Barrow researcher receives grant to study flicker fusion

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By St. Joseph's Hospital and Medical Center

Stephen Macknik, Ph.D., director of Laboratory and Behavioral Neurophysiology at Barrow Neurological Institute at St. Joseph’s Hospital and Medical Center, recently received a Competitive Advantage Award worth $120,000 from the Science Foundation of Arizona. Dr. Macknik is one of 10 biologists in Arizona who was selected to receive the one-year grant.

Dr. Macknik will use the grant to study flicker fusion to help develop safe brain products for people with epilepsy and other neurological conditions. Flicker fusion is a process that allows the eyes to perceive flickering data as continuous images. Computer screens, televisions and other forms of artificial lighting are estimated to flicker approximately 60 times per second.

Dr. Macknik and his research team have discovered that the brain can follow the flicker of lights but the eyes are unable to see it because of inhibition circuits in the brain.

The grant will help Dr. Macknik predict new visual illusions that may exist and investigate a process to make the flickering seem stable to the brain.

"Many people with epilepsy are unable to fully function in a normal work environment because of the flicker in artificial lighting," says Dr. Macknik. "The grant will allow us to research how the flickering occurs and how to make it appear steady."

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