

# erocurrent

Monthly newsletter from the **epilepsy** RESOURCE CONNECTION

## Neuron Hubs Offer Insight Into How Epilepsy Develops

An increased number of neuron "hubs" in the epileptic brain may be the root cause for the seizures that characterize the disorder, according to a UC Irvine study.

Researchers Robert Morgan and Ivan Soltesz with the Department of Anatomy and Neurobiology identified that these hubs - a small number of highly connected neurons - are formed in the hippocampus during the transition from a healthy brain to an epileptic one. The increased number of connections among these hubs, they found, circulate and amplify signals to such a degree that they overwhelm brain networks, leading to epileptic seizures.

The study appears in the *Proceedings of the National Academy of Sciences*.

"The structure of the epileptic brain differs substantially from that of a healthy one, and our discovery of this hub network offers insight into how epilepsy may develop," Morgan said. "By establishing therapeutic measures that can selectively target these hub cells, we may be able to create a treatment for epilepsy."

The researchers used a computer model of a moderately injured hippocampus - the brain region involved in many forms of epilepsy - to create the signaling networks that mimic an epileptic brain, and they found that one featuring a greater number of neuronal hubs promoted the onset of seizure.

By comparing this model with previous animal model studies of epilepsy, they identified these hubs as the network conduits for seizures. Soltesz said that previous studies revealed the existence of these hubs but did not define their role.

"This study is a great example of integrating data from biomedical informatics with basic and clinical research to advance the effort to understand and potentially treat disease and disorders like epilepsy," added Soltesz, who is chair of the anatomy and neurobiology department and a member of UC Irvine's Epilepsy Research Center.

Epilepsy affects more than 2 million individuals of all ages in the U.S. alone and at least 50 million worldwide. It is characterized by the occurrence of spontaneous, unpredictable seizures, which can interfere with daily life, be dangerous, and lead to death of some brain cells. While much information is available about the abnormal communication of neuronal networks in epilepsy, the basic mechanisms, involving both genetic and acquired elements, are not fully understood. ✦ UNIV. OF CALIFORNIA - IRVINE

## Adult Epilepsy Support Group

Group Meets Second Tuesday of the month.

LOCATION: 2919 West Second St, Wichita • TIME: 5:00 PM



April 8: Group Choice  
May 14: Addressing Stigma

## Advocate Represents Kansas

*Seventh-grader Libby Heflin, of Haysville, KS, was recently chosen to participate in The Epilepsy Foundation's Kids Speak Up! Program in Washington, D.C., during March. Kids Speak Up! provides a unique opportunity for children aged 7 - 16 to meet with their elected officials to advocate on behalf of persons with epilepsy. Libby was kind enough to share a little about her advocacy experience in our nation's Capitol:*

**W**e are back from D.C.! We attended the Kids Speak Up program. Kids from across the U.S. were chosen to go to the conference and learn how to advocate for the Epilepsy Foundation causes. We went to our representatives offices to talk about funds for the Center for Disease and the National Institute of Health; renewal of the Americans with Disabilities Act; and a new bill to fund Veterans' head injuries. We met with aides in Senators Roberts' and Brownback's offices. I got to meet Todd Tiahrt and have my picture taken with him.



Lena & Libby Heflin with Rep. Todd Tiahrt.

I met several nice people. I have at least two really good friends who I will keep in contact with through e-mails. My favorite thing about going to Washington was the beautiful cherry blossoms. I was lucky they bloomed early this year!

I am glad I applied to the program. I learned a lot about how the democratic system works. In the future, I'll continue to advocate for epilepsy causes writing letters and talking to others. It is important for people to understand how we

feel and to get money to find a cure. —Libby Heflin

EDITOR'S NOTE: For advocacy to be effective, our representatives need to hear from a cross-section of their constituents. ERC urges you to take an active role in making your voice heard. When your representatives & senators know that their voters are watching them, they tend to act favorably and get legislation passed. The best way to contact your congressperson is by e-mail or phone.

This legislation directly affects individuals with epilepsy:

- **HR 3195** To restore the intent and protections of the Americans with Disabilities Act of 1990. (Decisions and opinions of the Supreme Court have unduly narrowed the broad scope of protection afforded in the ADA, eliminating protection for a broad range of individuals who Congress intended to protect—namely persons with epilepsy!)
- **HR 2818** To provide for the establishment of Epilepsy Centers of Excellence in the Veterans Health Administration of the Department of Veterans Affairs. This bill is already cosponsored by Kansas Representatives Boyda, Moore, and Moran. ✦ GOVTRACK.US



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## Epilepsy Hospitalizations Rise After 8-Year Decline

Epilepsy-related hospitalizations, which fell from 176,000 in 1993 to 95,000 in 2000, climbed to 136,000 in 2005, according to the latest News and Numbers from the Agency for Healthcare Research and Quality (AHRQ). The recent 5-year climb represented a 43% increase. Epilepsy, a condition characterized by recurrent seizures that may include repetitive muscle jerking called convulsions, affects 1 to 2% of the population.

AHRQ's analysis also showed:

- Nearly two-thirds of the patients hospitalized with epilepsy between 2000 and 2005 were younger than 45.
- Between 1993 and 2005, convulsion-related hospitalizations increased 69% from 730,000 to 1.2 million. Patients 65 and older were more than twice as likely as younger people to be hospitalized with convulsions.
- Although epilepsy can cause convulsions, the vast majority of these convulsion cases were not epilepsy related but were rather caused by fever, stroke, infection, uremia - blood poisoning caused by kidney failure - high or low blood sugar, low blood sodium levels, and substance abuse and withdrawal.

This AHRQ News and Numbers is based on data in Hospitalizations for Epilepsy and Convulsions, 2005. The report uses statistics from the Nationwide Inpatient Sample, a database of hospital inpatient stays that is nationally representative of inpatient stays in all short-term, non-Federal hospitals. The data are drawn from hospitals that comprise 90% of all discharges in the United States and include all patients, regardless of insurance type, as well as the uninsured. ©MEDICAL NEWS TODAY

"Epilepsy is something I have,  
not something I am."



## SUMMER EPILEPSY CAMPS

### SAVE THE DATE FOR ERC Family Camp Day

ERC will hold its Family Camp Day on **Sunday, August 3**. A great opportunity for families to meet others with similar challenges, Family Camp Day offers great fun and food. Look for more information in May's *Current*; or Call (316) 943-2453.

You are invited to attend this FREE PROGRAM

## EpilepsyAdvocate L.I.V.E. Presentation

### Learning from Inspiring Voices with Epilepsy

Epilepsy Advocates invite you to learn more about epilepsy and listen to the Epilepsy Advocates as they share their inspiring stories. **The program also features a presentation from epileptologist Dr. Kore Liow.**

- ▶ Learn More About Epilepsy
- ▶ Hear an Epilepsy Advocates' Personal Story
- ▶ Hear About Treatment Options
- ▶ Meet Others Living With Epilepsy
- ▶ Ask an Epileptologist Your Questions About Epilepsy

**Wednesday, May 21, 2008**

**Registration: 6:30 PM**

**Seminar begins at 7:00 PM**

**Hyatt Regency • Wichita  
400 West Waterman**

To Reserve A Seat Call  
**1-866-865-7305**  
or visit  
[EpilepsyAdvocate.com](http://EpilepsyAdvocate.com)



Physician Presenter:  
**Kore Liow, MD**

Light Refreshments Will Be Served • Free Parking & Admission

L.I.V.E. is a program sponsored by UCB, Inc. - THE EPILEPSY COMPANY™

### REGISTER NOW FOR Camp Shing

- If you are looking for a traditional camping opportunity,
- consider the Epilepsy Foundation's Camp Shing, **June 20-22**.
- Held at the Tall Oaks Conference Center in Linwood, Kansas,
- Camp Shing welcomes the whole family.
- For more information, call (816) 444-2800.