

Public release date: 22-Aug-2007

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Barrow researcher receives grant to study fixational eye movements

Susana Martinez-Conde, Ph.D., director of the Laboratory of Visual Neuroscience at Barrow Neurological Institute at St. Joseph's Hospital and Medical Center, recently received a three-year grant worth \$426,000 from the National Science Foundation to study fixational eye movements.

Dr. Martinez-Conde and her research team at Barrow will record neural activity in visual areas of the brain to find out why images appear perceptually stable during fixation. Humans produce small eye movements several times per second every time they fix their gaze. Without fixational eye movements, humans would become blind to stationary objects due to a brain process called neural adaptation. Fixation occurs 80 percent of the time during visual exploration. Therefore, fixational eye movements are responsible for driving most of our visual experience.

"We will study the mechanisms responsible for producing stable perception when we fixate our gaze," says Dr. Martinez-Conde. "This will help us to determine at what level of the brain visual perception becomes stable."

Dr. Susana Martinez-Conde and Stephen Macknik, Ph.D., director of Laboratory and Behavioral Neurophysiology at Barrow, authored the cover story of the August 2007 issue of Scientific American, which describes their profound research on microsaccades and fixational eye movements.

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