

## Stefan R. Bornstein: Stress, diabetes, and depression

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**Professor Stefan Bornstein currently serves as the Chair of Medicine at the University of Dresden, Germany and Transcampus Dean at King's College London, UK. His extensive experience in the United States and Europe has equipped him with unparalleled expertise, particularly in diabetes and endocrinology. Professor Bornstein has authored over 700 publications, garnering more than 100,000 citations with an impressive h-index above 120. His work is frequently featured in journals such as the *New England Journal of Medicine*, *Nature*, and *Science*. Professor Bornstein's contributions extend beyond academia into influential leadership roles, such as founding the first European Transcampus between King's College and the University of Dresden and initiating the German Australian Institute of Translational Medicine. His achievements have earned him numerous awards, including the Order of Merit of Germany (Bundesverdienstkreuz 1. Class), the highest state distinction in Germany, the Medal of Honour of the University of Dresden, and membership in both the European and German Academies of Sciences. In 2023 Professor Stefan Bornstein became a member of the Freedom of the City of London, in recognition of both his individual contributions and the success of the TransCampus project. Honorary citizenship of London has existed since the 13<sup>th</sup> century and originally enabled recipients, who were also required to join a Livery company, to carry out their trade in London. Whilst this practical element no longer applies, the City of London has maintained the Freedom as a living tradition. These accolades reflect his exceptional contributions to medical science and education. We are privileged to share Professor Bornstein's answers to the Genomic Press Interview with our readers.**

### Part 1: Stefan R. Bornstein – 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 was raised in Europe in a family with diverse backgrounds in the aftermath of the Second World War. My life has been influenced by the history of my parents and grandparents, who suffered from being persecuted in the Nazi era, because they were Jewish. On the other hand, I was raised in a mountain area in the southern part of Germany, one of the most beautiful areas of Europe. My fascination for medicine and research was raised early by a passion for nature, biology, and the understanding of the complex systems in the human body. I had the opportunity to study medicine in different countries, including Germany, Israel, the United Kingdom, and the United States, which provided me early points with the advantages and challenges of learning from different educational systems. Early on, and especially with my late first wife, Monika Ehrhart-Bornstein, a prominent basic scientist in neurobiology, I learned to develop an interest in bridging various disciplines. Falling in love with the hypothalamic-pituitary-adrenal system and its interactions with the sympatho-adrenal system helped me to focus on an area bridging the complex and integrating interaction of metabolism, hormonal regulation, the brain, and



**Figure 1.** Stefan R. Bornstein, MD, PhD, FRCP, MAE, Universitätsklinikum Carl Gustav Carus, Technische Universität Dresden, Germany.

the cardiovascular system. My entire career has benefitted tremendously from understanding and living the complex cybernetic models of positive and negative feedback regulation in endocrine systems. Understanding the micro-milieu and microenvironment of cells in organs and entire organisms helped me establish and develop new gene and cell therapy therapies.

In addition to giving new direction to a scientific field and establishing new diagnostic and therapeutic pathways, I was particularly fascinated by building academic structures in science and medicine. One of these structures includes a new strategic partnership among European universities, comprising excellent institutions such as the King's College in London, Technical University in Dresden, and the ETH in Zurich, among others. This model of transCampus received wide recognition and helped to force meaningful research collaborations, new interdisciplinary comprehensive research centres, and the training of MD and PhD students. I have always found my career's most rewarding and exciting to dedicate time and energy to helping my patients and opening doors for the next generation.

**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?**

It was tough to decide whether to accept an endowed chair on a narrow topic like adrenal cancer in a prominent US University or the position of chair of medicine with a large faculty and broad responsibility in a less prominent German University. However, there is no right or wrong in these



decisions: you have to listen to your gut feeling and your inner voice. You can do it if you are dedicated, motivated, and convinced of yourself!

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

Endocrine stress regulation represents a complex understanding of basic physiology and clinical medicine. Therefore, it helped me develop an integrated view of biomedicine.

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

My ultimate goal is to translate my work to the patient, the clinic, and society.

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

Undoubtedly, we all have to learn to use, manoeuvre, and master the challenges and advantages of artificial intelligence (AI) for our future work. This involves diagnostics, advanced therapy, daily care, and maintenance of high standards with more limited personnel.

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

Drive, persistence, and enthusiasm.

**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 deeply stirs your passions?**

Making a difference in modern medicine requires integrating cultural and ethnic differences. As we have learned in the pandemic, acknowledging the fact that we are living in a global village where a disease or virus does not respect any borders, while at the same time understanding the biology of different genetic backgrounds remains an exciting task for the future.

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

If you concentrate on your success, you promote only one career. However, if you promote your students, staff, and colleagues, you truly build a legacy.

**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?**

In nature, with friends and family.

**Part 2: Stefan R. Bornstein – Selected questions from the Proust Questionnaire<sup>1</sup>**

**What is your idea of perfect happiness?**

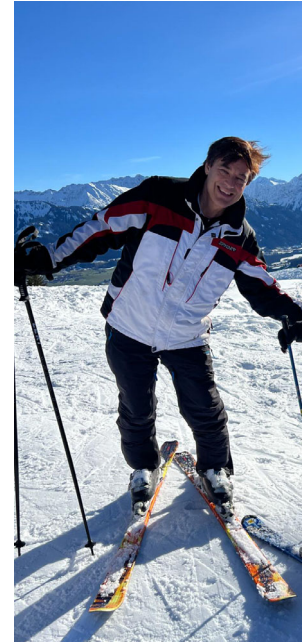
The perfect notion of happiness remains for me to look back on an interesting and productive life and say I found satisfaction and joy in what I have been doing.

**What is your greatest fear?**

My greatest fear is clearly to live longer than my children.

**Which living person do you most admire?**

Historically, the most impressive person for me is King David, a self-made man who was not afraid of anything and even of challenges that he could not expect to overcome but who captured a sense of love, music, and passion. The living person I most admire is my dear colleague Andrew Schally, one of the Nobel Prize winners in Physiology or Medicine who, even in his advanced age, keeps his energy and passion for his work and for science.



**Figure 2.** Stefan Bornstein skiing in the Alps.

**What is your greatest extravagance?**

Indeed, I have remained a child throughout my entire adulthood to this day.

**What are you most proud of?**

I have the capacity and strength to reinvent myself and look into the future positively.

**What is your greatest regret?**

I have a few regrets, but there are too few to mention.

**What is the quality you most admire in people?**

Keeping a positive spirit and persistence.

**What is the trait you most dislike in people?**

Procrastination.

**What do you consider the most overrated virtue?**

Always stay within the rules, especially if it becomes evident that they are inappropriate.

<sup>1</sup>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 your favourite occupation (or activity)?**

Skiing in the deep powder of fresh, untouched slopes in the high alpine mountains (see [Figure 2](#)).

**Where would you most like to live?**

In a mountain cottage.

**What is your most treasured possession?**

My wife, Nitzan, and my family.

**When and where were you happiest? And why were so happy then?**

The rare moments are when the entire family and best friends come together in a good spirit and time.

**What is your current state of mind?**

My wife always says that I am the only person she knows who changes from a depression-like state to a mania-like state within 15 minutes.

**What is your most marked characteristic?**

A continuous ability to move forward and keep a drive and passion for new challenges and ideas.

**Among your talents, which one(s) give(s) you a competitive edge?**

I have a gift for languages and have become multilingual, achieving fluency in several languages. This skill provides me with a distinct advantage in our era of global collaborations. Additionally, I have the capacity to grasp complex and unconnected relationships in science and beyond rapidly and then provide a clear synthesis.

**What do you consider your greatest achievement?**

Bringing together disciplines, fields, and ideas across institutions and national borders.

**If you could change one thing about yourself, what would it be?**

Being more patient.

**What do you most value in your friends?**

Loyalty.

**Who are your favourite writers?**

The Bible. Johann Wolfgang Goethe. And Heinrich Heine.

**Who are your heroes of fiction?**

Frank Kafka and Daniel Silva.

**Who are your heroes in real life?**

I do not have any heroes in real life because heroes die too early.

**What aphorism or motto best encapsulates your life philosophy?**

I am impressed by Shimon Peres's aphorism in his biography: "You are young as long as your ambitions for the future are bigger than your memories of the past."

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