

## Theo Palmer, Ph.D.

MIND Institute Distinguished Lecturer Series – March 8, 2017

### Biographical Information

Dr. Theo D. Palmer received his doctorate in Experimental Pathology from the University of Washington, where he developed several of the first retroviral gene transfer vectors to be used in human gene therapy. His postdoctoral studies at the Salk Institute included the discovery that neural stem cells were present in the adult brain and continue to generate new neurons throughout life. His ongoing work at Stanford University's School of Medicine continues in the field of stem cell biology and regenerative medicine and focuses on the use of human stem cells for discovering and treating the underlying causes for several neurological disorders. Dr. Palmer is the Founder and Director of the Stanford Interdisciplinary Graduate Program in Stem Cell Biology and Regenerative Medicine and has received numerous awards for his research and teaching in stem cell biology. Awards include the Blume Award in Parkinson's disease Research, the Curci Foundation award in Stem Cell Research, a Grass Lectureship from the Grass Foundation, the Mitsubishi Award for Stem Cell Research, and the Margot Anderson Wings of Hope Award from the Margot Anderson Foundation.

### Presentation Abstract (4:30pm presentation)

#### *Unexpected Relationships between Autism Genes and Maternal Illness during Pregnancy*

Dr. Palmer's current research seeks to understand how genetic and environmental factors interact to influence neural stem cells in the developing and adult brain. In addition to his work in human stem cell-based models of Parkinson's and Alzheimer's disease, the largest efforts of the Palmer Lab are to more fully understand the causes of neurodevelopmental disorders such as autism or schizophrenia. His team has discovered in mice that illness or infections during pregnancy can deregulate neural stem cell activity in the developing fetal brain. These changes ultimately lead to alterations in brain anatomy, deficits cognition, and abnormal social behavior in offspring. Investigators in the Palmer Lab have also discovered that certain genetic risk factors dramatically increase the vulnerability of the developing child to even mild maternal immune events. Dr. Palmer will present findings on one gene, *GABRB3*, that is associated with autism spectrum disorders and he will describe how this gene acts within the mother, placenta, and fetus to synergistically worsen the impact of a maternal illness on the developing fetal brain.