

29 October 2026

In acceptance of the inaugural SANS Distinguished Service Award

Curiosity and Happenstance: My Neuroscience Journey

Receiving the South African Neuroscience Society (SANS) Distinguished Service Award is indeed an honor. It got me thinking of the roads I've travelled to get here. But more importantly the chance meetings and inspirational moments, the opportunities taken or not, and the potholes, T-junctions and detours along the way. The journey seems ordinary, but there is a story to tell, one that may inspire young neuroscientists. Where does one start? My answer is simple: follow your curiosity.

I took an interest in psychopharmacology under the tutelage of Prof. Ben Potgieter while studying pharmacy at Rhodes University. During my defense force national service in the mid 80's, I did a BSc Hons program in pharmacology at the Potchefstroom Universiteit vir Christelike Hoër Onderwys (PUCHO), now North-West University. This is where Prof. Johan Offermeier's lectures started me thinking about the serendipitous discovery of lithium in 1949 for bipolar disorder. At the time, and today still, lithium remains the treatment of choice for bipolar disorder, yet its mode of action is an enigma. My curiosity gene was triggered!

I relocated to Cape Town in 1986, grabbing an opportunity to work as a pharmacist at Tygerberg hospital. I didn't know it then, but this decision would be critical in my life's journey. I was actively involved in ward rounds at the Department of Psychiatry where my ideas around lithium research and undertaking an MSc took root. I learned of the South African Medical Research Council (SAMRC) Unit for the Neurochemistry of Mental Diseases (UNMD) and approached the Director, Prof. Frans Taljaard, with my lithium ideas. I think he liked them, as he introduced me to Dr. Machteld Carstens and Prof. Vivienne Russell who would be instrumental in shaping me as a young neuroscientist. Due to my work at Tygerberg Hospital, my laboratory work needed to be undertaken after hours; that took commitment. Here, I was privileged to work alongside other young "hotshot" neuroscientists such as Willie Daniels.

Suffice it to say, my MSc work on lithium and the role of cyclic nucleotide second messengers led to a PhD, where nitric oxide (NO) became part of the story. Nitric oxide had just been discovered and characterized as the unknown factor that activated the guanylyl cyclase-cyclic guanosine monophosphate (cGMP) pathway and an important player in the immune system. NO took hold of the neuroscience community, especially its role in glutamate signaling; it was the next biological target. For me, it connected the dots to help unravel lithium's mode of action. Its discoverers would win the Nobel Prize in Physiology or Medicine in 1988. But I wasn't chasing prestige; I was chasing understanding.

I attended the first SANS meeting in 1988 and would become one of the inaugural members of SANS. Little did we know that SANS would grow to the heights that it has attained today. I obtained my PhD, full of enthusiasm for a career in neuroscience. But it was 1993, and challenges were on the way. Shortly afterwards, the UNMD closed.

I was devastated. With no recourse, I accepted a move to the SAMRC Center for Molecular and Cellular Biology that focused primarily on tuberculosis research. There Prof. Paul van Helden requested that I utilize my skills in NO research to study the role of NO in TB resistance. It was a drastic but necessary move; it was way out of my field of expertise. Nevertheless, I accepted the offer gratefully. But this is where I first saw how pro-inflammatory messengers like NO and the immune system are connected to the neural networks relevant to anxiety and stress disorders that I'd studied during my MSc and PhD. Indeed, neuroinflammation would later become the center of much of my research. In the meantime, I sent my CV to various pharmaceutical companies.

In mid-1994, I was appointed neuroscience specialist at Eli Lilly to drive the marketing of new blockbuster drugs in psychiatry: fluoxetine (Prozac™), olanzapine (Zyprexa™), and duloxetine (Cymbalta™). I had a new lease on life. It was exciting, albeit demanding. Another critical T-junction, where a choice guided by curiosity would lead to bigger things. Throughout this time, and with my focus on the above medicines, my passion for biological psychiatry began, especially around major depressive disorder (MDD), obsessive compulsive disorder (OCD), posttraumatic stress disorder (PTSD) and schizophrenia. Nitric oxide remained of great interest. I also learned about the drug discovery and development process. That stuck with me. I met opinion leaders who (unbeknownst to me then) would feature prominently in my research career: Prof. Dan Stein, Prof. Robin Emsley, and Prof. Michael Berk. Despite the new world that opened, I did not see this as a career. Industry showed me what's possible, but my heart was in academia. In late 1997, I was offered a position at NWU. This was a dream come true, but I had to sacrifice Cape Town for it. Again, decision time.

I held my breath and in 1998 relocated with my young family to Potchefstroom. NWU offered me a clean slate to build a behavioral neuroscience laboratory. With my interests, skills and connections developed at Eli Lilly, I set about establishing behavioral screening assays in rodents. To emulate the complex human condition, and to allow my research to be more translational, I hooked up with a leading figure in neuroscience, Dan Stein, then at the SAMRC Unit on Anxiety and Stress Disorders, later the SAMRC Unit on Risk and Resilience in Mental Disorders. My first translational animal model emphasized time dependent sensitization to model PTSD (2003). Shortly thereafter, Dan and I conceived of the idea to characterize the deer mouse, a rodent species that presents with a unique array of stereotypic and compulsive-like behavior, as a model of OCD (2008). In 2005, Prof. Gregers Wegener (University of Aarhus, Denmark) and I established a genetic animal model of MDD, the Flinders Sensitive Line (FSL) rat. In 2011, I set up the post-weaning social isolation and maternal inflammation models of schizophrenia, and a productive collaboration with Robin Emsley began. These models were later instrumental in collaborations with Michael Berk (Deakin University, Australia) investigating repurposed medicines such as N-acetylcysteine and trimetazidine for bipolar disorder, and with major pharmaceutical companies like Servier, Boehringer-Ingelheim, Merck, and Orion, working on circadian rhythm modulators, AMPAkinases, and alpha 2c antagonists, respectively, for mood and anxiety disorders, and schizophrenia.

My career that began in the 1980's with NO, a prooxidant messenger, has since traversed the realms of redox and inflammation processes for novel drug development. Natural progression prompted a digression into new phytoceuticals, viz., *Sceletium tortuosum* an indigenous San medicine, and mangosteen, an Australian fruit. Our work on mangosteen with Michael Berk has moved to clinical studies, while our work on *Sceletium* with HG&H Pharma is moving in that direction. To illustrate what kind of rabbit holes I've been prepared to dive into to appease my curiosity, my work in the veterinary field is an example. Still within the field of stress disorders, an unexpected and uplifting opportunity was a study undertaken with veterinarians at Onderstepoort, University of Pretoria, involving a field trip to the Kruger National Park. We studied the neurochemistry of drug and/or physical immobilization in wildlife (crocodiles and rhinoceros; see photograph) and its association with capture myopathy, a potentially lethal complication of capture stress. The project also prompted the development of an animal model of this condition. In recent years I've turned my interest towards patenting novel compounds for psychotropic drug development. We have one promising compound for MDD where early preclinical studies using our translational models demonstrate not only a novel mode of action but distinct improvements in certain symptom domains compared to current treatments.

Recognition by the South African Academy for Arts and Science, the National Science and Technology Forum, and National Research Foundation are fulfilling, but receiving this award from SANS is both rewarding and humbling. Looking back, the path was not straight. It was full of doubts, excitement, setbacks, and surprises, but all done with purpose. I've met and worked with amazingly skilled people who taught me such a lot, talented students that enabled my work, and colleagues that tolerated my rather eclectic approach to research. I commend them.

My advice to the next generation? Follow the question that won't leave you alone. Find mentors who take that question seriously, be open to unexpected collaborations, and let your career bend in ways you didn't plan. And stay curious.

A handwritten signature in black ink, appearing to read 'Brian Harvey', with a stylized flourish extending from the end.

Prof. Brian. Harvey



Photograph: How curiosity can take a neuroscientist to interesting and unexpected places

The author, in the Kruger National Park, while undertaking the capture myopathy work described in the article. This rhinoceros was safely released to the Park after recovering.