Research Review

Physicians and scientists at St. Joseph's are working to enhance clinical procedures and treatments that will benefit the community's health. Here are a few of the many important research projects in progress at St. Joseph's:

- For more than 40 years, a scientific controversy has raged over whether microsaccades, rapid eye movements that occur when a person's gaze is fixated, are responsible for visibility. Dr. Susana Martinez-Conde and her colleagues at Barrow have recently resolved the debate, establishing that microsaccades are indeed responsible for driving 80 percent of our visual experience. Dr. Martinez-Conde's lab established the vital role of microsaccades in vision by measuring fixational eye movements in subjects whose gaze was concentrated on one object. Not only does this new discovery resolve a scientific debate, it also brings new hope to patients who are blind much of the time due to fixational eye movement problems.

Dr. Susana Martinez-Conde and her colleagues recently resolved a scientific debate over rapid eye movements.

- Ruolan Liu, M.D., Ph.D., a post-doctoral fellow at Barrow, recently received a three-year career development fellowship of $135,000 from the Muscular Dystrophy Association. This prestigious award will fund Dr. Liu's investigation of natural-killer-T (NKT) cell treatment for Myasthenia Gravis (MG) and other autoimmune diseases. In her initial experiments, Dr. Liu discovered that an agent found in sea sponges can activate NKT cells, which are specialized cells of the immune system. Further research showed that the agent enabled NKT cells to produce a protein that allowed the cells to suppress MG when induced experimentally in mice. These research findings were published in December 2005 in *The Journal of Immunology*.
- Young-Huen Jee, Ph.D., a post-doctoral fellow at Barrow, recently received a $50,000 fellowship award from the Hob Family Foundation to support her research of treatment for Multiple Sclerosis (MS). When she joined Barrow's Neuroimmunology Laboratory in March 2005, Dr. Jee began testing the effect of Copaxone in mice without specialized immune system proteins that help eliminate disease. Surprisingly, she found that the drug protected them from becoming afflicted with Experimental Autoimmune Encephalomyelitis, a form of MS. Her current results suggest that Copaxone's ability to prevent EAE occurs largely through its effect on regulatory T cells, which are specialized cells of the immune system.