

Gene linked to mental illness, suicide

Scientists have tagged an unlikely gene, with still-mysterious functions, as a possible predisposing influence on nearly 8 percent of all suicides and psychiatric hospitalizations in the United States. When inherited from both parents, the gene causes Wolfram syndrome, characterized by diabetes, severe vision problems and various neurological disorders. People with one copy of the gene—about 1 percent of the U.S. population—face about eight times the risk of psychiatric hospitalization or suicide compared with individuals who lack the gene, assert psychiatrist Ronnie G. Swift and her colleagues at the University of North Carolina School of Medicine in Chapel Hill.

Because scientists currently have no test for identifying carriers of the gene, Swift's team took an indirect approach, studying hospital records and self-reports from relatives of people with Wolfram syndrome. Within the next five years, they hope to develop enzyme probes to isolate the gene and identify its physiological functions.

In the meantime, their study offers the first clear evidence that inheriting this gene from one parent creates a predisposition to serious psychiatric

disorders and suicide, says medical geneticist Michael Swift, a coauthor of the report. "We have to determine how [the gene] interacts with other genes and with the environment," he adds.

Others view the findings more cautiously. "This is an interesting preliminary report, but it doesn't prove that the Wolfram gene predisposes people to psychiatric disorders," says psychologist David L. Pauls of Yale University School of Medicine. Future studies must assess participants' psychiatric disorders more carefully, he says.

While the new results give "some indication" of a specific genetic link to mental illness, they require confirmation with DNA probes, adds Elliot S. Gershon of the National Institute of Mental Health in Bethesda, Md.

The researchers were studying the epidemiology of Wolfram syndrome when they first noticed an excess of psychiatric symptoms among relatives of those with the disorder. They then recruited 36 families with 68 cases of Wolfram syndrome. The study sample consisted of 543 relatives of Wolfram patients—parents, grandparents, siblings, aunts, uncles and first cousins—and 365 husbands and wives of the

relatives, with no blood ties to the Wolfram patients.

The scientists reasoned that each parent of a Wolfram patient carried one copy of the gene, while grandparents, siblings, aunts and uncles had a 50 percent chance of carrying the gene and cousins had a 25 percent chance.

Each participant—or the closest living relative of a deceased subject—completed questionnaires about prior mental illness and "chronic nervous trouble." The researchers also checked participants' hospital records and, when applicable, death certificates.

The proportion of relatives who had undergone psychiatric hospitalization, had committed suicide or reported mental illness or nervous trouble significantly exceeded the proportion of spouses with the same problems, the team reports in the June *AMERICAN JOURNAL OF PSYCHIATRY*. The most common psychiatric symptoms were depression, violent behavior and organic brain syndrome.

Even so, most relatives yielded no signs of psychiatric disorders. Michael Swift maintains that the study underestimates psychiatric differences between carriers and noncarriers of the gene, since about half the relatives would not carry the gene. — *B. Bower*

Images trace history of Halley's outburst

Comet Halley, normally a quiescent body of ice and dust when it's not whizzing past the sun, took astronomers by surprise last February when they discovered it had suddenly brightened some 2 million kilometers away from the sun. Scientists had never observed such an outburst in a comet so far from the solar spotlight (SN: 3/2/91, p.133).

Astronomers have now released four false-color images that depict Halley before and after the event. The photos, made with the Danish 1.5-meter telescope at the European Southern Observatory (ESO) in La Serena, Chile, focus on the comet's coma, the cloud of dust and gas that shrouds its icy nucleus.

Near the sun, ice from a comet's nucleus steadily vaporizes, replenishing the ever-dispersing coma. Dust in the coma reflects sunlight, making Halley readily visible from Earth. But when a comet moves away from the sun, as Halley has since 1986, its temperature drops and most of its core material can no longer vaporize. Thus, as the coma's gas and dust disperse into space, relatively little new material emerges to replenish it, leaving only a bare, dim nucleus.

Photos of Halley a few years before the outburst (top images) illustrate this sce-



nario, showing the decrease in the brightness and size of the cloud. But a photo taken last February (bottom left) shows a brighter, denser coma. A month later (bottom right), the brightness declined and the cloud became larger and more diffuse. White and green denote the highest intensities, red and blue the lowest.

Using these images, ESO astronomers

calculate that the outburst occurred during the third week of last December. It remains unclear whether an internal eruption or a collision triggered the event. Moreover, it's possible that the coma received its enhanced supply of dust and gas—about one-millionth the mass of its nucleus—in two or more separate events. — *R. Cowen*

European Southern Observatory