



SCAN: A Large and Heterogenous Imaging Dataset from the ADRC Network

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AIMS

- The Alzheimer's Disease Research Center (ADRC) program includes over 35 centers across the USA.
- The SCAN project (Standardized Centralized Alzheimer's and related dementias Neuroimaging) began in 2020.
- SCAN standardizes methods for acquisition, quality control, and analysis of MRI and PET across the ADRC network.
- ADRC sites each scan their own selected cohorts and submit protocol-compliant images to SCAN for QC, analysis, and public distribution.
- SCAN-collected images and analyses are shared via the National Alzheimer's Coordinating Center (NACC) and the Laboratory of Neuroimaging at USC (LONI).
- Images are linked with richly characterized, harmonized clinical, psychometric, fluid biomarker, genetic, and neuropathology data (UDS) also available at NACC from across the ADRC network.

METHODS

- SCAN includes an unusually high proportion of participants with atypical AD phenotypes (e.g. PCA, PPA, dysexecutive) and non-AD etiologies including FTLD, DLB, CBD, and vascular brain injury, and those with multiple etiologies.
- SCAN imaging methods are also identical to those in other large research datasets, facilitating analyses across major public datasets, including: ADNI, CLARITI, HEAD, US POINTER, MCSA

RESULTS

- SCAN includes de-identified and de-faced imaging data from **7,848 participants**.
- Roughly 60% of SCAN participants are cognitively unimpaired, 20% have MCI, and 16% have dementia.
- Among the cognitively impaired individuals:
 - 29% had a predominantly non-amnesic initial presentation.
 - 16% have suspected primarily vascular etiology.
- 74% of participants have longitudinal data from more than one visit.
- The median age is 72 years old, and 59% are female.
- Nearly 30% identify as ethnoracial groups typically underrepresented in the USA.
- 1,532 (19.5%) have full A-T-N data available (MRI + Amyloid PET + Tau PET).

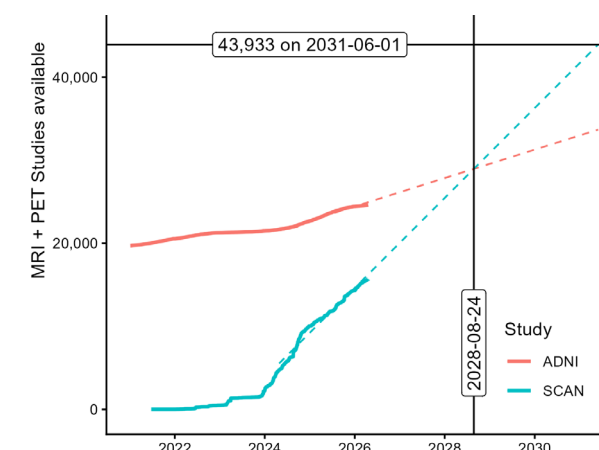
CONCLUSIONS

- SCAN imaging data are available to all qualified researchers.
- SCAN provides images and standardized ATN imaging biomarkers for a richly characterized, highly heterogeneous group of cognitively unimpaired individuals and those with AD, non-AD, and multiple dementia etiologies.
- **SCAN data well complements other public aging and dementia research datasets to enrich analyses with non-AD dementias, atypical phenotypes, and under-represented demographic groups.**

DATA AVAILABLE

MRI Sequence	Total	PET Tracer	Total
3D T1-weighted	9,001	Amyloid: PIB, Florbetapir, Florbetaben, NAV4694, Flutemetamol	3,553
3D T2-FLAIR	8,425		
3D T2-weighted	1,291		
T2star: Multi Echo: T2star: Single Echo:	1,384 1,668		
Diffusion MRI	2,530	Tau: Flortaucipir, MK6240, PI2620, GTP1, RO948	2,599
ASL (perfusion)	835		
High-Res Hippocampus	1,594	FDG	795
fMRI (task-free)	1,318		

STUDY TIMELINE



DOWNLOADS

<https://scan.naccdata.org>



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