

Haywire brain chemical linked to SIDS

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The Associated Press

WASHINGTON — Scientists have new evidence that the brain chemical best known for regulating mood also plays a role in the mystifying killer of seemingly healthy babies — sudden infant death syndrome.

Autopsied brain tissue from SIDS babies first raised suspicion that an imbalance in serotonin might be behind what once was called crib death.

But specialists couldn't figure out how that defect could kill. Now researchers in Italy have engineered mice born with serotonin that goes haywire — and found the brain abnormality is enough to spur sudden death, in ways that mesh with other clues from human babies.

Moreover, the work suggests it might one day be possible to test newborns for their risk of SIDS.

For now, even an animal experiment can offer a message for devastated families:

"It should provide them with some sense of comfort that there

was nothing they could have done to prevent it," said Dr. Marian Willinger, a SIDS specialist at the National Institute of Child Health and Human Development, who wasn't part of the study. "It is a real disease."

The work was published in Friday's edition of the journal *Science*.

SIDS is the sudden death of an otherwise healthy infant — anywhere between ages 1 month and 1 year — that can't be attributed to any other cause. It kills more than 2,000 U.S. infants each year, and is the leading killer of babies after the newborn period.

Babies always should be placed to sleep on their backs, as the risk of SIDS increases greatly when babies sleep on their stomachs. And parents are urged not to allow anyone to smoke around their babies, or to let their babies get too warm while sleeping.

But beyond those risk factors, doctors have little advice.

In 2006, Dr. Hannah Kinney of Children's Hospital Boston compared brain tissue from 31

SIDS babies and 10 infants who died of other causes. The SIDS babies had abnormalities in their brain stem that led to imbalances in serotonin, a neurotransmitter or chemical that helps brain cells communicate.

Low serotonin famously plays a role in depression. Less known to laymen is that it also helps regulate some of the body's most basic functions — breathing, heart rate, body temperature, arousal from sleep.

Dr. Cornelius Gross and colleagues at the European Molecular Biology Laboratory in Italy were studying how the serotonin system turns itself on and off when they stumbled onto the SIDS connection.

They genetically engineered mice to have an overactive serotonin-regulating receptor, which in turn reduced the amount of serotonin in the brains of otherwise normal baby mice.

More than half of the mice abruptly died before they were 3 months old. More intriguing, they had erratic episodes where their heart rate would drop and, five to 10 minutes later, so would

their body temperature, Gross reported. Sometimes they died in the midst of what Gross calls those crises, other times afterward.

The exact cellular defects in the mice and the human babies studied so far aren't identical, researchers caution.

But heart and temperature problems are consistent with what little human data is available, Willinger noted.

Here's another key: Gross could switch on and off the genetic defect that controlled serotonin levels in the mice. By doing so, he showed that older baby animals were less likely to die from haywire serotonin than younger ones.

"This is a very exciting part of the research," says Willinger — because doctors have long suspected that if at-risk babies just get through a developmental period, they'll be OK. That's impossible to test in humans, however.

On the Net: *Science*, www.sciencemag.org
Government SIDS info,
www.nichd.nih.gov/sids