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Alaina M. Jaster: Bridging the gap across preclinical and clinical disciplines in the psychedelic sciences

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Dr. Alaina M. Jaster is a postdoctoral scholar in the Department of Psychiatry and Behavioral Neurosciences at Wayne State University. She currently serves on the trainee editorial board of *Psychedelic Medicine*, the journal for the International Society for Research on Psychedelics (ISRP), and is part of the Society's Diversity Equity Inclusion and Accessibility committee. Jaster is also part of the Science Policy Committee of Students for Sensible Drug Policy (SSDP) and co-founded a scientific communication website and podcast, *Psychedelic Brain Science.* Her research aims to understand the underlying molecular targets and mechanisms of neuropsychiatric disorders and substance use disorders. Her PhD dissertation focused on the serotonin 2A receptor's modulatory role in rewarding aspects of opioids and neuroplasticity across sexes. Most of her work uses translational methodology related to Pavlovian conditioning combined with techniques to measure and manipulate pharmacological factors involved in these diseases. Her current work focuses on the involvement of endocannabinoids in fear extinction, biomarkers of familial risk of depression, and psychedelic use among adolescent populations. Dr. Jaster is excited to engage in the Genomic Press Interview, looking deeper into her life inside and outside the lab.

Figure 1. Alaina M. Jaster, PhD, Wayne State University, USA.

Part 1: Alaina M. Jaster – Life and Career

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

This question is always tricky to answer because I did not realize the pivotal moments until I was already doing science. I did not link my personal history to my drive until I was well into college, but it makes sense now. I have a family history of addiction and have firsthand experience with drug use, including what it does to families and to people I care about. So, when I went to college and decided to study neuroscience and substance use, I did it because that's what I knew about, and I wanted to understand why some people choose drugs over other values and why some people don't have any issues with recreational use. I learned it is a lot more complex than that, but my entire life led me to this passion for learning about the mind and proving that your circumstances do not have to be the end-all-be-all.

We would like to know more about your career trajectory leading up to your current role. What defining moments channeled you toward this opportunity?

My trajectory is a little interesting because I did not really know I wanted to be a scientist, as I was never really exposed to that option. I knew about medicine because my mother was a nurse, but I wanted to be an artist in high school. I had little interest in sciences at school, except for my AP psychology class. So, in my senior year, I ended up touring Central Michigan University, where they showed a presentation on their neuroscience program and talked about the brain, which I thought was interesting. I told myself I could do it and wanted to prove I was not my family history. At the end of my undergraduate experience, I was trying to decide on being a counselor or going for a PhD in clinical psychology. Eventually, I decided through experiences working at an inpatient psychiatric facility that I was not ready for direct patient care. However, I still wanted to help people who were suffering from these horrible psychiatric illnesses. I ended up with a research assistant job at Wayne State University, where I worked with human postmortem tissue and genetics of opioid use, along with toxicology and pharmacology projects. This solidified my interest in drugs and how they change the brain.

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

Honestly, ever since I was in high school, I thought psychedelic drugs were fascinating. The clinical trials with smoking cessation and decreased drinking following psilocybin came out when I was in my undergraduate degree, and I was just so excited to see psychedelics being used for treating substance use disorders that I knew I had to find a way to study this

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Figure 2. Alaina Jaster explores "Hilltop Trine," one of Thomas Dambo's "6 Forgotten Giants" sculptures in Hvidovre, Denmark (2017). The photo was taken during downtime from her summer neuroscience course in Copenhagen when she participated in an artistic treasure hunt to discover these large-scale public art installations throughout the city's western municipalities. This image captures one of Alaina's many explorations beyond the laboratory.

myself. Now, my studies are broader, focusing on the cannabinoid system as well, but it is just as interesting because cannabis has been shown to help a lot of folks with neuropsychiatric illnesses like depression.

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

I hope to expand our current knowledge of why and how drugs like psilocybin or cannabis have profound effects on people. It is essential to dig into those who respond and those who do not respond and figure out if some specific biomarkers or pathways are involved in these clinical outcomes. With this knowledge, we can better inform treatment strategies and drug policies that make sense.

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

The use of multidisciplinary approaches to understanding disease has only recently taken off, where many studies within the field of neuroscience focused solely on behavior or molecular pharmacology. However, with more people in the field and novel techniques, we can probe for things like biomarkers, the influence of specific cell types and their projections, and alterations in brain connectivity — all at once. My current focus is on using translational techniques and bridging the gap between preclinical and clinical research on neuropsychiatric and substance use disorders.

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

I am currently in my postdoctoral position, where I am learning so much about coordinating and leading clinical trials, teamwork, and positive work environments. Across my PhD and now my current position, one thing that I have found most important is allowing myself to enjoy the things I love outside of science. Another thing I have found across positions is that keeping a great lab notebook is an invaluable habit.

At Genomic Press, we prioritize fostering research endeavors 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 deeply stirs your passions?

I think there is a shift in the community where people are becoming more tolerant and accepting of all walks of life, but there is still much work to do. A lot of folks go into science because they have a personal connection to their research questions, but a lot of people with lived experience (specifically with substance use and neuropsychiatric disorders) are turned away from the field or do not have proper access to the tools and help they may need to thrive within the scientific community. I think instead of hiding our personal experiences, we should foster a community that applauds openness and not refuse students or trainees because they would be "difficult" to work with because of their mental health or disabilities.

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

The best part is all the opportunities to make a difference. There are so many unanswered questions and so many opportunities to collaborate with others inside and outside my specific expertise to answer these questions. In addition, the ability to inspire others is always great. It is very exciting to hear that someone read my work, listened to my podcast, or saw me on a panel, and it got them excited about science.

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?

On the day-to-day, after work, I love coming home to my cats and putting on some music while I cook with my fiancé. I also love sitting down with a good book and a cozy blanket to spend my leisure time. I also really enjoy traveling and going to see live music, so when I am able to do these things, I always take up the opportunity as shown in Figure 2.

Part 2: Alaina M. Jaster – Selected questions from the Proust Questionnaire[1]

What is your idea of perfect happiness?
Perfect happiness does not exist. Life is all about embracing things as they come and finding joy in the small things.

What is your greatest fear?
The world ending due to climate disaster.

Which living person do you most admire?
Not a single person but all the people who have been dealt a crappy hand and keep on going despite all the things moving against them.

What is your greatest extravagance?
I do not feel quite extravagant, but I do enjoy a fun statement piece from time to time, like a big, colorful fuzzy coat or a fun hat and giant sunglasses.

What are you most proud of?
I am most proud of myself overcoming a lot to get where I am today.

What is your greatest regret?
I do not think I have one.

What is the quality you most admire in people?
Sense of humor.

What is the trait you most dislike in people?
Dishonesty and arrogance are tied.

What do you consider the most overrated virtue?
They all have value and require balance in every individual.

What is your favorite occupation (or activity)?
My favorite activity is dancing at a concert.

Where would you most like to live?
I would love to live somewhere warm with mountains. I would also enjoy moving around Europe and living in a new place every few months.

What is your most treasured possession?
My cats.

When and where were you happiest? And why were so happy then?
I am happiest whenever I see the world and am in nature. Exploring and letting our curiosity run wild is what we are meant to do.

What is your current state of mind?
I am grateful for my experiences and opportunities and for the health of my loved ones.

What is your most marked characteristic?
My determination.

Among your talents, which one(s) give(s) you a competitive edge?
I am really good at time management, and that makes it easier for me to get a lot done in a short time frame.

What do you consider your greatest achievement?
To date, probably taking the US Drug Enforcement Agency to court challenging the scheduling of psychedelic research chemicals DOI/DOC.

If you could change one thing about yourself, what would it be?
Nothing. People are changing all the time, every day.

What do you most value in your friends?
Comfortability, knowing you can be your whole self around them.

Who are your favorite writers?
I am a big fan of Charles Dickens, J.R.R Tolkien, Ta-Nehisi Coates, and Carl Hart.

Who are your heroes of fiction?
I do not think I have any.

Who are your heroes in real life?
My mom comes to mind first; she really is a "super-mom."

What aphorism or motto best encapsulates your life philosophy?
In omnia paratus, a Latin phrase that means "prepared for all things" or "ready for anything."

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[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.