

Brains of people with Down syndrome age faster, study discovers

February 19 2015, by Elaine Schmidt

A new UCLA study is the first to demonstrate that Down syndrome accelerates aging in different parts of the body. The researchers showed that the biological age of brain tissue from someone with Down syndrome appeared 11 years older than the person's chronological age. Similarly, the biological age of blood tissue was nearly five years older than the person's chronological age. The UCLA team will next test tissue samples from teens with Down syndrome to pinpoint when aging speeds up in people with the condition.

The findings could explain why people with Down syndrome face a six times higher risk of developing Alzheimer's disease and their [average life expectancy](#) is only 60. Alzheimer's strikes 75 percent of individuals with Down syndrome who live past 65.

The scientists used an epigenetic clock, which tracks chemical reactions that trigger and turn off areas of the genome, to measure the age of different tissues in the body. The team focused on methylation, a molecular biomarker linked to aging.

Down syndrome is a genetic disorder caused by an extra copy of chromosome 21. Its symptoms include cognitive delays and premature signs of aging, including wrinkled skin, gray hair, early menopause, declining immune function and Alzheimer's disease. According to the National Down Syndrome Society, about 400,000 Americans have Down syndrome and some 6,000 babies are born with the condition in the United States each year.

The peer-reviewed journal *Aging Cell* published the findings in its Feb. 9 online edition.

More information: "Accelerated epigenetic aging in Down syndrome." *Aging Cell*. doi: 10.1111/accel.12325

Provided by University of California, Los Angeles

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