

Martin Grumet, Ph.D.

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Dr. Martin Grumet is Professor of Cell Biology & Neuroscience at Rutgers University. He obtained a doctorate (1980) in Biophysics from The Johns Hopkins University and did his postdoc at the Rockefeller University with the Nobel Laureate Dr. Gerald M. Edelman where he rose to the rank of Assistant Professor. In 1990, he moved in the Dept. of Pharmacology at NYU Medical Center as an Associate Professor where he worked on nervous system development and neurological disorders including brain tumors, and he received tenure in 1996. Dr. Grumet designed and employed various assays to discover, purify and molecularly clone several adhesion molecules in the nervous system; then he employed models

e.g., knockout mice to characterize their functions. He was recruited in 1999 by Dr. Wise Young, the founder of the W.M. Keck Center for Collaborative Neuroscience, to help lead its research in spinal cord injury. His lab has isolated clones of neural stem cells that after transplantation in the injured mammalian spinal cord, improved recovery from spinal cord injury. With a view towards the clinic, he has developed techniques for delayed delivery of small molecules (e.g. siRNAs) and stem cells to the cerebrospinal fluid by minimally-invasive lumbar injection that resulted in functional improvements after spinal cord injury. In collaboration with bioengineers at Rutgers, he delivered alginate encapsulated mesenchymal stem cells to the injured spinal cord, that reduced the inflammatory environment of the injury, protected the spinal cord, and improved recovery from the injury.

During his training, Dr. Grumet received an NIH Post Doctoral Fellowship followed by an Irma T. Hirsch Career Scientist Award. His work has been supported almost continuously by numerous grants from NIH beginning in 1981, as well as from the National Science Foundation, National Multiple Sclerosis Society, Children's Brain Tumor Foundation, American Paralysis Association, New Jersey Commission on Science and Technology, and the New Jersey Commission on Spinal Cord Research. His research has been supported by collaborations with industry including Acorda Therapeutics Inc., Quark Pharmaceuticals Inc., Brainstorm Cell Therapeutics, and Bristol Meyers Squibb. He has collaborated widely with scientists in the US as well as in England, France, Germany, Israel, and Japan, and he has published over 110 articles in leading journals.

Discussion Topic: Encapsulated human MSC secrete factors in vivo that are anti-inflammatory & promote recovery after spinal cord injury. We will describe survival and secretion from encapsulated human mesenchymal stem cells (ehMSC) and their responsiveness to inflammatory stimuli. Minimally invasive lumbar delivery of ehMSC after spinal cord injury shifts the milieu to be less inflammatory with fewer pro-inflammatory and more anti-inflammatory macrophages, resulting in improved tissue sparing and function.