is that the authors of the research take centre stage in the exhibition, while scientific images, videos, and data are also displayed in their intended context.”

**Akanksha Raju**, research fellow at MfN Berlin and product designer of the online exhibition:

“It was intimidating to have been tasked with the creation of a product that would communicate such complex science. Science that, at the time, I didn't understand.

The research we were communicating was still in progress and the exhibition was meant to be online. We searched for good examples of other science communication projects which had taken a similar approach and found none. Which meant that we didn't have any resources to use as examples and best practices.

It was clear then that we needed to collaborate with the scientists from the network who were carrying out this research firsthand and co-create the content.

By introducing them to native UX design principles like Human-centered design, they were forced to empathise with their final audience and move away from the scientific jargon that surrounded them. This is interdisciplinarity in science at its best!

*'Life: Through the Looking Glass'* follows the narrative of young researchers and their research processes instead of their final findings. The exhibition celebrates their challenges and failures as much as their successes, and in the process humanises science.

To ensure science communication continues to be an essential part of research networks like this one, we created an online science communication toolkit to help future scientists and communicators find interesting themes and topics to communicate to their audience. “

Prof. Dr. **Carsten Lüter**, Curator of Marine Invertebrates at MfN Berlin and principal investigator of the outreach project:

“Already a few months into the project it became clear that our original plan to produce both, a virtual and a physical exhibition, didn’t make sense, because only the virtual realm provides a suitable environment to exhibit EvoCELL’s output.

“Life: Through the Looking Glass” is an experimental approach to bridge the gap between highly specialised lab-based science and the wider public by focusing on the process of producing scientific results rather than presenting them as final outputs.

Visitors of the online exhibition are taken onto a journey through EvoCELL’s scientific endeavours guided by the young scientists themselves. Visitors learn as much about the people behind the research, about their successes and failures, their thoughts and personalities as they get insights into the scientific results and their implications for our understanding of cell type evolution in animals.

This is a hitherto unseen approach of communicating highly specialised science to the wider public and in my view it has a chance to make an impact.”

## Quotes by the fellows:

**Francesca Pinton**, doctoral researcher at University of Jena: “Working on our story for the online exhibition meant balancing different ambitions and perspectives: conveying the scientific process in general, but also showing our own research, while trying to make a point, but also telling a story that could interest a broad audience. It was like explaining to my family what I do and why it is important, but with cool pictures, fancy animations, and under the guidance of people who actually know how to do this.”

**Dearbhaile Casey**, doctoral researcher at UCL: “Working on the exhibition not only piqued my creative side, but allowed me to view my research in a new, innovative and useful way!”

**Dr. Periklis Paganos**, research fellow at SZN: “I would definitely like to see something similar for future science communication. Now that our lives are more virtual than ever, this is a creative way to overcome these obstacles.”

**Javier Burgoa**, research fellow at EMBL: “The EvoCELL exhibition has given me the chance to collaborate with experts in different fields and build something meaningful and useful. We also explored the relationship with the public, which gave me a different perspective on my research.”

**Dr. Laura Piovani**, research fellow at UCL: “In the past four years I learnt that it is possible to elevate the (boring) science we do everyday into something fascinating and beautiful that people actually want to hear about!”

**Ines Fournon Berodia**, doctoral researcher at the Sars Centre in Bergen: “The designs of the exhibition are really amazing and eye-catching, specifically the mysterious drawings of each animal. Generally, I find the online exhibition is a totally different approach to what is out there. Science communication led by early-stage researchers can only mean a refreshed canvas and a bright future for more transparent science.”

**Konstantinos Geles**, doctoral researcher at Genomix4Life: “To allow for a wider interest in how public funds are used to improve research, it is very important to make scientific dissemination effective. EvoCell, as my first outreach project, has given me the opportunity to work on skills that I believe are necessary to bridge the gap between academia and laymen.”

**Francisca Hervas-Sotomayor**, doctoral researcher at ZMBH: “I was about to give up. The frustration, the financial necessity and the self-questioning following rejection led me to stop applying for a PhD outside Ecuador. But after some doubting, I tried it once more: I saw this position, sponsored by the European commission, to work in a research group I knew, in a topic I love. I got elected. And so, it began my EvoCELL experience.

This network, the friendship, the laughing, the cheering, the discussions; the connection, we fellows created by going beyond science. All this makes me feel lucky. Whatever difficulties that have come along with doing a PhD, the struggle somehow felt lighter when shared with friends. And that’s what EvoCELL gave me, a culturally diverse network of fellow scientists with whom I got to work and discuss science, evolution, outreach and life. Looking back, I’m glad I tried it one more time.”