






Brain donation: Final diagnosis and relevance

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Educational Conference on Healthy Brain Aging
 Research Participant Appreciation Day
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Why is brain donation important?

Diagnosis, Research, Education

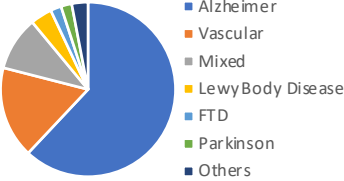
Brain donation: Final diagnosis

- Make a **definitive diagnosis** of neurodegenerative disease with 100% certainty
- **Grade the severity** of the neuropathological changes
- In most cases, reveal **mixed pathologies** and comorbidities


Brain donation: Final diagnosis

Causes of dementia

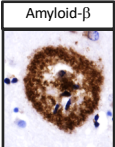
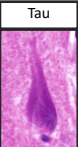


Mixed pathologies in brains with dementia are more prevalent than we thought:

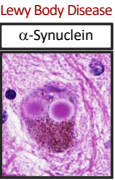
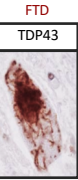
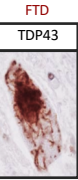
- Vascular + Neurodegenerative
- Mixed Neurodegenerative



Alzheimer's disease

Amyloid- β	Tau
	

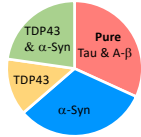
Lewy Body Disease

α -Synuclein	FTD
	TDP43
	

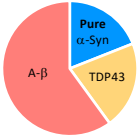
Mixed pathologies: Prevalence

- Increasingly recognized to be frequent, particularly in **older people**



Alzheimer



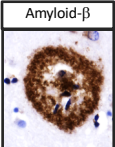
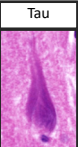
Lewy Body Disease



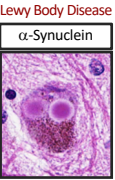
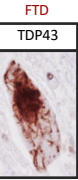
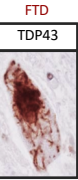
Robinson et al., Brain 2018

Alzheimer's disease



Amyloid- β	Tau
	

Lewy Body Disease

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Mixed pathologies: Relevance

- Can impact the progression of disease (more **rapid course**)
- Knowledge needed to evaluate the efficacy of clinical trials and the **response to therapies**

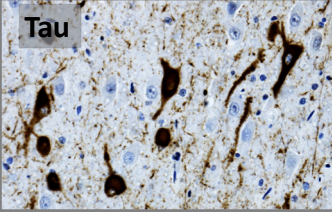
Brain donation: Healthy individuals

- Healthy donors are needed to study **normal aging**
- Resilience:** Brains of cognitively normal older people often have pathology. Why people with Alzheimer's disease pathology have no dementia?
 - Initial stages of the disease?
 - Slow progression?
 - Compensatory/adaptative mechanisms

Brain donations are helping dementia research



Tau

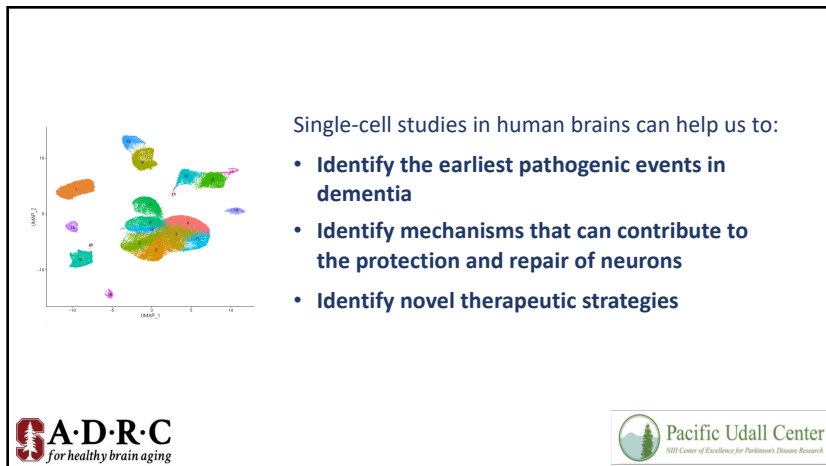
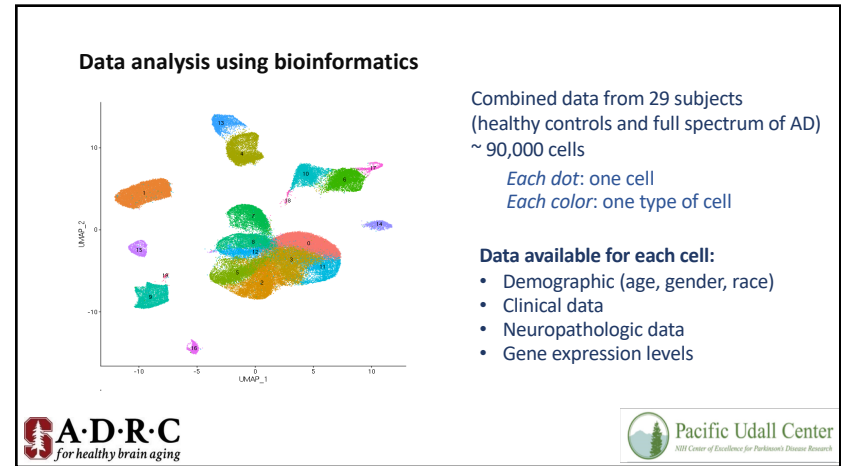
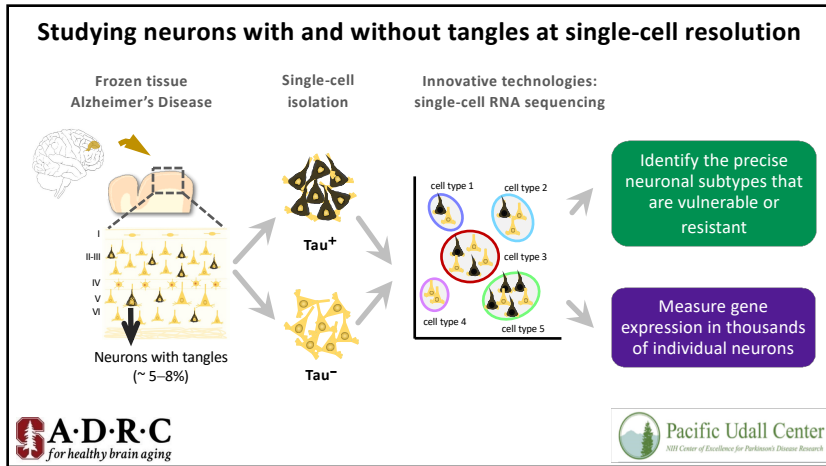


Why are some neurons more vulnerable or resistant to disease?

Cobos Lab
<https://med.stanford.edu/coboslab.html>

Neurons with and without tangles in advanced dementia



Thank you!

Brain donor program at Stanford:

Christina Wyss-Coray, RN, BSN, PHN
Divya Channappa, MS
Syed Bukhari, MS
Tom Wyss-Coray, PhD
Birgitt Schuele, PhD
Donald Born, MD, PhD
Thomas Montine, MD, PhD
Inma Cobos, MD, PhD

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A·D·R·C for healthy brain aging

Pacific Udall Center
NIH Center of Excellence for Parkinson's Disease Research