METHODS&TOOLS/RESEARCH METHODS/BIOMARKER ANALYSIS/BIOFLUID BANKING

The Biomarker Core continues to receive, aliquot, store, and curate all biofluid samples (CSF, plasma, serum) collected from subjects enrolled in ADNI. The ADNI freezers (-80°C) with 24/7 surveillance are housed in secure, dedicated space at the University of Pennsylvania (UPenn). The updated list of pristine aliquots of CSF, plasma, and serum samples collected from ADNI subjects, can be found here (this should be interactive or link should be provided to the inventory report) and a summary of these samples is presented in the table below.

Table 1. Summary of ADNI CSF, plasma and serum samples received, and aliquots prepared as of 5/31/2024.

	CSF	Ser + Pla	TOTAL
ADNI1 Primary Biofluids Collected	956	7614	8570
ADNI1 Aliquots in Bank	19022	96824	115846
ADNI GO/2 Primary Biofluids Collected	1486	9976	11462
ADNI GO/ 2 Aliquots in Bank	35774	131108	166882
ADNI3 Primary Biofluids Collected	802	4772	5574
ADNI3 Aliquots in Bank	22948	44227	67175
TOTAL Primary Biofluids Collected	3277	22885	26162
TOTAL Aliquots in Bank	78439	305215	383654

The Biomarker Core staff continues to monitor details involved in biofluid sample collections since the appropriate handling of these biofluid samples at each ADNI site is very important to ensure the quality of each sample. Avoidance of hemolysis and

time-efficient sample preparation are essential to the sample quality. More details about CSF and plasma/serum sample preparation can be found in *ADNI4 UPenn & NCRAD Biospecimen Manual: Sample Collections, Processing, and Shipment* (the link should be provided).

The Biomarker Core participates in studies on identifying and controlling pre-analytical factors that can contribute to variability in CSF or plasma/serum biomarker measurements; a worldwide collaborative effort under the auspices of the Alzheimer's Association Global Biomarker Standardization Consortium (GBSC). It is fervently hoped that by identifying and controlling pre-analytical factors and using improved analytical techniques, progress can be made in improving the diagnostic utility of biofluid biomarkers. More details can be found under *Biomarkers Analysis/Standardization* (https://adni.loni.usc.edu/methods/).

The Biomarker Core staff prepare and ship ADNI bio-fluid samples to all investigators whose biomarker study proposals have been approved by the RARC (Resource Allocation Review Committee, appointed by the NIA). See Table 2 (sent as a separate file) depicting ADNI biofluid samples sent to investigators for RARC-approved studies for an up-to-date summary of these studies and the status of results. Once completed the data from approved studies, performed blinded, are unblinded and, following a 2 month embargo period, uploaded on the LONI/ADNI website together with a data dictionary and Methods document that describes the methodology involved and quality control performance. The Biomarker Core faculty, Drs. Shaw and Lee are happy to provide input on any study, although this is not required, but often asked. The procedure for making an application to the RARC for ADNI biofluid aliquot samples is available under *Access Data and Samples* (https://adni.loni.usc.edu/data-samples/access-data/).

The Biomarker Core continues to collaborate with biomarker scientists at the University of Pennsylvania and elsewhere. See our 2024 paper for a review of Biomarker Core research activity during the time frame of 2004-2024 (Shaw LM, Korecka M, Lee EB, Cousins KAQ, Vanderstichele H, Schindler S, DeMarco M, Brylska M, Wan Y, Burnham S, Sciulli A, Vulaj A, Tropea TF, Chen-Plotkin A, Wolk

DA. ADNI Biomarker Core: A Review of Progress Since 2004 and Future Challenges).