

# ABC-DS: Alzheimer's Biomarker Consortium – Down Syndrome

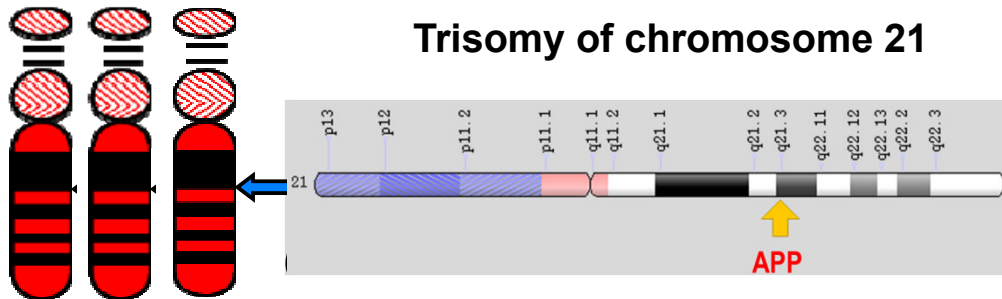


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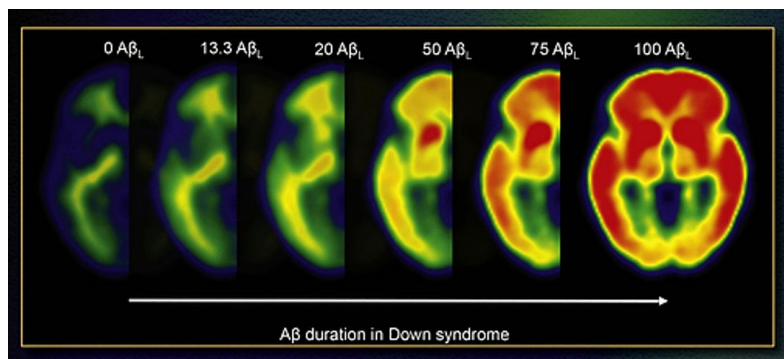




# Alzheimer's Disease and Down Syndrome



- Overproduction (1.5x) of gene products, like amyloid precursor protein (APP)

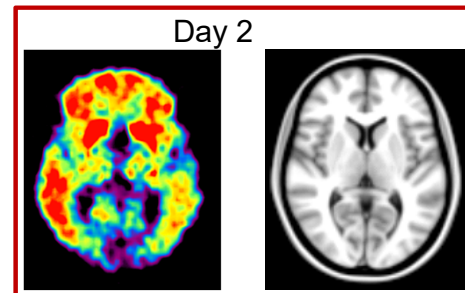
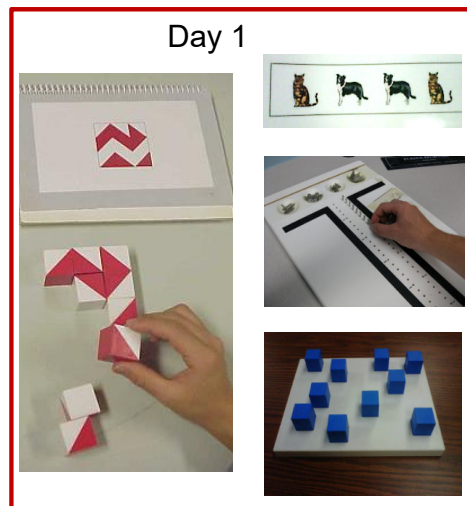


- General population:
  - Rare before age 50
  - 32% over 85yrs
- Down syndrome:
  - 9% of adults in 40
  - 50% of adults in 60s+

## Natural History of Amyloid Deposition of Amyloid in Aging Down Syndrome



- Initiated in 2009: Waisman Center / UWADRC, University of Pittsburgh,
- Goal: Recruit non-demented adults ( $n=84$ , age  $\geq 30$  yrs) to observe the change in amyloid deposition and its effect on functioning over time



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## Neurodegeneration in Aging Down Syndrome (NiAD) (U01)

- Initiated in 2015: UPMC, UW, Cambridge U., Barrow/Banner, Washington U., LONI, Mayo, ATRI, NCRAD, NIA / NICHD
- Goal: This longitudinal study will examine progression of AD related neuroimaging, biofluid, genetic and cognitive/functional biomarkers in 180 adults with DS (>25 yrs of age) and 40 "biomarker-controls"

U.S. Department of Health and Human Services

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## Alzheimer's Biomarkers Consortium of Down Syndrome (ABC-DS)

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  - How Can I Participate in the ABC-DS Initiative?
  - Resources
- For Researchers
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  - Background
  - Goals and Measures
  - Participants
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### For Participants and Families

#### What is ABC-DS?

The Alzheimer's Biomarkers Consortium of Down Syndrome (ABC-DS) is a new initiative that aims to identify biomarkers that indicate Alzheimer's disease is developing or progressing and track the Alzheimer's disease process in people with Down syndrome. It is a joint study conducted by two groups of research collaborators—*Neurodegeneration in Aging Down Syndrome (NIAD)* and Alzheimer's Disease in Down Syndrome (ADDS)—and is funded by the National Institute on Aging (NIA) and the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), both part of NIH.

The connection between these two conditions is rooted in chromosome 21. People with Down syndrome are born with three copies of the chromosome, rather than two. The chromosome carries a gene that produces a protein called amyloid precursor protein (APP). Too much APP can lead to a buildup of protein clumps called beta-amyloid plaques in the brain. The presence of beta-amyloid plaques is one of the main characteristics of Alzheimer's disease.

ABC-DS researchers are building on what we already know to better understand the course of Alzheimer's disease in people with Down syndrome, as well as risk and/or protective factors. To do so, researchers will collect brain imaging scans and blood and tissue samples from adult volunteers with Down syndrome, along with a small group of their brothers and sisters interested in participation. These samples will be used to investigate biomarkers that may reveal new information about the connection between Alzheimer's and Down syndrome.



Site
University of Wisconsin
University of Pittsburgh
University of Cambridge
Washington University
Barrow Institute
Mass General Hospital/Harvard
University of California Irvine
Columbia University
University of Kentucky

Target of 600 participants!



# Thank you!

## All the participants & families

