

Hello Eurekians,

Welcome to the first *Eureka Briefing* of 2024! In this issue, we talk to early career researcher Grace Gong about the highs and lows of her career so far, hear from Alexej Dick in 'About my research', catch up with news from Eurekians, and, as usual, highlight some recent publications.



Research life can sometimes feel like a rollercoaster ride (image from Pixabay).



[A chat with Grace Gong](#)

[Grace Gong](#) is an investigator scientist at the Medical Research Council's Laboratory of Molecular Biology in Cambridge, UK and a senior research fellow at University College London, UK. *Eureka Briefing* spoke to Grace about a recent publication, her career highs and lows, and advice for other early career researchers.

[What's been happening with your research recently?](#)

I work with small molecules that modulate the activity of a protein enzyme; a kinase that modulates cell activities called phosphoinositide-3 kinase (PI3K) Drug discovery for kinase targets to date has almost exclusively focused on molecules that inhibit kinases, for example as cancer therapeutics. The possibility of activating kinases for a therapeutic benefit has been extremely underexplored. My current work focuses on activating PI3K with small molecules for therapeutic benefit.

This work was [published in Nature](#) quite recently. We showed that a PI3K activator has two potential therapeutic applications, protecting the heart against ischemia reperfusion injury and accelerating the regeneration of peripheral nerves after injury.

[What effect has this publication had on you or your research?](#)

First, it's boosted my confidence a lot. In science, we talk about [impostor syndrome](#) all the time. When you're in a competitive environment such as science you tend to start to doubt yourself occasionally. The paper helped me overcome those doubts.

Second, the publication has helped me to establish myself and enhance my connections in the international community. It's definitely opened up career opportunities. I've been approached by different universities and institutions offering me interviews or even positions. It's really good to know that people are reading my work and like how I do my science.

Do you know what your next career step might be?

I'm still quite flexible in terms of whether it's going to be starting my own lab in academia or maybe moving into industry. I used to get a bit anxious if I didn't know what I wanted to do, but now I feel I have enough strength in myself and my CV/resume so that there will be options there for me when I'm ready. My focus now is just to give 100% of myself to what I am doing.

Have there been low points in your career, and how did you turn these around?

Yeah, definitely! In my early career, and probably many people's careers, you go up and down and up and down, though overall you're probably on an upward trajectory. I've had a couple of these cycles.

My most recent low was part of trying to get the above-mentioned paper published. There was a key experiment – determining a crystal structure – that was needed to show more about the binding of PI3K activators to the kinase. But this experiment was technically challenging, and it didn't work despite trying for years. I felt really stressed because it wasn't just my career and publication that was at stake, it would affect all my co-authors as well. I felt really stressed because it wasn't just my career and publication that was at stake, it would affect all my co-authors as well.

But by talking to people, I got some really good advice; actually, from one of the reviewers who suggested us to use a different protein construct for crystallography — and that worked! After this, I was back on track, and importantly the experience boosted my confidence and I trust that I'm a good scientist after all. That experience of learning how to manage my low point was perhaps more important to me than a *Nature* paper itself.

You've worked in several countries: a PhD in New Zealand, a research scientist position in China, and post-doc positions in the UK. What has moving around taught you about different research environments?

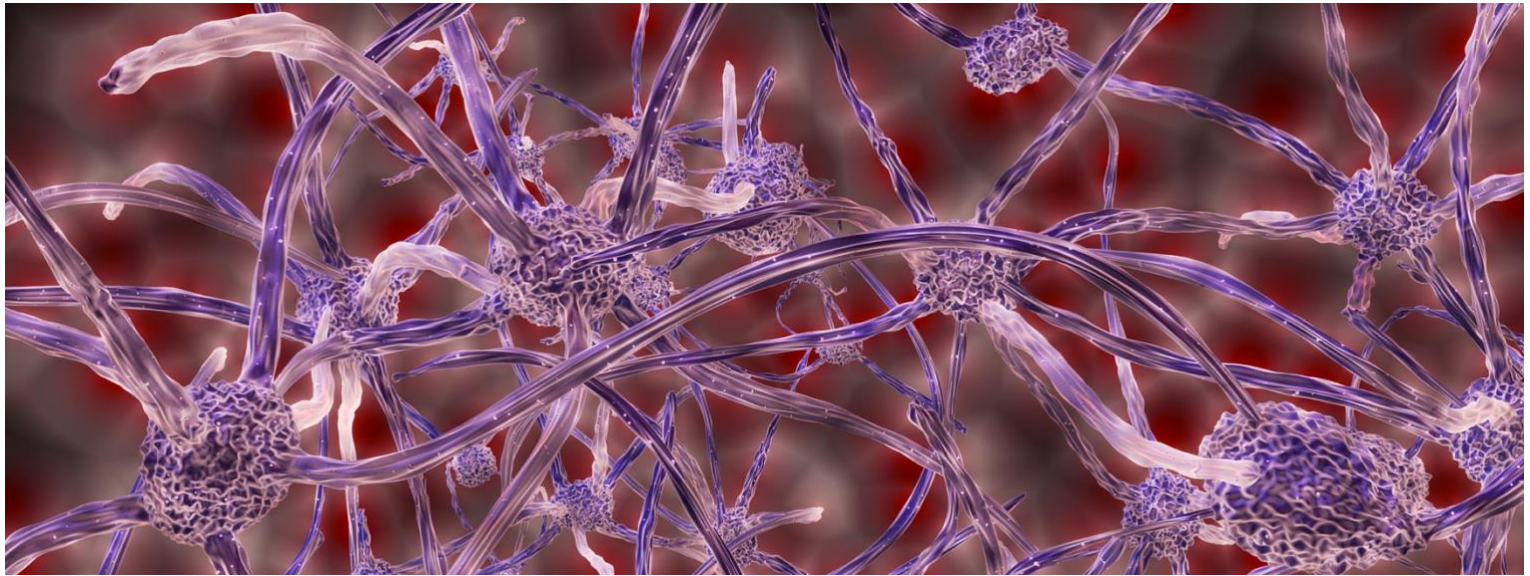
There were definite differences in the research environments in different countries; for example, the environment in China was more hierarchical than what I was used to in New Zealand.

But I have to say that maybe because of the multicultural environment of academia and science, I actually feel the difference from lab to lab was greater than the country-to-country differences. It's really the microenvironment of who is in your lab, and their cultures, that defines the research environment.

Finally, what advice would you give to other early career researchers?

One piece of advice I got from a fellow Eurekaian was 'follow your heart', which I think is wonderful advice.

One mantra that has worked for me, and I don't know whether it was this that got me through my low points or it was a conclusion I came to after I've gone through my low points, is not to worry about the future too much. Things will work out in the long term if you're attentive to what you're doing, you work hard, and you deliver results.



Grace's research showed that a PI3K activator helped regenerate nerves after injury (image from Pixabay).

News from Eurekians

[Femke van Wijk](#), professor of translational immunology at University Medical Center Utrecht, has been awarded a prestigious Athena award. This award recognizes leading female scientists who serve as role models for other women – an award that recognizes and supports the same values that are taught at Eureka.

[In her interview](#) she states: "In science, collaboration is the true Eureka! Less egos, more discoveries - with a touch of humour and a dose of diversity as secret ingredients!"

Congratulations Femke!

Publications by Eurekians

Below are some recent publications that have Eurekians as first, second or last authors (underlined). Have a scroll to see if any catch your eye!

[FAK suppresses antigen processing and presentation to promote immune evasion in pancreatic cancer.](#)

Canel M, Sławińska AD, ... [Serrels A.](#)

Gut. 2023 Dec 7;73(1):131-155. doi: 10.1136/gutjnl-2022-327927.

[Efficacy of Nivolumab in Pediatric Cancers with High Mutation Burden and Mismatch Repair Deficiency.](#)

Das A, Tabori U, ... [Morgenstern DA.](#)

doi: 10.1158/1078-0432.CCR-23-0411.

[Fcγ receptors and immunomodulatory antibodies in cancer.](#)

[Galvez-Cancino F,](#) Simpson AP...[Quezada SA.](#)

doi: 10.1038/s41568-023-00637-8.

[X-Ray Visible Protein Scaffolds by Bulk Iodination.](#)

Flechas Becerra C, Barrios Silva LV...[Patrick PS.](#)

doi: 10.1002/advs.202306246.

[Breaking the performance ceiling for neoantigen immunogenicity prediction.](#)

O'Brien H, Salm M.... [Quezada SA.](#)

doi: 10.1038/s43018-023-00675-z.

[Segregation of neuronal and vascular retinal damage in patients with hypertension and diabetes.](#)

[Chua J, Wong D...Schmetterer L.](#)

doi: 10.1111/nyas.15089.

[Cardiac Abnormalities in Hispanic/Latina Women With Prior De Novo Hypertensive Disorders of Pregnancy.](#)

[Quesada O, Kulandavelu S....Cheng S.](#)

doi: 10.1161/HYPERTENSIONAHA.123.21248.

[Whole-Blood Transcriptome Unveils Altered Immune Response in Acute Myocardial Infarction Patients With Aortic Valve Sclerosis.](#)

[Piacentini L, Myasoedova VA ... Colombo GI.](#)

doi: 10.1161/ATVBAHA.123.320106.

[Simultaneous native mass spectrometry analysis of single and double mutants to probe lipid binding to membrane proteins.](#)

[Jayasekera HS, Mohona FA, Ewbank M, Marty MT.](#)

doi: 10.1101/2023.09.19.558516.

[The incidence of movement disorder increases with age and contrasts with subtle and limited neuroimaging abnormalities in argininosuccinic aciduria.](#)

[Gurung S, Karamched S ...Baruteau J.](#)

doi: 10.1002/jimd.12691.

[The development of the Belgian paediatric clinical trial network.](#)

[Degraeuwe E, Persijn L.... Vande Walle J.](#)

doi: 10.1080/17843286.2023.2283664.

[Electroencephalography spectral coherence analysis during cycle ergometry in low- and high-tolerant individuals.](#)

[Bigliassi M, Cabral DF.... Gomes-Osman J.](#)

doi: 10.1111/psyp.14437.

[A Systematic Review of Methodologies and Outcome Measures of Mobile Integrated Health-Community Paramedicine Programs.](#)

[Adibhatla S, Lurie T....Gingold DB.](#)

doi: 10.1080/10903127.2022.2138654.

[Recombinant Interleukin-1 Receptor Antagonist Is an Effective First-Line Treatment Strategy in New-Onset Systemic Juvenile Idiopathic Arthritis, Irrespective of HLA-DRB1 Background and IL1RN Variants.](#)

[Erkens RGA, Calis JJA... Vastert SJ.](#)

doi: 10.1002/art.42656.

[Artificial Intelligence in the Future Landscape of Pediatric Neuroradiology: Opportunities and Challenges.](#)

[Bhatia A, Khalvati F, Ertl-Wagner BB.](#)

doi: 10.3174/ajnr.A8086.

[Differences in Oligomerization of the SARS-CoV-2 Envelope Protein, Poliovirus VP4, and HIV Vpu.](#)

[Townsend JA, Fapohunda O, Marty MT.](#)

doi: 10.1021/acs.biochem.3c00437.

[mRNA therapy corrects defective glutathione metabolism and restores ureagenesis in preclinical argininosuccinic aciduria.](#)

[Gurung S, Timmermand OV, Baruteau J.](#)

doi: 10.1126/scitranslmed.adh1334.

About my research

Each month we highlight the work of one or more Eurekians.

Alexej Dick, research assistant professor, Department of Biochemistry and Molecular Biology, Drexel University College of Medicine, Philadelphia, PA, USA

What's your area of research? My research focuses on infectious diseases and brain metastatic breast cancer, with a particular emphasis on drug discovery and development and a strong focus on computational methodologies to aid this process and mechanism of action studies.



What translational research questions does your work try to address? My work aims to translate molecular virology and structural biology findings into effective therapeutic strategies for infectious diseases and cancer.

What excites you most about your research? The potential to discover ground-breaking treatments for life-threatening diseases and my research's dynamic, interdisciplinary nature excites me the most.

What's the biggest challenge that you face? The biggest challenge is bridging the gap between basic research and clinical application, especially in the complex fields of virology and cancer.

What does it mean to you to be a Eurekian? Being Eurekian signifies a commitment to pioneering and innovative translational medicine, striving to turn scientific discoveries into real-world health solutions.

Please do get in touch (by replying to this message) if you've any news to share. And don't forget to check out the [Eureka LinkedIn page](#).



The lowest point on dry land (image from Pixabay).

And finally.....some trivia. Grace noted that many researchers have low points in their careers. Do you know the answers to any or all these low point-related questions from Wikipedia's '[Extremes on Earth](#)' page? (You'll need to scroll down a little to 'lowest points' for the answers once you've clicked the link.)

1. What is the deepest point below the ocean's atmospheric surface?
2. What is the lowest point underground?
3. What is the lowest point on land not covered by liquid water?
4. What is the lowest point on dry land?

Thank you for reading!

[Charlotte Harrison](#)

Freelance Science writer and editor

I now remember that I have visited the place that is the answer to question 4 on vacation several years ago. The other three places are not suitable locations for a vacation!