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INNOVATORS & IDEAS: RESEARCH LEADER

# Udo Dannlowski: Brain structure and function in the long-term course of mental disorders

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*Brain Medicine*; https://doi.org/10.61373/bm024k.0019

**Keywords:** Neuroimaging, psychiatry, major depression, disease trajectories

**Udo Dannlowski is a psychiatrist, psychologist, and translational neuroimaging researcher whose work intersects clinical psychiatry, genetics, data science, and systems neuroscience. His academic endeavors are driven by a commitment to unraveling the complex biological and genetic mechanisms underlying long-term disease trajectories of affective disorders, including depression and anxiety. Dannlowski's use of brain imaging technologies, such as multimodal MRI, to explore the structural and functional anomalies in patients with these disorders in longitudinal cohorts over several years of follow-up with machine learning techniques has significantly advanced our understanding of brain mechanisms in mental disorders. Dannlowski is recognized for contributing to psychiatry and neuroscience, substantially impacting theoretical understanding and clinical practice. Since 2019, he has been heading the Institute for Translational Psychiatry in Münster, Germany, together with the clinical Section for Transition Psychiatry at the Department for Mental Health. We are privileged to present the Genomic Press interview with Professor Dannlowski, who has offered to share insights from his esteemed career and personal experiences for our readers' benefit.**

## Part 1: Udo Dannlowski – Life and Career

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

When I was asked as a kid what I wanted to be when I grew up, the answer always included "scientist" to some degree – starting with "cave explorer," "dinosaur scientist," or archeologist. Though I was a first-generation academic, there was never a question of whether I wanted to join a university, and I struggled to choose my subject area. With interests in computer science, psychology, literature, medicine, and biology, I studied both medicine and psychology and started neuropsychological studies in depression as a medical student. Combining research and clinical duties proved to be the most sustaining interest so I became a clinical scientist, now heading a research institute as well as a clinical section.

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

Before becoming a research group leader, I had close and trustful relationships with my supervisors, who eventually became friends. I saw them struggling with several parallel, partly unrelated, and heavily underfinanced projects – and decided that I wanted to do it differently. Instead of conducting multiple smaller studies, I combined neuroimaging and genetics with an epidemiological scope in one large cohort with long follow-up periods. While this was risky at an early career stage in a dynamic academic setting, it was the birth of the Münster Neuroimaging Cohort, which is still running 15 years later.

**Figure 1.** Udo Dannlowski, MD, PhD, Institute for Translational Psychiatry, University of Münster, Germany.

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

Neuroimaging is a highly interdisciplinary area that offers a playground for practically all my research interests. Functional magnetic resonance imaging (fMRI) allowed me to see the brain at work, testing psychological constructs and traits. As a psychiatrist, multimodal imaging was promising for providing clinical correlates of disorders as well as biomarkers or predictors for treatment response. As a data scientist, I found high-dimensional neuroimaging data to be an Eldorado for applying a multitude of analytic strategies, including machine learning techniques.

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

Tackling the translational roadblock by addressing the long-term perspective of patients using within-subjects designs in large longitudinal cohorts. Developing strategies to uncover bio-psycho-social data signatures for understanding, predicting, and ultimately preventing relapses in the long-term course of affective disorders.

Received: 14 March 2024. Accepted: 15 March 2024.
Published online: 20 March 2024.

**Please tell us more about your current scholarly focal points within your chosen field of science.**
One focal point investigates the neurobiological determinants of long-term disease trajectories in major depression using machine learning-based predictive modeling. Highly related, a second focal point is the association of genetic and environmental risk factors for mental disorders with brain structure and function.

**What habits and values did you develop during your academic studies or subsequent postdoctoral experiences that you uphold within your research environment?**
Trust, collegiality, appreciation, and sharing of data and resources were the determinants of successful and fruitful collaborations. These are necessary for conducting long-term research programs such as large-scale longitudinal neuroimaging cohorts. These values lead to lasting, trustful relationships inside and outside the lab with mentors, faculty colleagues, and trainees alike.

**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 warrant transformative scrutiny, or is there a cause within science that deeply stirs your passions?**
Science is nourished by diversity—both as a research area and in terms of the people conducting the research. Diversity needs to be represented much more as a research target and by researchers on the faculty level.

**What do you most enjoy in your capacity as an academic or research leader?**
I most enjoy the opportunity to foster a culture of curiosity, innovation, and continuous learning. Leading a team of bright, motivated individuals towards discovering new knowledge and developing novel solutions to complex problems is incredibly rewarding. The chance to mentor and guide emerging scholars and researchers, watching them grow and succeed, is a privilege. Furthermore, the collaborative aspect of academia—building interdisciplinary partnerships and networks—enriches the research experience, leading to more comprehensive and impactful outcomes. This role not only allows me to contribute to advancing my field but also to play a part in shaping the future of research and education.

**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?**
I like to spend time with my family and in nature on a boat, in the woods, or on a hiking trail.

## Part 2: Udo Dannlowski – Selected questions from the Proust Questionnaire[1]

**What is your idea of perfect happiness?**
My daily hour of reading books with my 14-year-old daughter – and playing Dungeons and Dragons with her.

**What is your greatest fear?**
The decline of sanity worldwide and the abuse of power by a few persons at the wrong place.

**Which living person do you most admire?**
There are too many persons I would like to name here without one single person standing out.

**What is your greatest extravagance?**
Keeping an old, used, cheap car alive for many years, which is basically an ugly, scruffy, and uninspired wreck.

**What are you most proud of?**
My two daughters.

**What is your greatest regret?**
Despite not being a "dinosaur scientist"? Probably trusting a person with a dark triad.

**What is the quality you most admire in people?**
Being able to laugh about oneself.

**What do you consider the most overrated virtue?**
True virtues can never be overrated.

**What is your favorite occupation (or activity)?**
Except for spending time with my kids, the short boat rides to a sundowner at the nearby riverside beer garden, and picking mushrooms in fall.

**Where would you most like to live?**
Germany is an excellent place to live. South Asia during winter, however, offers even more tempting places to stay.

**What is your most treasured possession?**
A house with a river jetty and kingfishers breeding nearby.

**When and where were you happiest? And why were so happy then?**
The years of travelling Asia together with the person who was so brave to marry me later.

**What is your most marked characteristic?**
Probably a somewhat idiosyncratic humor and not taking myself too seriously.

**Among your talents, which one(s) give(s) you a competitive edge?**
I would not consider myself competitive, and no specific talent stands out. My goal is probably to attract exceptional people and support their development.

**What do you consider your greatest achievement?**
Having this incredible group of brilliant people around and hopefully being liked by at least a few of them.

**If you could change one thing about yourself, what would it be?**
My impatience, particularly with non-academic administrative colleagues.

**What do you most value in your friends?**
Their existence. And their relentless patience with me.

**Who are your favorite writers?**
This list might exceed the word limit, starting with Franz Kafka, Hermann Hesse, Astrid Lindgren, Janosch, Douglas Coupland, Stanislav Lem, John Steinbeck, Fyodor Dostoevsky, Max Tegmark, Yuval Harari, Michel Houellebecq, Virginia Woolf, Haruki Murakami, Gabriel García Márquez, Albert Camus, Douglas Adams, ...

[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. Multiple other historical and contemporary figures have answered the Proust Questionnaire, such as Oscar Wilde, Karl Marx, Arthur Conan Doyle, Stéphane Mallarmé, Paul Cézanne, Martin Boucher, Hugh Jackman, David Bowie, 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.


https://doi.org/10.61373/bm024k.0019

**Who are your heroes of fiction?**
Land-surveyor K., Pippi Longstocking and Ronja the robber's daughter, Siddhartha, HAL9000, Marvin the robot, Harry Haller.

**Who are your heroes in real life?**
My grandma, the strongest and wisest person ever walking this planet.

**What aphorism or motto best encapsulates your life philosophy?**
Odi et amo. Quare id faciam, fortasse requiris. Nescio, sed fieri sentio et excrucior. (Catullus 85)

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