

Dr. Grace has been involved in translational research related to the dopamine system and schizophrenia for over 30 years. Indeed, his first project as a graduate student examined the actions of repeated antipsychotic drugs on dopamine neuron firing, which led to the discovery of dopamine neuron depolarization block as a potential mechanism for antipsychotic drug action. His early work pioneered the identification and characterization of dopamine-containing neurons, and was the first to provide a means to quantify their activity state and pattern in a way that is the standard in the literature, all while working as a graduate student. His current work involves looking at the interactions of several brain regions with known involvement in psychiatric disorders and drug abuse, including the hippocampus, prefrontal cortex, and amygdala, and how these interactions are disrupted by stress. His most recent work has used the MAM developmental model of schizophrenia, which was developed in his lab. Using this model, he found that the hyperdopaminergic state believed to be present in schizophrenia appears to be a direct result of overdrive of the dopamine system by the hippocampus. Moreover, this is driven by a loss of function in parvalbumin interneurons, which also is responsible for disruption of gamma rhythmicity. Using this model, his lab has now advanced novel GABAergic drugs that may be effective in the treatment of schizophrenia. The work from Tony's lab led to several awards, including the Paul Janssen Schizophrenia Research Award and the Lilly Basic Scientist Award from the International College of Neuropsychopharmacology, the Efron Award from the American College of Neuropsychopharmacology (both prestigious organizations in this field), as well as a NIMH MERIT award, a Distinguished Investigator award from the National Alliance for Research in Schizophrenia and Depression, and the Judith Silver Memorial Investigator Award from the National Alliance for the Mentally Ill. Because of his strong interest in schizophrenia, Tony has been active as a member of the scientific advisory board for the International Congress for Schizophrenia Research for 12 years, and has been on the advisory board of the Schizophrenia Research Forum and the Schizophrenia International Research Society since their inception. He is also a member of the governing council of the American College of Neuropsychopharmacology and editor on numerous leading journals in the field.

Tony's work has had a substantial impact on the field that has spanned basic neuroscience and clinical research. His work is unique in providing a systems neuroscience approach to the understanding of complex psychiatric disorders in humans. Most significantly, he is one of a handful of individuals that not only performs important basic research, but has the ability to integrate this work into testable models of relevance to the human condition.