



# Facilitating Drug Discovery and Pathophysiological Studies Using Human Tissues and Metadata

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*Donor Network West, San Ramon, CA*

## Introduction

Donor Network West is a federally designated nonprofit organ procurement and tissue recovery organization for transplantation in Northern California.

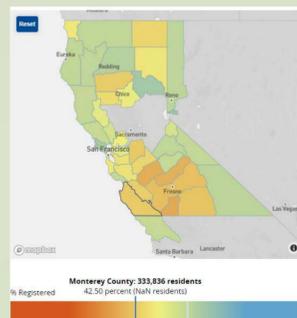
Established in 1987, we serve more than 13 million people in our service area of 175 hospitals in 40 counties.

Donor Network West collects high quality tissue samples and clinical data to help advance basic and clinical research. In order to do so, we partner with researchers around the country to advance academic and industry discoveries.

All applications for tissues and associated metadata are verified by the Research and Development Department and Donor Network West Medical Advisory Board Research Subcommittee, making sure they adhere to ethical principles and regulatory guidelines.

Adult individuals have the right to make a legally binding anatomical gift prior to death. Alternatively, a surrogate decision maker can authorize at death if not registered.

No one can override California registry unless registrants decline separately.



## Authorization for Transplantation & Research

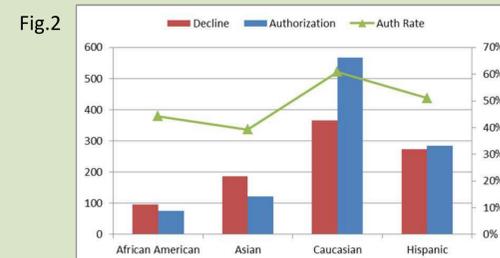
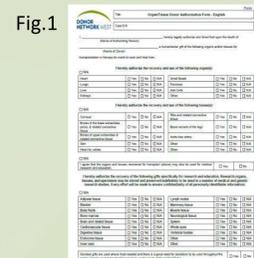


Fig.1 shows a sample consent form that is currently presented to the donors' family. A revised consent form for specific tissue sample could be designed for future donations. A majority of donors authorize procurement for both transplantation and research. Fig.2 The authorization rate varies among different ethnicities and the Caucasians followed by Hispanics show the highest rate of authorization in our service area.

## Research Services

- ❖ We provide valuable human tissues for human-focused drug discovery. The associated metadata can be regressed and linked to single cell parameters.
- ❖ We offer guidance and assistance in project design.
- ❖ We provide a wide range of fresh human tissues or organs and metadata to tackle various unmet needs in medicine. These include tissues from various systems including circulatory, digestive, endocrine, muscular, nervous, pulmonary, and lymphatic systems.
- ❖ Our collaborators utilize procured human tissues for therapeutic and investigational studies including cardiac, pain, respiratory, ophthalmologic, psychiatric, and neurologic conditions.

### The volume for transplantation & research

- 300 heart-beating organ donors annually.
- 2500 asystolic tissue donors.
- Overall "authorization" rate is about 70% organ, 43% tissue.
- 75% authorize for research.



Fig.3. Organs and tissues currently approved for transplantation.

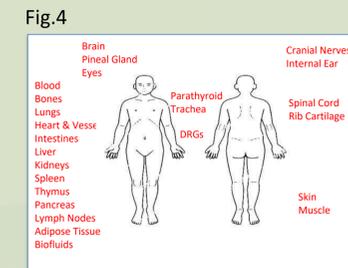


Fig.4. Tissue samples currently procured for research at DN West.

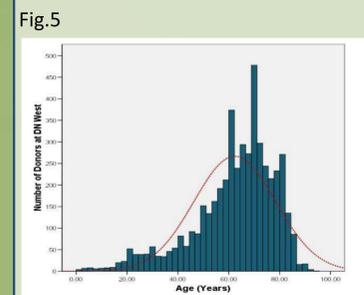


Fig.5. Frequency distribution of age for donors at DN West.

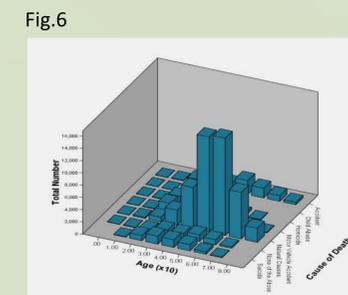


Fig.6. 3D representation of age and cause of death of donors at DN West

## Clinical data and samples collected over the years

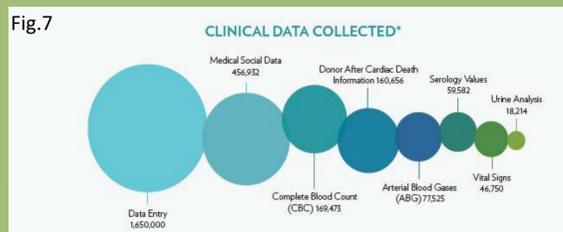


Fig.7. Clinical data associated with the tissues. Over 10<sup>3</sup> archived blood samples and a total of 1x10<sup>9</sup> associated metadata have been collected. All donors are tested for serology including HBV and HCV. Each investigator can determine inclusion and exclusion criteria to collect the tissue samples for research.

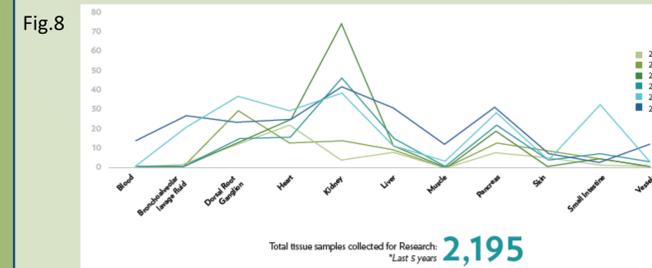


Fig.8. Total tissue samples collected for research over the last 5 years at DN West (n=2,195). Both tissues and organs, not used for transplantation are re-routed for research to support proteomic and genomic studies. All tissue samples collected are shipped immediately to the researchers.

## Brain Research



Molecular Neuroscience experiments could be facilitated by fresh human brain samples procured using RNase- and pyrogen-free techniques. Specific brain regions are dissected out within a few hours after the death for electrophysiology, multi-electrode array, cell sorting, sub-cellular fraction preparation, stems cell, and primary culture studies. The samples could potentially be used to de-risk many factors before entering the clinical trials in humans. In addition to the brain, we routinely collect spinal cord and dorsal root ganglions to support neuropathic and nociceptive pain studies.

## Existing partners

### Some of our research partners include:

- Carnegie Mellon University
- City of Hope
- Johns Hopkins University
- Lawrence Livermore National Laboratory
- Stanford Medical Center
- University of California, Berkeley
- University of California, Los Angeles
- University of California, Irvine
- University of Massachusetts (Dartmouth)
- University of California, San Francisco
- University of Texas Health Science Center at Tyler
- Pharmaceutical companies and Tissue Banks



## Contact Information and Acknowledgements

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