

# Scientist tests promising drug on those with Down syndrome

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(PhysOrg.com) -- A University of Colorado School of Medicine scientist is finishing a major clinical trial on a drug that could boost cognitive function in those with Down syndrome, significantly improving their quality of life and representing a potential milestone in research on this genetic disorder.

“We are hoping to enhance memory and learning in those with [Down syndrome](#),” said Alberto Costa, MD, Ph.D., an associate professor of medicine and the neuroscientist leading the effort. “We have been studying this drug for three years and are now ready to analyze the data on our trial. Our team at the University of Colorado and Children’s Hospital Colorado expects to have the results in the next two or three months.”

Costa, whose work was chronicled in last Sunday’s New York Times Magazine, (A Drug for Down Syndrome), is testing the drug memantine, currently used to relieve symptoms of Alzheimer’s disease, in 39 people with Down syndrome. About half received the drug and the others a placebo. In 2007, Costa demonstrated that memantine could improve memory function in mice with Down syndrome.

And now, for the first time, he is taking a drug effective in the treatment of learning and memory deficits in mice with Down syndrome and applying it to humans, a move described by the New York Times as “a milestone in the history of Down syndrome research.”

Costa is no disinterested researcher, his 16-year-old daughter Tyche – named for the Greek goddess of Fortune - has Down syndrome. Like others with the condition, she faces the specter of a steady decline in mental functioning as she gets older and a roughly 20 percent chance of getting Alzheimer's in her 50's. After that diagnosis, death is often just five years away.

"I feel I am racing the clock to find something that will at least keep her functioning at the level she is at now," Costa said. "As they age, parts of their brain will shrink and their functions will diminish."

Costa is actively pursuing links between Down and Alzheimer's disease. He says babies born with Down often carry the biological markers for Alzheimer's.

"They have the disease from the get go," he said.

Costa says the world is awash in false assumptions about Down syndrome ranging from distortions on life expectancy to educational limitations. In fact, depending on the severity of their condition, those with Down can live into their 70s, attend college, live independently and hold down jobs.

"If we are successful, it will increase hope and expectations for those with Down syndrome," Costa said. "Right now there are drugs for the signs and symptoms of medical conditions more frequent in those with Down syndrome, but nothing to improve brain function. In fact, the prevailing wisdom has been that there is essentially nothing you can do to boost memory and learning in this group. Hopefully, we can prove them wrong."

But he and other Down researchers face an overall lack of federal funding, especially when compared to other diseases and disorders.

Costa has been supported by Forest Pharmaceuticals which is funding the clinical trial, the Linda Crnic Institute for Down Syndrome, the Coleman Institute for Cognitive Disabilities at the University of Colorado and the National Institute of Child Health and Development, part of the National Institutes of Health.

“Clearly these funding sources are the unsung heroes,” Costa said. “They may not get the attention or publicity but I can assure you that our efforts and the future of those with Down syndrome would be seriously compromised without their continued generosity.”

Provided by University of Colorado Denver

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