

mouse model for RS, researchers instead traced the source of erratic breathing to the medulla, in the breathing center itself. Many neurons that arise in the medulla project to other targets in the brain, which may explain why many other functions are affected. Funded by the Rett Syndrome Research Foundation, the research was published Dec. 14, 2005, in the *Journal of Neuroscience*, with Ramirez as lead author.

Ramirez's team also found a significantly decreased amount of the neuromodulator norepinephrine in the breathing center. When his team added norepinephrine to the isolated breathing center, the breathing pattern normalized. "It became exactly as regular as the control. This was amazing," he said. "This experiment shows that the breathing problem can potentially be treated because you can compensate for the missing neuromodulatory drive."

The researchers also suggest that the nervous system initially may compensate for the loss of norepinephrine, which may explain why breathing appears normal at the behavioral level. However, the norepinephrine deficiency eventually disturbs other neuromodulators, including serotonin and substance P. Other systems become disrupted, setting off a cascade of physiological problems in the developmental and autonomic systems.

The team included scientists from Centre National de la Recherche Scientifique, Université de la Méditerranée, Instituto Politécnico Nacional, Northwestern University, Hôpital d'Enfants de la Timone and the Medical College of Wisconsin. While some researchers worked with brain tissue, others worked with the RS mouse model.

In 1999, a team of scientists in Texas, led by Huda Zoghbi, located the mutated RS gene MECP2 on the X chromosome. Exploring how this gene leads to disturbance of norepinephrine is "obviously one of the next issues that needs to be addressed in our experiments," Ramirez said.

Using the animal model, Ramirez and his colleagues plan to start screening

NOTEWORTHY

Eugene B. Chang, MD, the Martin Boyer Professor of Medicine, has been appointed one of 16 members of the new National Commission on Digestive Diseases by Elias A. Zerhouni, MD, director of the National Institutes of Health. The commission is charged with developing a strategic plan for the next 10 years of NIH-funded research on digestive diseases. Chang studies the biological basis and novel treatment strategies of inflammatory bowel disease. His research involves the study of host-microbial interactions that play a role in bowel health and disease.

Rex Haydon, MD, PhD, assistant professor of surgery and director of the molecular oncology lab and **Tong-Chuan He, MD, PhD**, assistant professor of surgery, were awarded the 2006 Kappa Delta/OREF Ann Doner Vaughan Award for "The Distinct Roles of Bone Morphogenetic Proteins in Mesenchymal Stem Cell Differentiation." Haydon and He, as well as **Hue Luu, MD**, also are the recipients of the Marshall Urist Young Investigator Award, given by the Association of Bone and Joint Surgeons. He also joins **Jonathan Staley, MD**, assistant professor of molecular genetics and cell biology, as recipients of the American Cancer Society, Illinois Division, Stephen F. Sener, MD, Research Scholar Award. Each will receive \$500,000 in research funding.

Vinay Kumar, MD, chairman and the Alice Hogge and Arthur A. Baer Professor of Pathology, received the first prize in the British Medical Association Medical Book Competition in the basic and clinical sciences category.

Jonathan Silverstein, MD, assistant professor in surgery and director of the Center for Clinical Information, was appointed associate director of the Computation Institute.

David Song, MD, associate professor of surgery and chief of plastic and reconstructive surgery, was named one of the "40 under 40 2005" in *Crain's Chicago Business*.

Tobin Sosnick, PhD, associate professor of biochemistry and molecular biology, received the HHMI-NIBIB Interfaces Initiative 2005 Award from the Howard Hughes Medical Institute and National Institute of Biomedical Imaging and Bioengineering.

Wei-Jen Tang, PhD, associate professor in the Ben May Institute for Cancer Research, received an award for more than \$440,000 from the National Institute of Allergy and Infectious Diseases for his efforts to develop therapies to block the action of anthrax edema factor, a toxin that produces severe swelling, tissue damage and death in human cells.

commercially available medications for erratic breathing, looking at drugs that affect norepinephrine and serotonin. For example, Prozac, which treats depression, boosts serotonin levels, while prescription drugs for attention deficit hyperactivity disorder boost serotonin and norepinephrine levels. (Substance P, located in the same nerve cells as serotonin, also will be affected.)

Ramirez said he is eager to discover whether treating erratic breathing will affect other problems associated with RS. "Norepinephrine, serotonin and substance P are involved in many other functions,

including motor control, which may help with handwringing or, if we are lucky, possibly also walking. And by understanding any of these neuromodulators, we'll better understand a lot of childhood disorders," he said.

That includes SIDS, another focus of Ramirez's research. Working with mouse tissue slices, he and colleagues discovered that pacemaker cells, a type of neuron, control gasping. These findings were published last year in the journal *Neuron*. Recently, University of Bristol researchers got the same results using rats.