Brain donation: Final diagnosis and relevance

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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
For general information about participant rights, contact 1-866-290-6266.

The principal investigator is Victor Henderson, MD, Department of Neurology & Neurological Sciences.

Your Stanford Team

With kind regards,

Thank you for participating in the Stanford Brain Donation Program.

Alzheimer’s Disease Research Center thank on behalf of Stanford Health Care.

On behalf of the Alzheimer’s Association.

Thank you for donating your brain.

We will perform a limited autopsy and provide an autopsy report.

Healthy donors are needed to study normal aging.

Resilience: Brains of cognitively normal older people often have pathology. Why do people with Alzheimer’s disease pathology have no dementia?

- Initial stages of the disease?
- Slow progression?
- Compensatory/adaptative mechanisms

Brain donation: Healthy individuals

Brain donations are helping dementia research

Why are some neurons more vulnerable or resistant to disease?

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

INSTRUCTIONS

1) If you have any questions, please do not hesitate to call the brain donation coordinator at 650-721-2906.

2) If you do not hear within a ½ hour, please call the page operator again and ask them to page the donation coordinator at 650-721-2906.

3) At the time of death, please call 650-721-2906.

A full autopsy report should be expected within 6 to 8 weeks after death.

Donation Program.

Knowledge needed to evaluate the efficacy of clinical trials and the response to therapies.

Can impact the progression of disease (more rapid course).

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Any other information the patient’s family is using, including:

- Name and phone number of the funeral home or mortuary the patient believes is important.
- Patient contact information.
- Any other information we have on file.
- Hospice, if applicable.
- Details about arrangements.
- There will be no charge to family for transportation of the body for autopsy.

Please update us immediately if there is a change in address or phone number.

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Studying neurons with and without tangles at single-cell resolution

Frozen tissue
Alzheimer's Disease

Single-cell isolation
Innovative technologies:
- single-cell RNA sequencing

Neurons with tangles (~5-8%)  
- Tau+
- Tau-

Identify novel therapeutic strategies
Identify mechanisms that can contribute to dementia
Identify the earliest pathogenic events in neurons

Data analysis using bioinformatics

Combined data from 29 subjects (healthy controls and full spectrum of AD)  
~ 90,000 cells
Each dot: one cell  
Each color: one type of cell

Data available for each cell:
- Demographic (age, gender, race)
- Clinical data
- Neuropathologic data
- Gene expression levels

Single-cell studies in human brains can help us to:
- Identify the earliest pathogenic events in dementia
- Identify mechanisms that can contribute to the protection and repair of neurons
- Identify novel therapeutic strategies

Thank you!

Brain donor program at Stanford:
Christina Wyss-Coray, RN, BSN, PHN
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Donald Born, MD, PhD
Thomas Montine, MD, PhD
Inma Cobos, MD, PhD

Educational Conference on Healthy Brain Aging
Research Participant Appreciation Day
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