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Claire Foldi: Unravelling the neurobiology of eating disorders to inform effective treatments

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Dr Claire J. Foldi is an Associate Professor in the Department of Physiology at Monash University, where she leads a multidisciplinary research program investigating the brain circuits that drive anorexia nervosa and other eating disorders. Her work bridges preclinical neuroscience with translational relevance, offering critical insight into the biological mechanisms that underlie psychiatric illness. She is a founding member of the executive of the Australian Eating Disorders Research & Translation Centre (AEDRTC). This role requires extensive collaboration and knowledge exchange with clinicians, service providers, and individuals with lived experience. These positions ensure that her research is both scientifically rigorous and socially relevant. With eating disorders affecting millions and remaining among the most fatal yet poorly understood mental illnesses, Dr Foldi's research addresses a pressing gap: how disruptions in brain pathways involved in reward, self-control, and decision-making contribute to the persistence of disordered eating. Her lab uses advanced neural recording and manipulation tools to map these circuits and explore how novel therapeutics, including psychedelics, may modulate them. Widely recognized for her rigorous yet exploratory approach, Dr. Foldi actively integrates techniques and perspectives from adjacent fields to push the boundaries of eating disorders research. In this Genomics Press interview, she reflects on her unexpected path into the field and how early experimental observations, combined with the rising interest in psychedelic medicine, have positioned her as a leading voice in a new generation of research at the intersection of metabolism, neurobiology, and psychiatry.

Part 1: Claire J. Foldi – Life and Career

Could you give us a glimpse into your personal history, emphasizing the pivotal moments that first kindled your passion for science?

I have always been fascinated by human behaviour and how the brain processes experiences, such as perception, emotion, and belief. A pivotal moment was an undergraduate psychology course on pathological thinking that inspired me to study why some people experience unusual thoughts. The most unusual I could imagine, at the time, was the hallucinations and delusions experienced by people living with schizophrenia, and I pursued a PhD that aimed to explore the biological bases of social and environmental risk factors for schizophrenia. This experience sparked my deep interest in the biology underlying mental illness, in particular, the interactions between biology and social and cultural factors. It also gave me the toolkit I still draw on today: curiosity, rigour, and an appreciation for how much we still do not know.

Figure 1. Claire J. Foldi, PhD, Monash University, Australia.

Please share with us what initially piqued your interest in your favourite research or professional focus area.

Ironically, I did not set out to become a specialist in eating disorders or psychedelics research. While my early training focused on schizophrenia, over time, I became increasingly interested in how behaviours like reward insensitivity, cognitive rigidity, and compulsivity overlapped across many seemingly disparate psychiatric conditions. That curiosity led me to models of anorexia nervosa and eventually to explore how compounds like psilocybin might help address entrenched behavioural patterns that don't respond to current treatments. So, while the research direction was not pre-planned, it was driven by following the science—and being willing to pivot when unexpected opportunities and questions arose.

We would like to know more about your career trajectory leading up to your most relevant leadership role. What defining moments channelled you toward that leadership responsibility?

I have had a fairly organic trajectory: each step opened new doors I had not anticipated. A defining moment came when I was awarded two major

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independent grants, back-to-back, that allowed me to pursue research I never expected I would dedicate my life to, even in my wildest dreams. That autonomy encouraged me to think more boldly about research design and to start mentoring students. I soon realized that building a lab was not just about research; it was about people. Founding the Foldi Lab at Monash has enabled me to create a space where early-career researchers can thrive and where unconventional research questions, such as those involving psychedelics, can be pursued rigorously and creatively.

What is a decision or choice that seemed like a mistake at the time but ended up being valuable or transformative for your career or life?

At one point, I agreed to a side project on the neuronal control of body weight that seemed peripheral to my research interests at the time. I worried I was losing focus and my career trajectory would falter. However, that side project became the seed for my current research program in eating disorders. It taught me the value of exploratory work and being open to deviation from linear goals. Some of the most impactful parts of my career have come from following unexpected leads with an open mind.

What habits and values did you develop during your academic studies or subsequent postdoctoral experiences that you uphold within your research environment?

Three values stand out: intellectual honesty, collaboration over competition, and a commitment to mentoring. I had great mentors who encouraged critical thinking, and that is a culture I have tried to foster in my lab. I also firmly believe that research should be rigorous but not rigid. Our lab environment encourages curiosity, innovation, and co-designed projects with students and collaborators.

Please tell us more about your current scholarly focal points within your chosen field of science.

My lab investigates how internal states like hunger and anxiety interact with brain circuits that govern "higher order" cognitive behaviours. We utilize cutting-edge tools, such as in vivo fibre photometry and computational behavioural modelling, to investigate how brain dynamics influence decisions regarding food, threat, and reward. This includes studying the neural basis of anorexia nervosa and evaluating how novel therapeutics like psilocybin may help restore behavioural flexibility. We also explore how early-life adversity (like adolescent food insecurity) biologically embeds risk for binge eating and compulsivity.

What impact do you hope to achieve in your field by focusing on specific research topics?

I want to shift how we understand and treat eating disorders, moving beyond surface symptoms to the underlying neurobiology. By identifying the brain circuits and mechanisms that drive persistent behaviours, I aim to help develop more targeted and effective treatments. I also want to contribute to a more nuanced understanding of psychiatric illness, one that respects both biological and lived experience perspectives.

Eating disorders are among the most devastating and least understood mental health conditions. In Australia alone, over 1.1 million people, approximately 4.5% of the population, are currently living with an eating disorder, and 10.5% will experience one at some point in their lives. These conditions carry the highest mortality rate of any psychiatric illness, with 1,273 deaths recorded in 2023. Despite their prevalence and severity, treatment outcomes remain poor. Less than one in three individuals affected reach out for help, and even among those who do, relapse rates are high, and full recovery is elusive for many. The ripple effects extend beyond individuals to families, workplaces, and the broader economy. Eating disorders cost the Australian economy $18.1 billion annually in lost productivity, healthcare expenses, and other associated costs.

My research aims to address these challenges by unravelling the neural mechanisms underlying eating disorders. This includes exploring novel therapeutics, such as psychedelics, which may offer new avenues for treatment-resistant cases. Ultimately, I hope to contribute to a paradigm shift in how we understand and treat eating disorders, moving from symptom management to addressing root causes, thereby improving outcomes for individuals and reducing the broader societal impact.

What do you most enjoy in your capacity as an academic or research leader?

I genuinely enjoy mentoring. Watching a student evolve from hesitant to confident or helping a postdoc land their next fellowship is incredibly rewarding. I also love the moment when data surprises you—when your assumptions are challenged, and you are forced to rethink. Those moments keep science dynamic and human.

At Genomic Press, we prioritize fostering research endeavours based solely on their inherent merit, uninfluenced by geography or the researchers' personal or demographic traits. Are there particular cultural facets within the scientific community that warrant transformative scrutiny, or is there a cause within science that you feel strongly devoted to?

There are two systemic issues in science that I am deeply committed to challenging: the lack of women in leadership, and the way our current funding and publishing structures erode space for long-term, creative thinking.

Despite progress, women continue to be significantly underrepresented in senior academic and research leadership roles. We see promising gender parity at the PhD level, but that pipeline narrows rapidly. The absence of women in decision-making positions on grant panels, editorial boards, and institute leadership shapes what questions get funded, who gets cited, and what voices are considered authoritative. It is not just an issue of fairness; it is a missed opportunity for more diverse, impactful science. I feel a strong responsibility to mentor and support emerging women scientists and to model leadership that is collaborative, transparent, and inclusive.

The second issue is structural: the current Australian research funding landscape is short-sighted and unsustainable. With major grant success rates hovering around 10%, researchers are locked into a relentless cycle of grant writing and publication-chasing that leaves little time for deep thinking or long-range vision. It is a system that penalises risk, creativity, and slowness—and rewards volume over substance. As Uta Frith argued in her article on Slow Science, "*Fast Science is bad for scientists and bad for science*." I could not agree more. We urgently need to rethink our metrics for success, not just the number of papers we publish but also how meaningful, reproducible, and forward-thinking our contributions are.

Ironically, the most innovative work I have done—the kind that opened up new directions in psychedelics research and eating disorder neuroscience—did not come from chasing high-impact metrics. It came from having space to explore an odd finding, a side project, or an unexpected conversation. These moments are increasingly rare in our current climate. If we want to foster genuine breakthroughs, we need to fund thinking time, not just outputs. In both gender equity and research culture, we need systemic change. This includes longer-term grants, improved recognition of mentoring and team science, and increased diversity in leadership. The problems we face, both scientific and societal, require big-picture thinking and sustained collaboration. That will not happen if we are all just racing to meet the next deadline.

Outside professional confines, how do you prefer to allocate your leisure moments, or conversely, in what manner would you envision spending these moments given a choice?

Travel and food are two of my greatest pleasures, and fortunately, my career often allows me to indulge in both. Academic life takes me to conferences and collaborations in some remarkable places, and I always try to carve out time to explore the local culture—especially through its food. Whether it is a hole-in-the-wall noodle shop in Tokyo or a leisurely dinner in a European wine region, I love how meals can anchor you in a place and create space for reflection and connection. In that sense, the boundaries between professional and personal life often blur, in the best possible way. If given a completely free weekend, I would probably plan a short

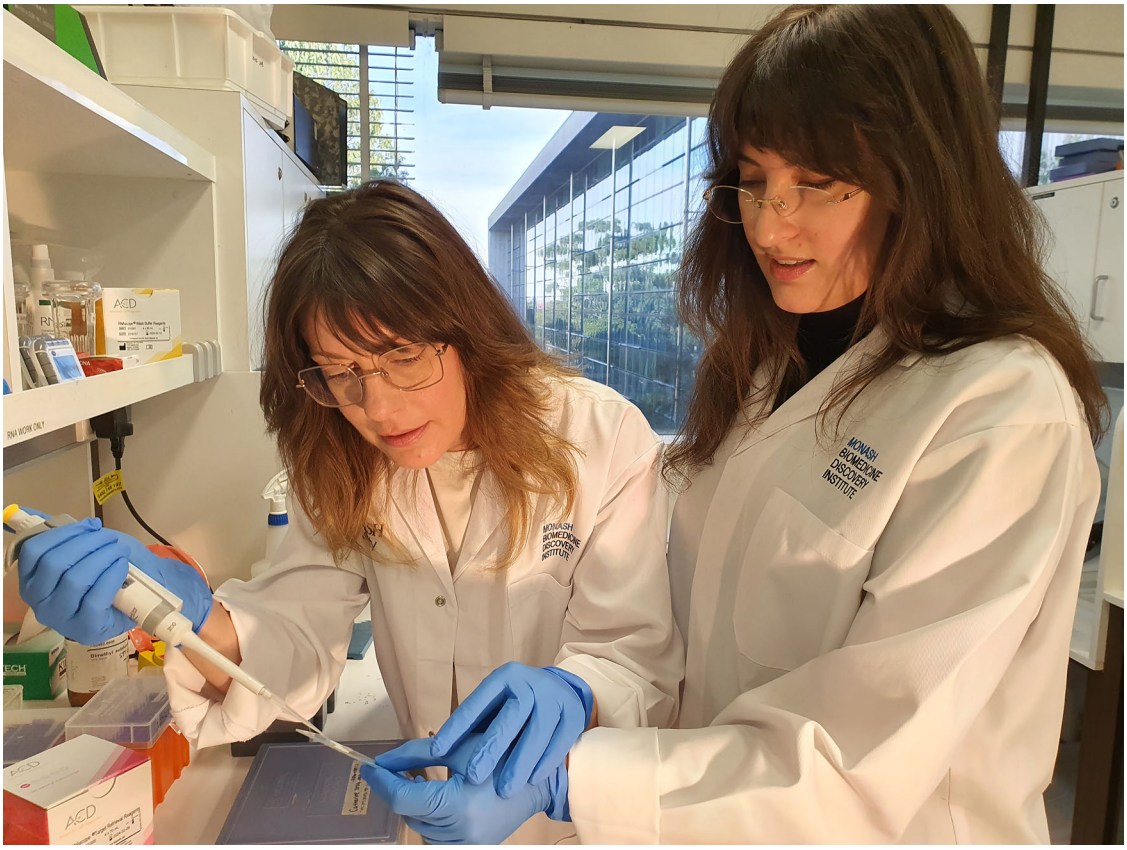

Figure 2. A/Prof Foldi in the lab with postdoc trainee Dr Kyna Conn.

getaway centred around local markets, natural landscapes, and a good glass of wine (or two).

Part 2: Claire J. Foldi – Selected questions from the Proust Questionnaire[1]

What is your most marked characteristic?
The "gift of the gab" – a natural ability to speak easily, confidently, and persuasively, especially when explaining ideas or engaging an audience.

Among your talents, which one(s) give(s) you a competitive edge?
Being unusually good at bringing diverse people together.

If you could change one thing about yourself, what would it be?
The need to rewrite everything three times before I believe it is coherent.

What is your current state of mind?
A precarious balance between focus and fatigue, managed mostly with to-do lists and caffeine.

What is your idea of perfect happiness?
A day where no one needs me urgently, and I can sit reading in silence without guilt.

What is your greatest fear?
That I will run out of time before I make enough sense of the world to say something worth remembering.

What is your greatest regret?
The years I spent waiting for permission instead of acting with confidence.

What are you most proud of?
When my students or trainees succeed in their pursuits.

What is your greatest extravagance?
High-end artisanal sea salt, freshly shucked oysters, and wine.

What is your most treasured possession?
My most treasured "possessions" are my cats, Edith and Anthony, but calling them possessions feels entirely inaccurate. They are companions, co-regulators, emotional anchors. They remind me to pause, to pay attention, and to feed someone other than myself on the hard days.

Where would you most like to live?
On an island, possibly somewhere in the South Pacific, where it is warm all year round.

What is the quality you most admire in people?
The ability to keep showing up after they have been disappointed.

[1]In the late nineteenth century, various questionnaires were a popular diversion designed to discover new things about old friends. What is now known as the 35-question Proust Questionnaire became famous after Marcel Proust's answers to these questions were found and published posthumously. Proust answered the questions twice, at ages 14 and 20. In 2003 Proust's handwritten answers were auctioned off for $130,000. Multiple other historical and contemporary figures have answered the Proust Questionnaire, including among others Karl Marx, Oscar Wilde, Arthur Conan Doyle, Fernando Pessoa, Stéphane Mallarmé, Paul Cézanne, Vladimir Nabokov, Kazuo Ishiguro, Catherine Deneuve, Sophia Loren, Gina Lollobrigida, Gloria Steinem, Pelé, Valentino, Yoko Ono, Elton John, Martin Scorsese, Pedro Almodóvar, Richard Branson, Jimmy Carter, David Chang, Spike Lee, Hugh Jackman, and Zendaya. The Proust Questionnaire is often used to interview celebrities: the idea is that by answering these questions, an individual will reveal his or her true nature. We have condensed the Proust Questionnaire by reducing the number of questions and slightly rewording some. These curated questions provide insights into the individual's inner world, ranging from notions of happiness and fear to aspirations and inspirations.

What is the trait you most dislike in people?
Entitlement without awareness. And the inability to laugh—especially at oneself. If we cannot find some absurdity in life, we are probably not looking hard enough.

What do you consider the most overrated virtue?
I would say solemnity. There is a misplaced belief that a serious demeanour must accompany important work. However, humour, lightness, and irreverence often make space for better ideas, more inclusive teams, and more resilient scientists.

What do you most value in your friends?
That they never ask me to be more optimistic than I actually am.

Who are your heroes in real life?
Richard Feynman and Haruki Murakami.

What aphorism or motto best encapsulates your life philosophy?
One motto I use in general life is the phrase "*say what you mean and mean what you say*," which serves as a compass for honest communication without hedging or hollow commitments. Professionally, I believe a perfect encapsulation of discovery science is the motto "*excellence through guesswork*."

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