

# Johns Hopkins Engineering

## Methods in Neurobiology

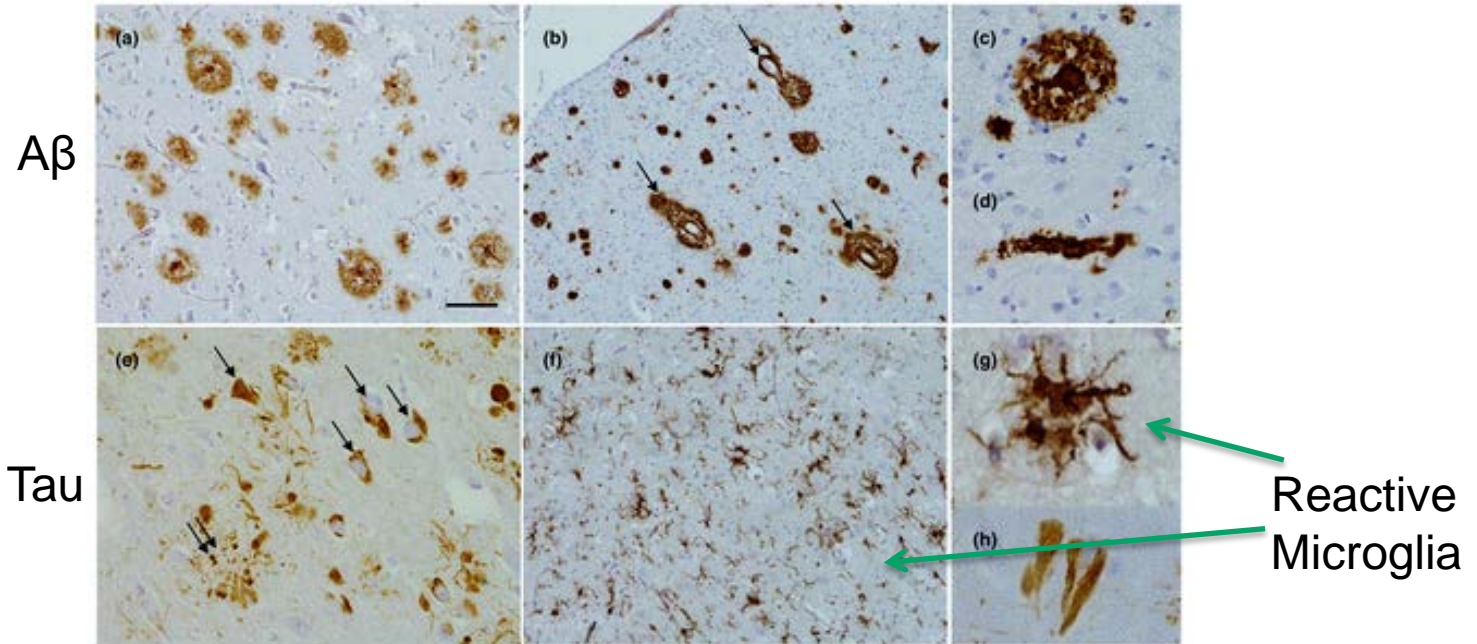
Alzheimer's Disease: Beyond the APP hypothesis



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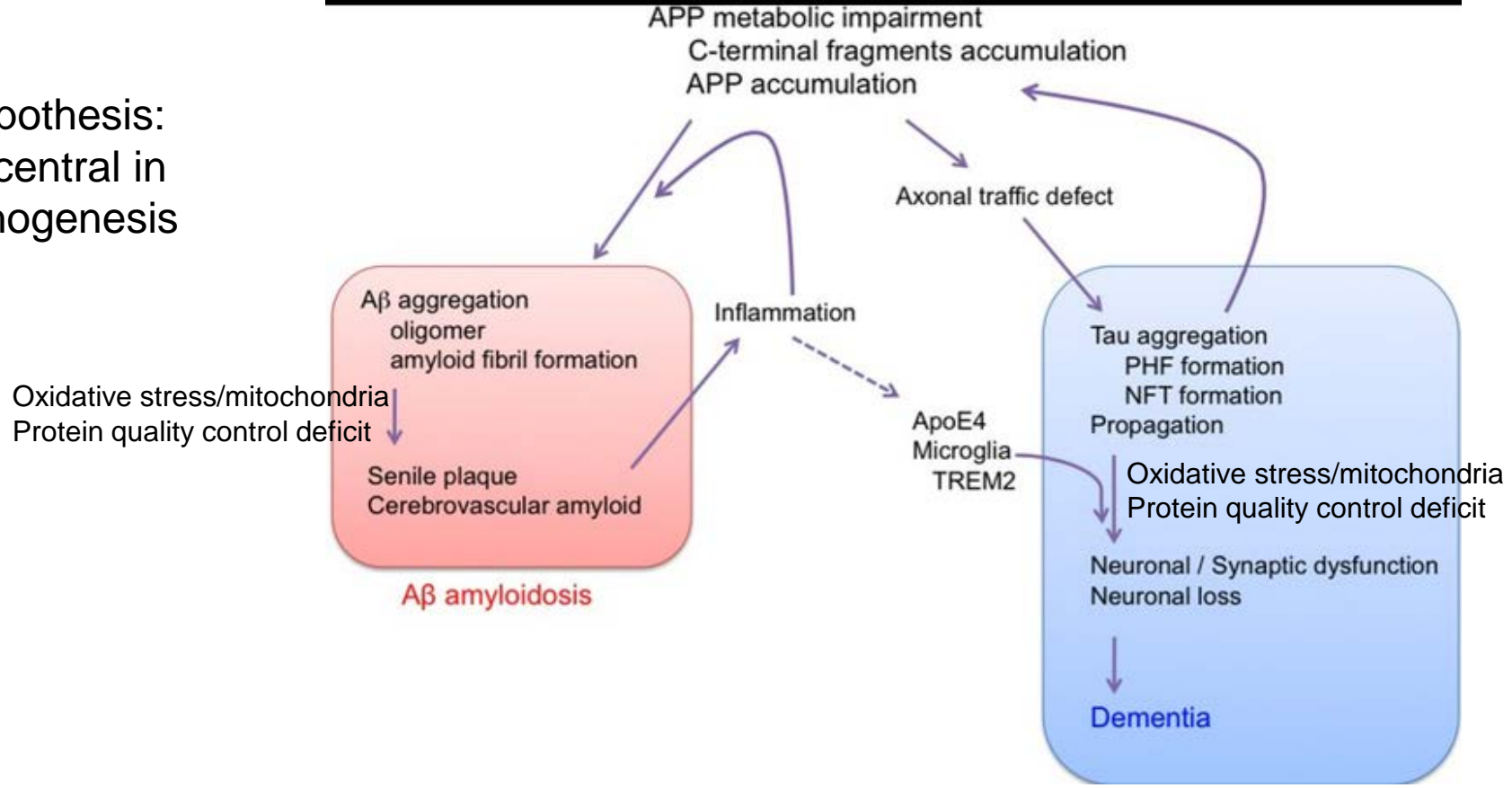
# AD

Cholinergic neurons → cortex and hippocampus

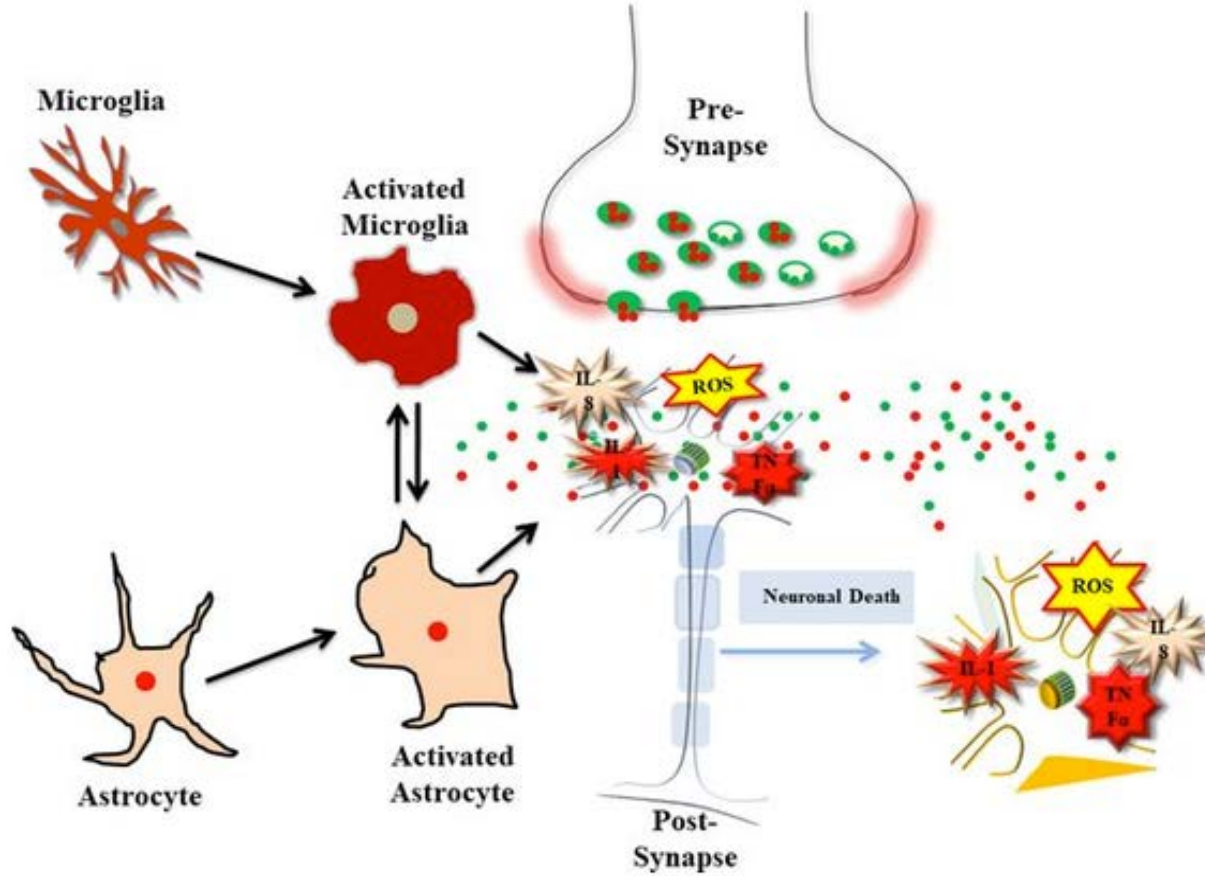


# APP hypothesis

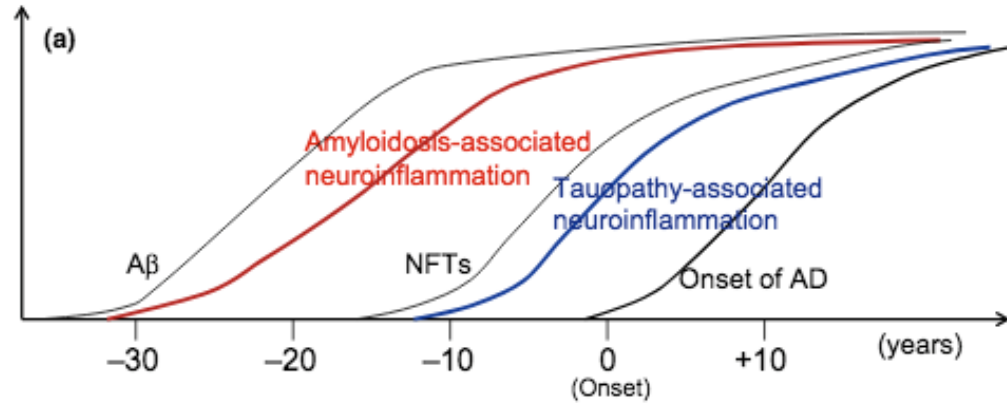
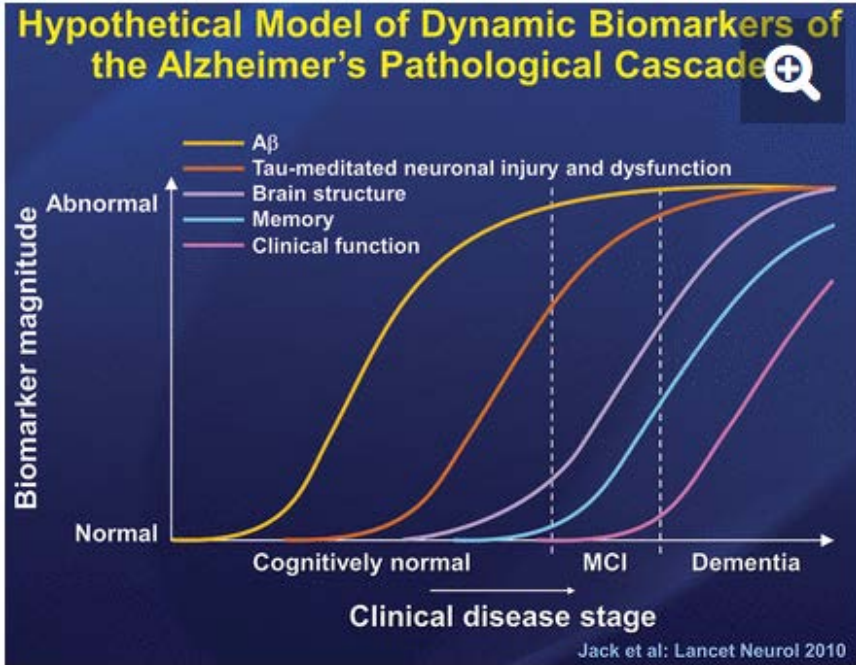
APP hypothesis:  
APP is central in  
AD pathogenesis



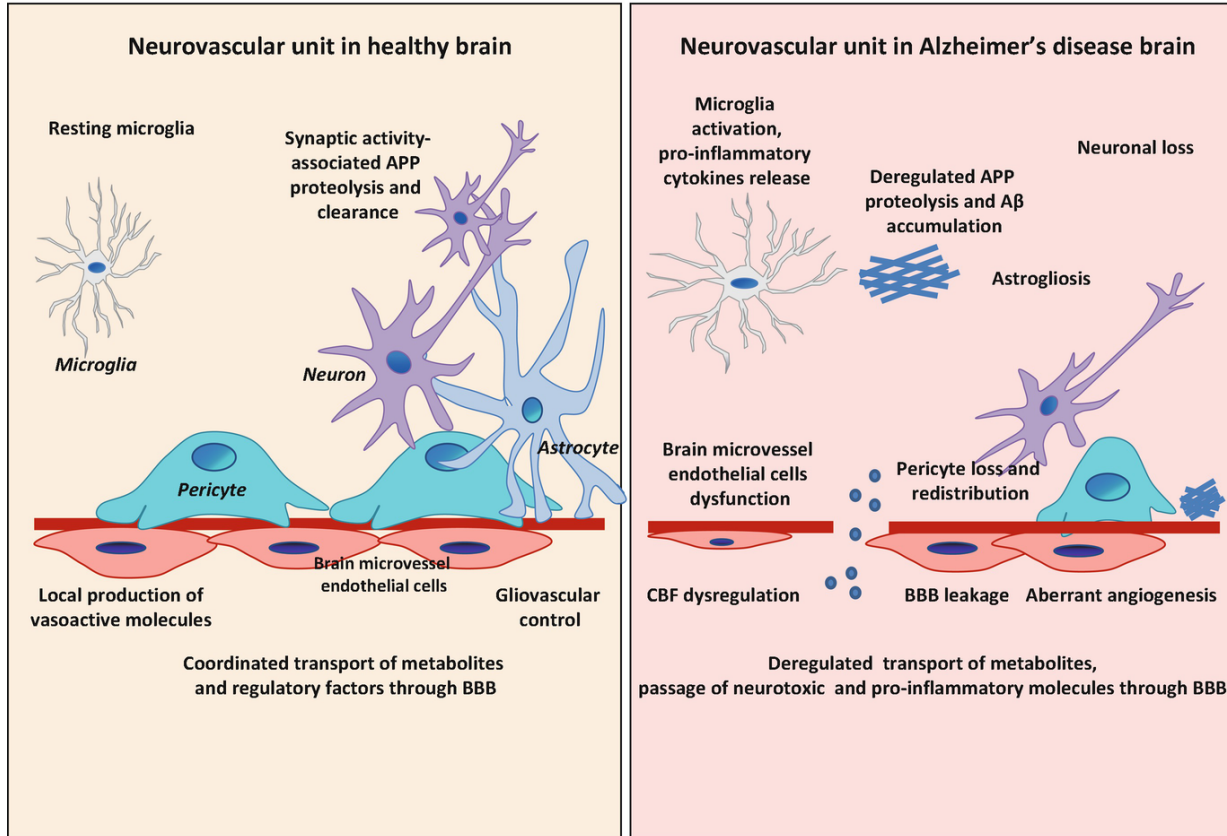
# Neuroinflammation in AD



# AD cascade and Neuroinflammation



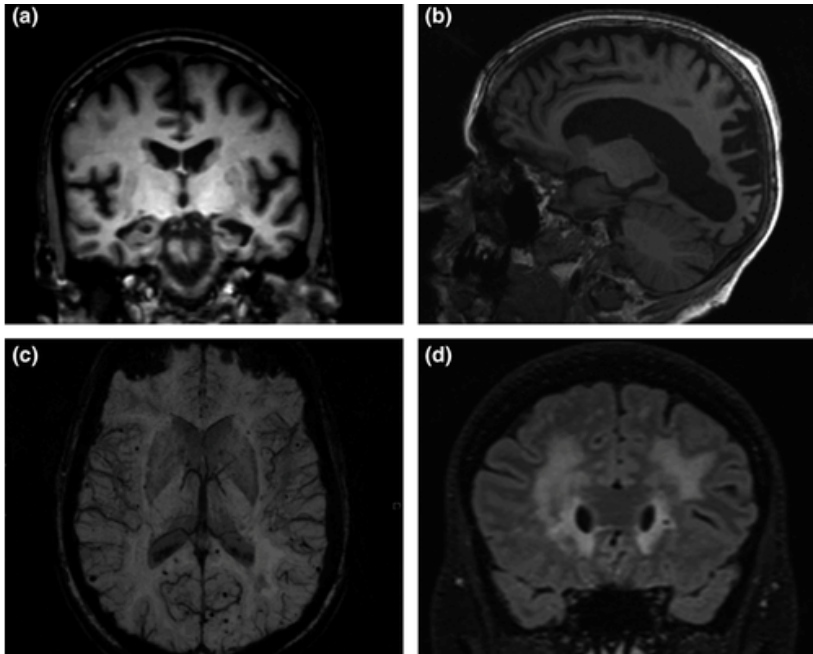
# Cerebral Vascular Angiopathy in AD



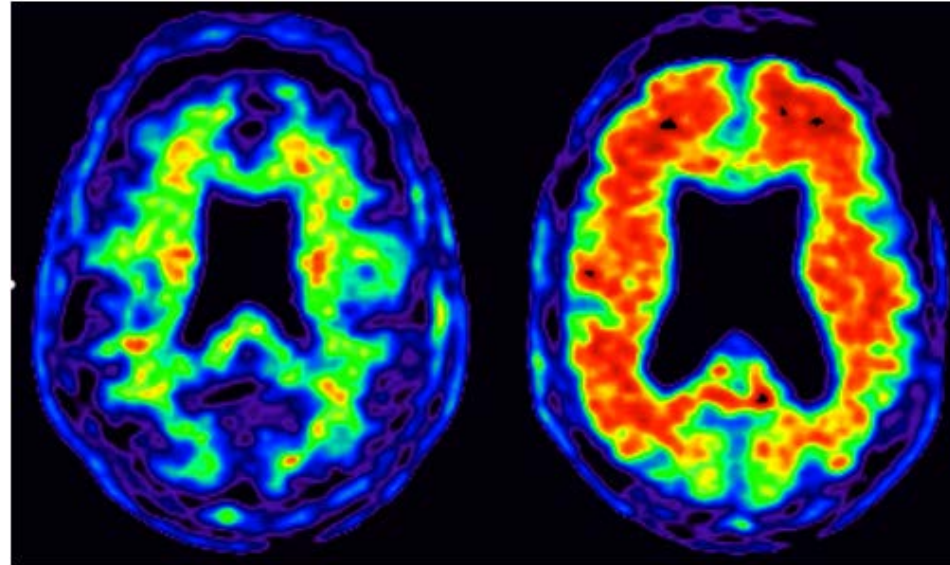


# Visualizing AD in patients

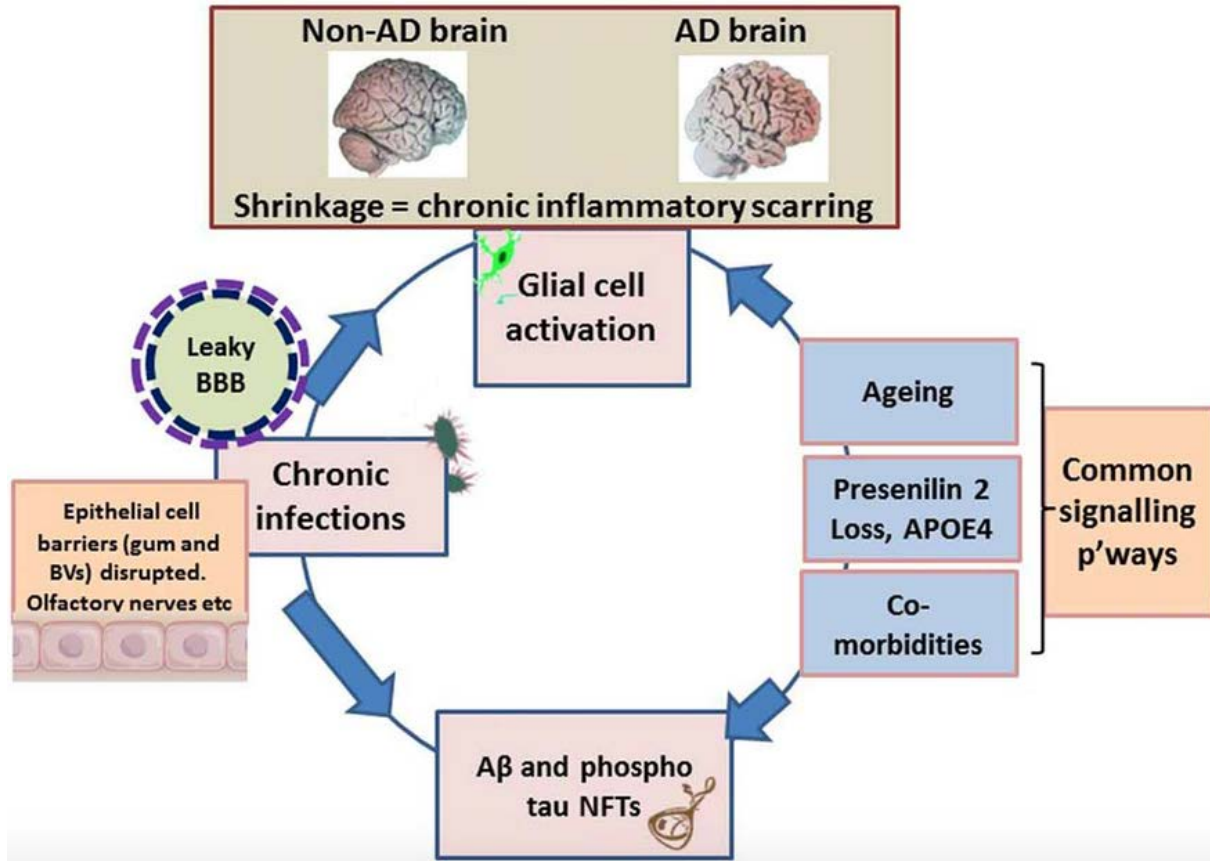
MRI



PIB-PET



# Systemic AD





# References

Slide	Reference
2	Lane, C. A., Hardy, J., Schott, J.M. 2018 Alzheimer's disease Eur J of Neurol 25:59-70
3	Kametani, F., & Hasegawa, M. 2018. Reconsideration of Amyloid Hypothesis and Tau Hypothesis in Alzheimer's Disease. <i>Frontiers in neuroscience</i> , 12, 25.
4	Kumar, K., Kumar, A., Keegan, R.M., Deshmukh, R. 2018 Recent advances in the neurobiology and neuropharmacology of Alzheimer's disease. <i>Biomedicine &amp; Pharmacotherapy</i> 98: 297-307.
5	Jack, C.R. Jr., Knopman, D.S., Jagust, W.J., et al. 2013 Tracking pathophysiological processes in Alzheimer's disease: an updated hypothetical model of dynamic biomarkers. <i>Lancet Neurol</i> : 12: 207–216.
6	Salmina A.B., Komleva Y.K., Lopatina O.L., Birbrair A. (2019) Pericytes in Alzheimer's Disease: Novel Clues to Cerebral Amyloid Angiopathy Pathogenesis. In: Birbrair A. (eds) <i>Pericyte Biology in Disease</i> . <i>Advances in Experimental Medicine and Biology</i> , vol 1147. Springer, Cham
7	Lane, C.A., Hardy, J., Schott, J.M. <i>Alzheimer's disease 2006</i> J Alzheimers Dis. 9(3 Suppl):151-3.
8	Pritchard AB, Crean S, Olsen I and Singhrao SK 2017 Periodontitis, Microbiomes and their Role in Alzheimer's Disease. <i>Front. Aging Neurosci.</i> 9:336.



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