

ALZHEIMER DISEASE: CURRENT RESEARCH

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CTAD 2016

Montpellier '08 | Las Vegas '09 | Toulouse '10 | San Diego '11
Monte Carlo '12 | San Diego '13 | Philadelphia '14
Barcelona '15

Clinical Trials on Alzheimer's Disease

Clinical Trials



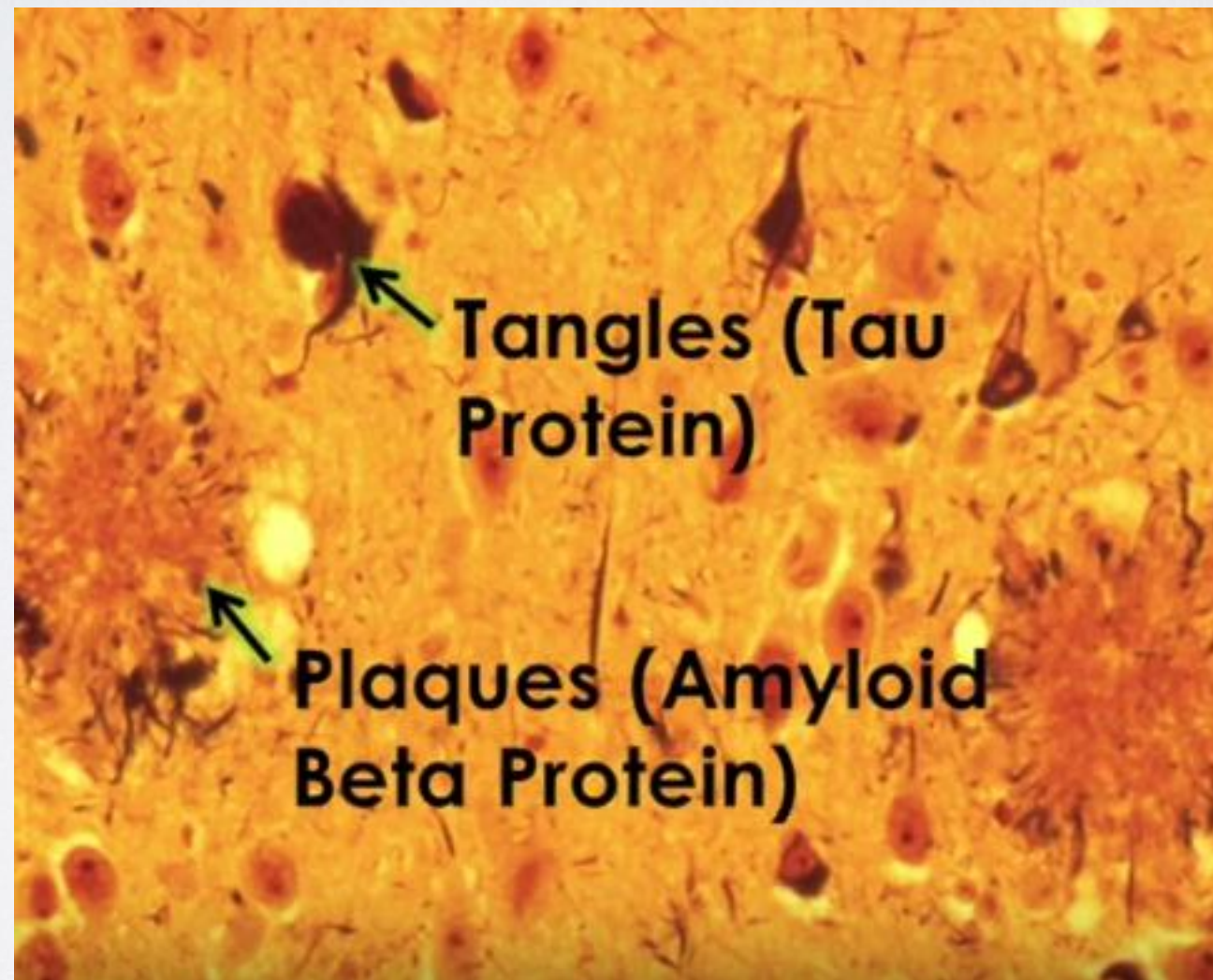
December 8-10, 2016
SAN DIEGO

www.ctad-alzheimer.com

MAIN POINTS OF CTAD 2016

- We must endeavor to correctly diagnose people entered in clinical trials for AD drugs
- We must approach AD therapy from several approaches - “Multiple shots on goal”
- We must strive to treat AD before dementia begins

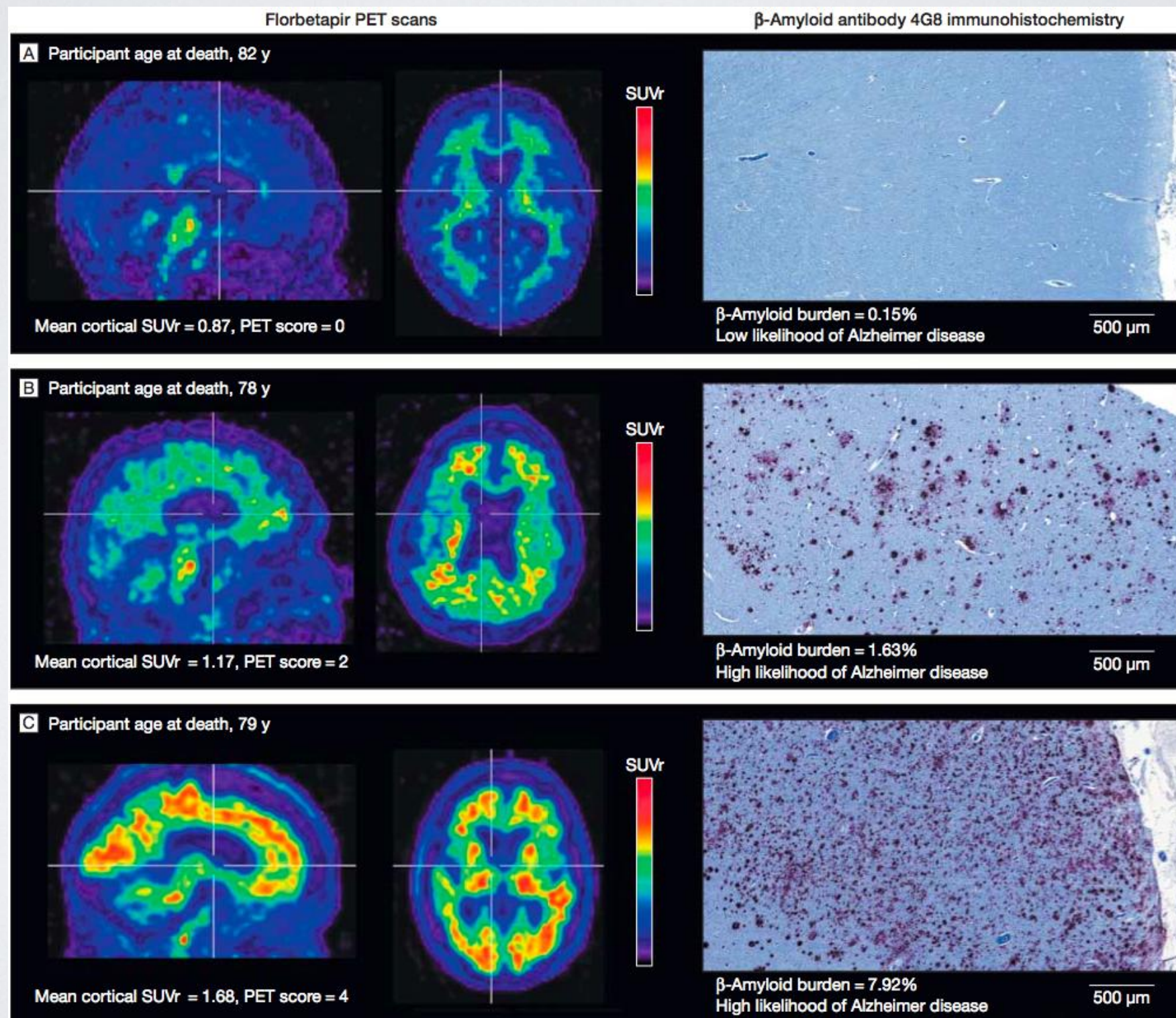
PATHOLOGY OF ALZHEIMER DISEASE (AD)



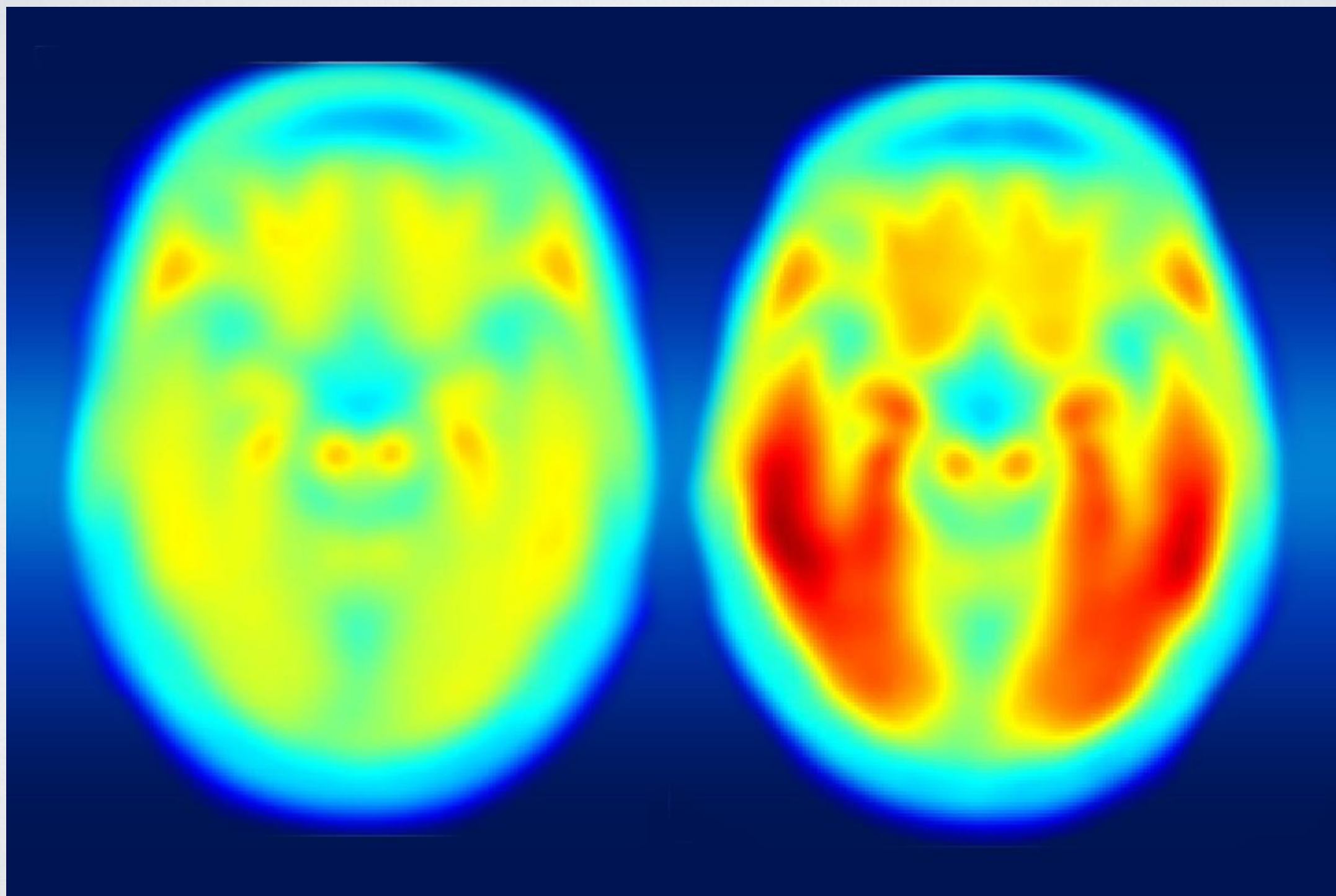
DIAGNOSIS OF AD

- New research criteria for diagnosis of AD
 - Symptoms of cognitive impairment lead to diagnoses that correlate to Normal, Subjective Cognitive Impairment, Mild Cognitive Impairment, and Dementia
 - Pathological diagnosis of AD requires demonstration of AD pathology (amyloid and tau)

AMYLOID PET IMAGING



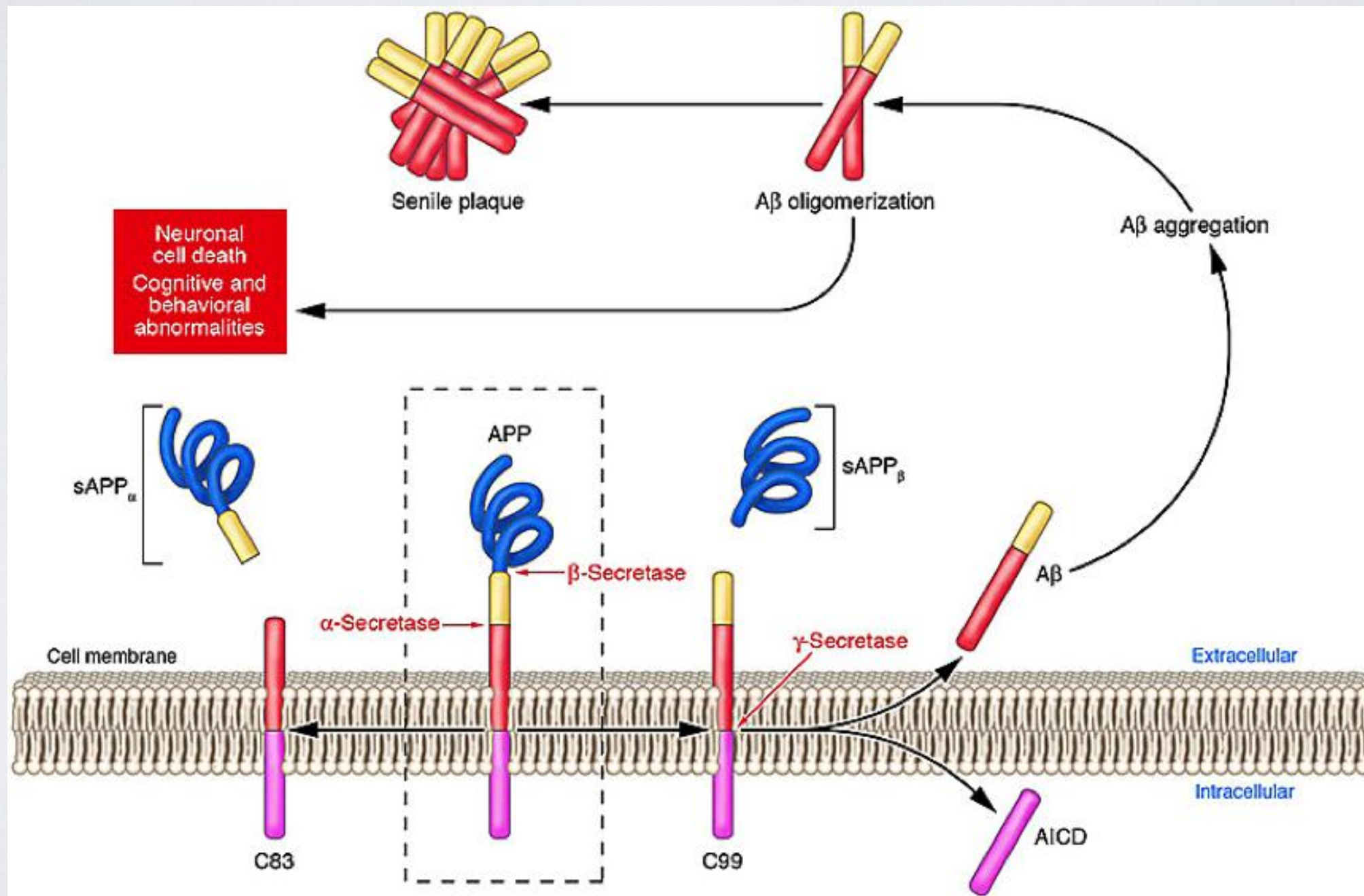
TAU PET IMAGING IN AD



DRUGS TO TREAT AD

- Many potential therapies for AD attack amyloid protein (A-beta 42 especially)
- Others are aimed at stopping accumulation of tau protein
- Still others attempt to modulate neurotransmitters or to fight inflammatory responses

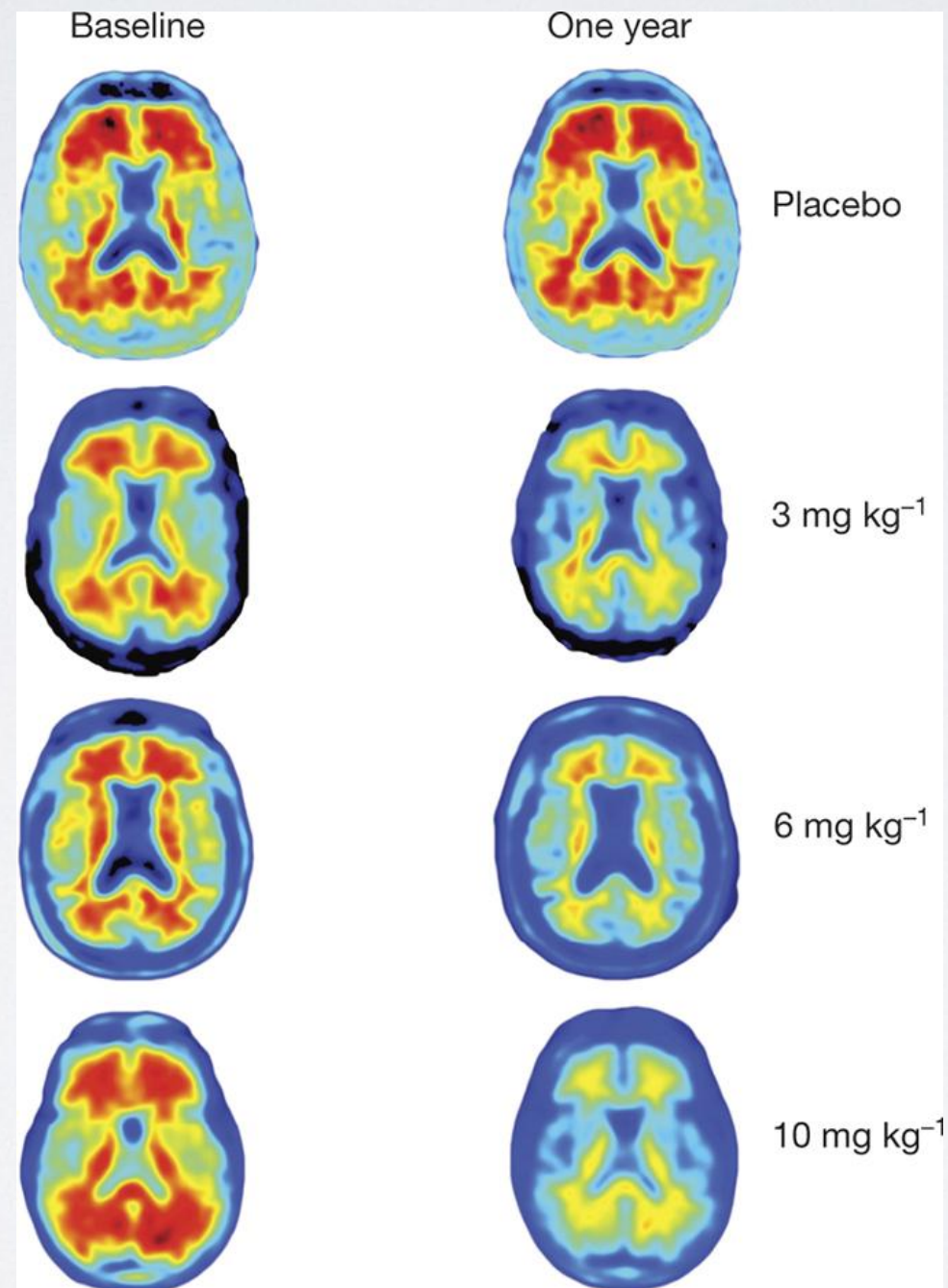
AMYLOID IN AD



ATTACKING AMYLOID IN AD

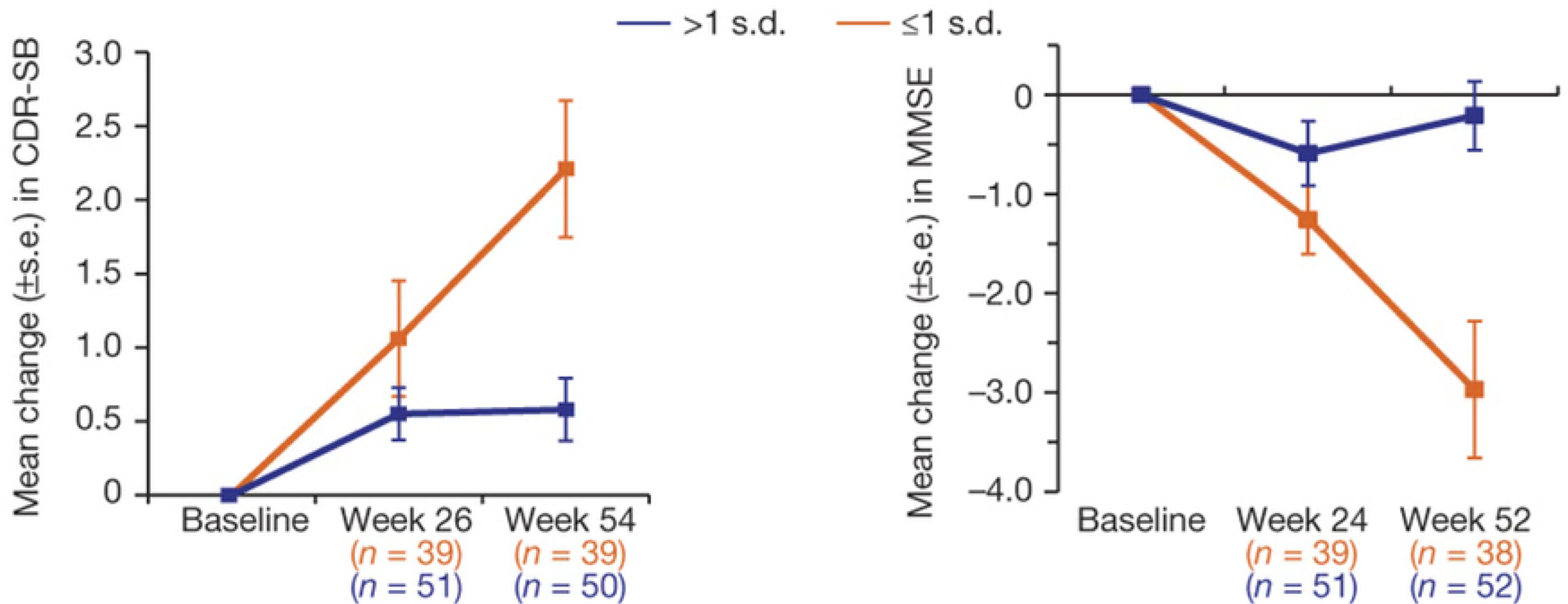
- Beta-secretase (BACE) inhibitors
- Gamma-secretase modulators
- Drugs to increase clearance of A-beta 42 or prevent its deposition
- Monoclonal antibodies
 - Solanezumab
 - Aducanumab

AMYLOID PET IN ADUCANUMAB STUDY



KEY MEASURES IN ADUCANUMAB

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ABOUT AMYLOID AND AD

- It appears that amyloid deposition begins well before cognitive symptoms appear
- By the time a person is demented, active amyloid deposition has slowed and almost stopped
- To effectively treat AD with anti-amyloid therapies will likely require treating pre-symptomatic people

MARIJUANA AND AD

- Marijuana (*Cannabis sativa*) now “legal” in Arkansas for people certified as having a “Qualifying Medical Condition”
- Alzheimer Disease is one of those conditions
- Almost no clinical trial data on use of marijuana in AD (mainly for behavioral symptoms)

MARIJUANA AND AD

- The biologically active ingredients in marijuana known as “cannabinoids”
- They act on CB-1, CB-2 receptors
- Endogenous cannabinoids also bind to these receptors

MARIJUANA AND AD

- CB-1 binding is less in aged rats
- CB-1 receptors variable in Alzheimer patients
- Endogenous cannabinoids binding to CB-1 have been found to reduce A-beta toxicity

MARIJUANA AND AD

- Four clinical trials have been launched to study cannabinoids in AD (mainly for behavior)
- One trial was negative, one positive, two have been stopped early due to poor recruitment