

## HEALTH

## Scientists learn how genetic changes cause Smith-Magenis syndrome

**Special to Sentinel-Voice**  
HOUSTON — Genetic changes that cause a form of mental retardation known as Smith-Magenis syndrome have been identified by researchers at Baylor College of Medicine and Texas Children's Hospital in Houston.

This discovery, reported in the October issue of the journal *Nature Genetics*, might lead to diagnostic tests for similar genetic disorders, said principal investigator Dr. James A. Lupski, Baylor professor of molecular and human genetics and pediatrics.

Smith-Magenis syndrome (SMS) is characterized by unusual physical and behavioral characteristics.

Patients with the disorder may have short stature, heart defects, kidney problems, other

physical abnormalities and delayed development of language skills and mental abilities.

They may remain awake for prolonged periods, pull off their fingernails and toenails, insert foreign objects into their ears and nose and display other behavioral problems.

About one in 25,000 people in the United States is born with the syndrome, which can be diagnosed with a blood test.

Scientists have known that a small section on one of the two chromosomes 17 is missing in patients with SMS.

This deletion of genetic material occurs accidentally prior to conception and is not inherited from either parent. Lupski and colleagues figured out how the deletion occurs.

Normally, during the formation of the egg and sperm,

the similar regions from a pair of chromosomes exchange genetic information.

The Baylor researchers found that in patients with SMS, chromosome 17 has a section in which a cluster of genes is repeated.

Instead of matching with its complement on the other chromosome 17, this repeat gene cluster matches with its repeat on the same chromosome and deletes the adjacent genes in-between.

"About five million base pairs are deleted during this process," Lupski said.

The loss of this genetic information on just one chromosome results in the variety of physical and behavioral abnormalities seen in patients with SMS.

For the *Nature Genetics* paper, Lupski's research team

studied 31 patients at the General Clinical Care Center at Texas Children's Hospital.

Ninety percent of the patients had a section on chromosome 17 where a cluster of repeat genes had paired and deleted the region in-between.

"If other genetic disorders are found to have this same pattern of deletion, scientists should be able to develop tests that can confirm diagnosis," Lupski said.

Lupski's co-authors on the *Nature Genetics* paper are Thearith Koeuth and Drs. Ken-Shiung Chen, Lorraine Potocki, Qi Zhao, A. Craig Chinault and Cheng Chi Lee, all in the Department of Molecular and Human Genetics, and Dr. Prasad Manian in the Department of Medicine.

## Chronic exposure to violence impacts learning

**Special to Sentinel-Voice**

HOUSTON — Exposure to violence in the community or the home can impact a child's ability to learn.

"Children living with some chronic threat — domestic or community violence or physical abuse — continue to act fearful even when they are in school," said Dr. Bruce D. Perry, director of the CIVITAS ChildTrauma Programs at Baylor College of Medicine in Houston.

Chronic threat at home programs a child's brain to function in a persisting low-level state of fear. This happens, Perry says, because the brain organizes in a 'use-dependent' way.

Constant exposure to an unpredictable, threatening environment causes the brain to repeatedly activate the brain systems that respond to threat or stress. Over time, fear becomes so ingrained that it becomes the child's normal state.

The result is disastrous for children trying to learn. "No matter how hard they try to pay attention and do their work, this constant fear state impairs their ability to function and learn well," said Perry, who is chief of child psychiatry at Texas Children's Hospital.

Even though school is a structured environment, these children's brains are anticipating some potential threat.

"You can't learn if you are constantly expecting a threat," Perry said.

Boys experiencing this low-level fear state are often fidgety, easily distracted and jump at unexpected noises. Other characteristics can range from aggressiveness to apparent learning disabilities. Young girls in the fear state often appear to be in a daze or daydreaming.

"Schools can help these students by providing an environment that is predictable, consistent, safe and nurturing," he said.

For schools with students who have been exposed to chronic threat, Perry recommends:

- Limiting unexpected transitions and letting children anticipate impending changes by saying "in five minutes we will be..."
- Giving choices so that children feel a sense of control.
- Increasing a sense of belonging by encouraging membership in school or community groups or sports teams.

"Do things to give these kids some control over even the tiniest part of their lives," he said. "Being part of a school or community group helps define their identity. These children feel safer when they 'belong' to a group."

## Unseen enemy blamed for asthma

**Special to Sentinel-Voice**

You would be amazed at what you would find when examining your bed when a magnifying glass. It has been estimated that approximately 1 million dust mites live in a single pillow. The researchers at the Ohio State University Department of Anthropology say that the number may be 10 million in the average double bed. This does not include your carpet, rugs, furniture and other nooks and crannies. Plus the warmer and humid weather of spring and summer heightens the breeding of these microscopic mites.

We may all be reacting to dust mites and not even know it. Have you ever woke up with a pounding headache and a stuffy or sniffling nose? Do you ever wake up tired in the morning even though you know you have gotten enough sleep? When you wake up, do you have a sore throat or aching joints? "Those who sleep with mites can get very sick" says Dr. Thomas Platz-Mills, head of the division of Allergies and Clinical Immunology at the University of Virginia Medical Center.

Seventy-five million Americans are allergic to dust mite droppings. Average dust mites leave 20 droppings behind a day. It is the droppings that are causing the asthmatic and allergic reactions. Dust mite droppings have been called the single most allergic substance in the house. Allergy shots, once thought to be a good treatment, are no longer favored according to the latest *New England Journal of Medicine*.

Center for Disease Control says that asthma and death of asthma has risen 65% since 1982. There are 14.6 million asthmatics in this country today. Of those, 4.8 million are children. Today asthma has become the leading chronic illness in children under 18 years old. In only ten years asthmatic cases have jumped from 40 to 63 per 1000 children. Yet at the same time, the substances that are in the air that trigger asthma, such as automobile pollutants, has dropped. Dr. Michael Blaze of the University of Tennessee, reports from an English study that children who are exposed at an early age to high concentrations of dust mites are five times more likely to develop asthma.

Dust Mites are only one of the environment causes of allergies, asthma and respiratory problems. The American Lung Association says that more people are killed every year from particle pollution, including smog, than were killed during the entire Vietnam War.

What is the answer — Organic Sulfur. Organic Sulfur is the fourth most abundant mineral in our body. Sulfur does a number of functions including holding our body, tendons, ligaments, joints, skin and cartilage together. Without sulfur, vitamin C and E would quickly degrade and would not be able to do anything for us. Also sulfur activates essential enzymes, antibodies and hormones including insulin. You can't grow your fingernails or even digest your food without it.

Our human body has a natural defensive system that manufactures a special sulfur compound that will attach itself to the attacking toxin, neutralize it, then sweep it out of the body. This process is called conjugation of a toxin. Every time our body removes this invading toxin it loses that special sulfur compound forever. "The problem is American's present diet doesn't furnish this essential sulfur to replace the one used to remove the toxin from our body" says Dr. Earl Mindell, Ph.D., R.Ph., the number one Nutritionist in America and the world's leading expert on vitamins, dietary supplements and nutrition and the author of the *Vitamin Bible*.

Methylsulfonymethane (MSM) is the vital dietary source of sulfur that is found in our living tissues. This good sulfur is found in raw fruits and vegetables, seafood, non-pasteurized milk and raw meat. "However, due to the methods we prepare our food today, the MSM evaporates by the time we consume it," says Dr. Mindell.

"We just don't take in enough of high quality good sulfur," states Dr. Mindell.

MSM has received 16 U.S. patents. The patents explicatively state that "too low of body concentration of MSM causes adverse physical and psychological stress, tissue and organ malfunction, fatigue and increase susceptibility to disease." Furthermore, it concludes that "there is a direct link between our MSM levels and resistance to allergies."

Years of clinical evidence with cases of allergies reported substantial to complete relief from symptoms of allergies to things as diverse as pollens, wool, animal hair, feathers and even dust mites when individuals take MSM supplements. MSM has been documented in a number of studies that individuals who were not able to eliminate their asthma or allergy medication were able to severely reduce the dosage. Also, people on MSM dietary supplements have greatly decreased the use of antihistamine injections. MSM also helps to soften the tissue in the lungs and can help emphysema, along with helping individuals reduce back pain as reported in the *New York Academy of Science*. For more information of MSM, call (800) 525-7710.

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