

The National Cell Repository for Alzheimer's Disease

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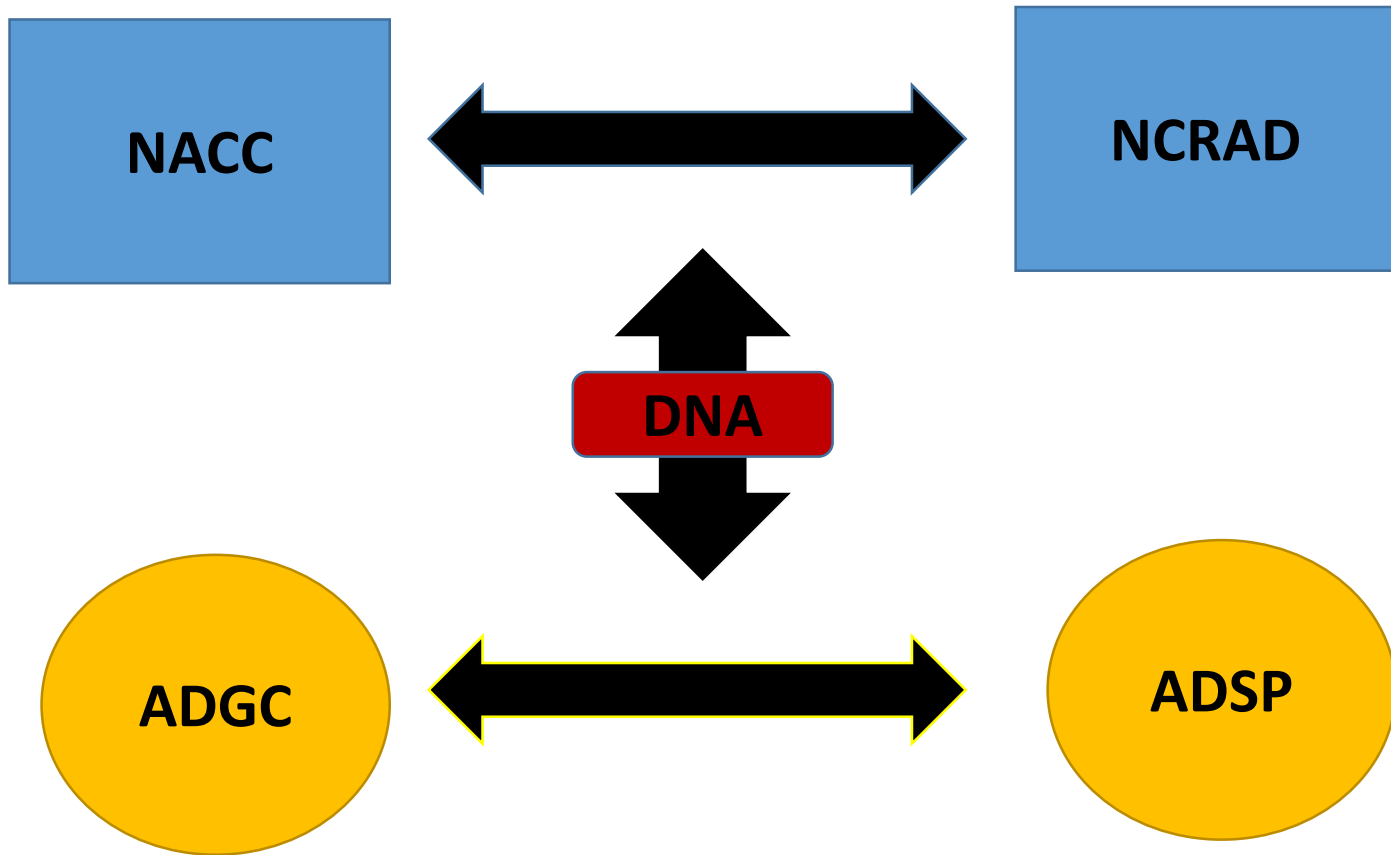
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U24AG21886



Close Collaborations Benefit ADCs

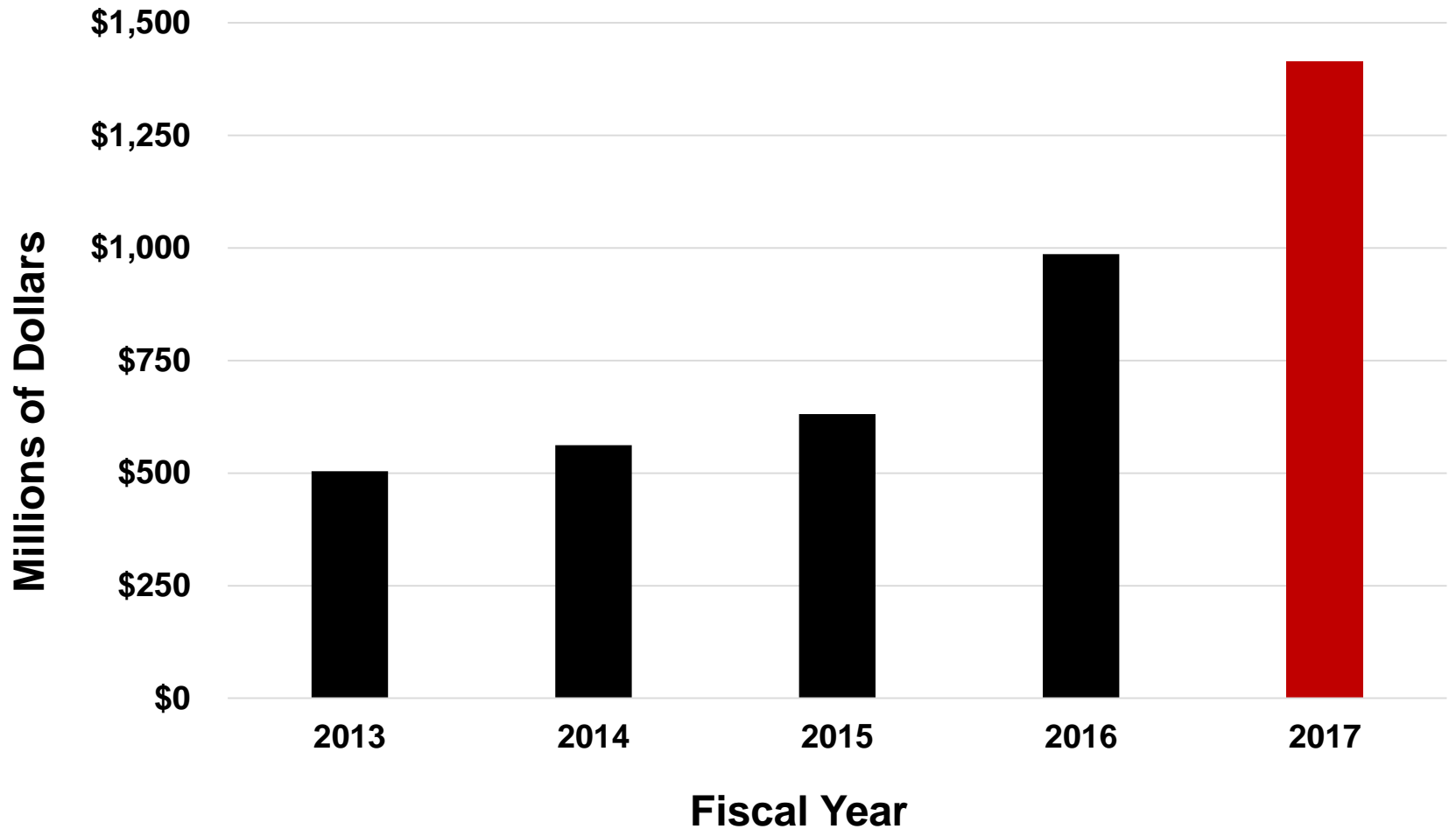


Data for ADC Contributed Samples at NCRAD

- **25,761** with APOE
- **15,966** with GWAS ADC 1-9
 - >**3,000** more in ADC 10 including MCI and EOAD
- **13,490** with exome chip
- **3,261** with WES through the ADSP
- **1,183** with WGS through the ADSP
 - ~3,200 ADSP Follow-up Study (FUS) samples sent
 - 14,000-16,000 total FUS samples planned for WGS

*all totals above include Phase 1 and Phase 2 subjects

Increase in NIA Funding for ADRD



Created new opportunities for many researchers

New NCRAD Initiatives

- Anticipate starting soon...
 - Provide additional infrastructure for sample collection
 - Expand the range of sample types being banked
 - New support for iPSC and fibroblast distribution

Researchers Developing iPSC/Fibroblast Lines

- Researchers funded by NIH are required to share iPSC and fibroblast lines they develop with grant support with other researchers
- Significant burden in terms of time and cost to expand the lines, perform extensive characterization and then distribute to other researchers
- Many researchers find distributions challenging and have requested an NIH central resource that can help them

NCRAD Expansion to Provide iPSC/Fibroblast Support

- NCRAD expanding support for distribution of new cell lines
- Goal: Meet the growing research needs due to increases in NIA funding
- NCRAD will develop a new service to support distribution of fibroblasts and iPSCs

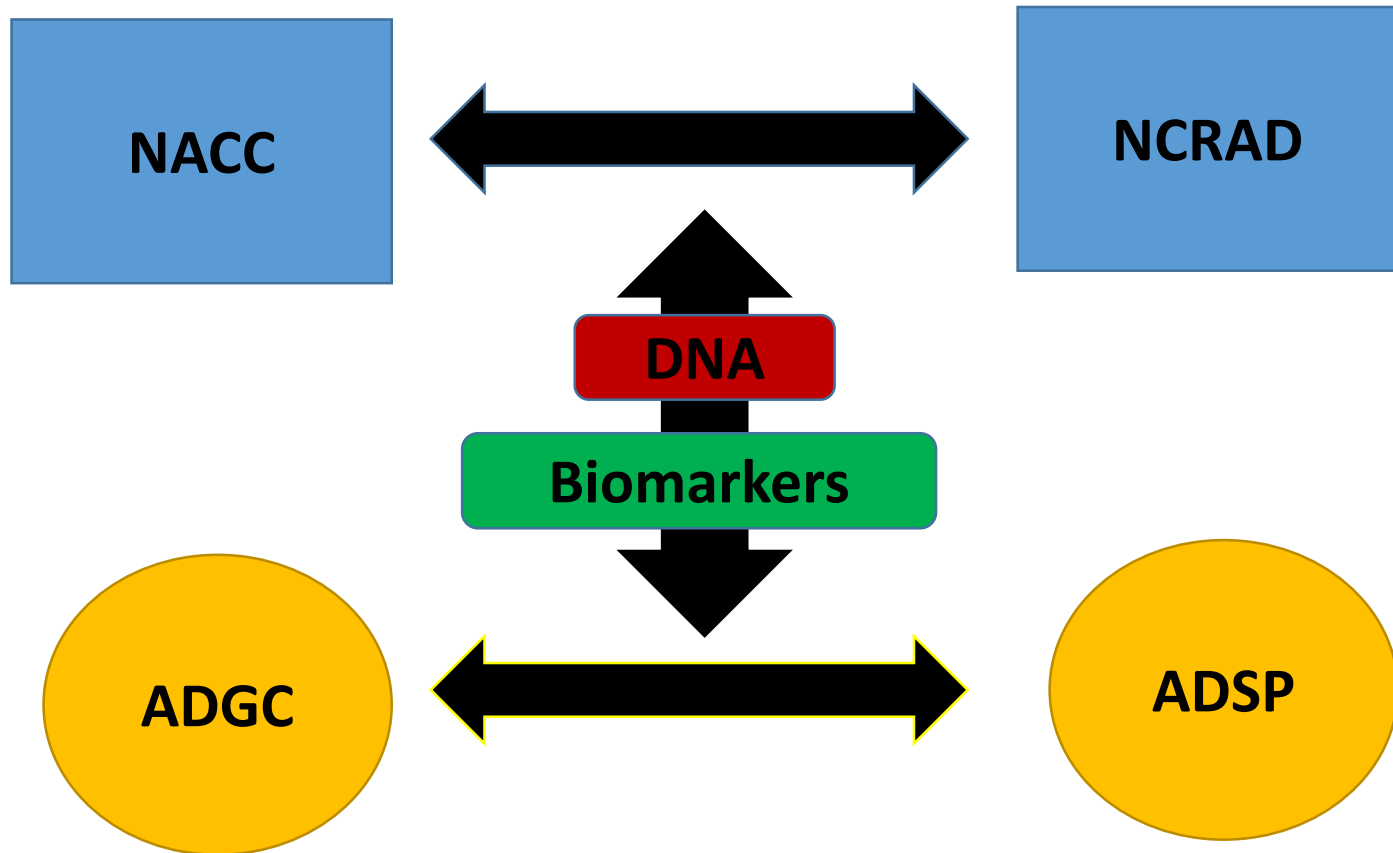
Requesting Samples

- Many lines are generated from ADC participants
 - NCRAD will maintain link to NACC data, providing the ability to select samples from individuals meeting specific clinical criteria
- NCRAD will utilize the same catalog system as for other biospecimens
 - Investigators can also pair molecular data (GWAS, WES, WGS) with samples to select subjects with particular mutations/variants
 - Investigators can download iPSC growth and expansion protocols

NCRAD: Central Biorepository for ADRD Research

- Bank samples from 28 different studies
 - Over 63,000 subjects sampled
 - ~600,000 sample aliquots banked at NCRAD
- At the Biomarker Working Group meeting last night, proposed more coordinated biomarker efforts across the ADCs

Opportunity to Expand Collaborations and Further Benefit the ADCs



Biomarker Vision

ADCs

- Well characterized subjects
- Longitudinal visits
- Genomic data



Blood (**DNA**, plasma, serum, RNA, PBMC) + CSF

NACC

NCRAD

**Central DNA
resource used for
APOE, GWAS, WGS**

**Create a large
central resource for
biomarker studies**

What is the Advantage?

- Large numbers of samples, collected uniformly, available in a single place
 - ADCs receive all materials for sample collection, processing and aliquoting
 - ADCs receive funding for sample collection
 - Reduced ADC burden to store large numbers of samples
 - Single MTA used by a researcher receiving samples from the central storage location
- All data generated from the samples are made available rapidly to the ADCs and the research community
 - Initially propose key assays
 - Generated data can now be used by the ADCs to address their research questions

Biomarker Working Group

More discussion in the session after the break

Communication is Key

NCRAD-NIAGADS Newsletter



January 2018

Introduction

NCRAD would like to introduce a new coordinator that will manage the day-to-day activities of the ADCs. Please contact your NCRAD site coordinator for more information on this new role and how it will impact your site. This role is expected to begin next year. Contact your site coordinator for more information on this role and how it will impact your site.

Annual Sample Distribution Report

It is time again for NCRAD's annual Sample Distribution Report. This is a special report that provides information on the ADCs' annual sample distribution. The report includes the number of samples collected, the number of samples analyzed, and the number of samples that were not analyzed. This report is a key tool for site coordinators to use in planning for the future. Please contact your site coordinator for more information on this report and how it will impact your site.

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Please contact us with any questions or concerns about NCRAD at 800-536-5276. You may also contact us at info@nrad.org.

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Annual calls with the ADCs

ADC Annual Sample Distribution Report

NCRAD Webinars

- NCRAD will be holding two webinars in May
 - **May 8, 2018** at 3pm Eastern
 - Describe NCRAD services for banking samples
 - **May 11, 2018** at 2pm Eastern
 - Describe the process of requesting samples from NCRAD
- Look for an announcement with a link to join the webinar being distributed through the ADC listserv soon!

Acknowledgement

- NCRAD Executive Committee
 - NIA
 - ADCs
 - NACC
 - NIAGADS
 - ADGC/ADSP
 - Studies contributing samples to NCRAD
- NCRAD Team
 - Kelly Nudelman, PhD
 - Jason Meyer, PhD
 - Michael Edler, PhD
 - Kelley Faber
 - Adrian Lyons
 - Jan Hamer
 - Kelly Horner
 - Kaci Lacy
 - Emma Lagone
 - Mel Petkov
 - Madeline Potter
 - Kristi Wilmes
 - Colleen Mitchell
 - Chris Hobbick

Questions/Contact: kelfaber@iu.edu or adnlyons@iu.edu or alzstudy@iu.edu

Proposed Workflow

Researcher provides NCRAD with ≥ 2 vials



NCRAD generates ≥ 50 vials



Approved researcher receives 1 vial



Researcher provides:

- Method of reprogramming
- Passage number
- Previous/recommended culture conditions

NCRAD performs:

- Test for pluripotency
- Test for ability to differentiate into cell types of all 3 germ layers
- Test for mycoplasma contamination
- Confirm a normal karyotype

NCRAD Services



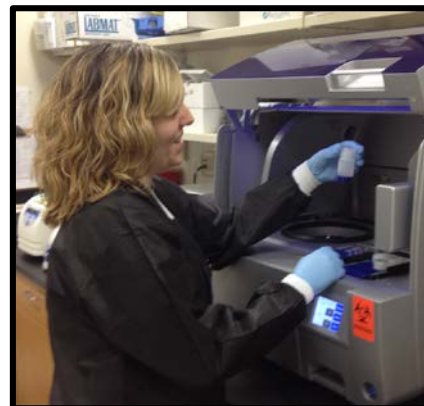
Kits and supplies to draw, process, and ship supplies back to NCRAD

Training Overview:

- Study Update Overview
- Kit/Kit Request Module Update
- Specimen Label Update
- Sample Handling/Processing Update
- Sample Shipping Update
- Sample Form Updates
- Questions?

Create manual of procedures and provide Study Coordinator Training

Sample Receipt, Processing, and Storage



Key Biorepositories at Indiana University

NIA-supported NCRAD

ADCs, ADNI, DIAN, LOAD,
(28 studies)

NINDS-supported BioSEND

BioFIND, LBD consortia,
PDBP, HD studies

MJFF-supported repositories

PPMI, DATATOP, LRRK2
consortium, 24 hour biofluid

Key elements across repositories

- Provide kits and all supplies for sample collection
- Uniform quality measures including SNP fingerprint, hemoglobin testing, RINs
- Create large reference pools with many aliquots
- Provide reference pool aliquots to researchers to bridge across multistep analyses, across researchers, and to facilitate data comparison
- Blinded sample distributions to facilitate return of data and data sharing
- Onboarding call with approved researchers to discuss reference pools, blinding
- Review of requests by a biospecimen review committee
- Distribution of samples with a MTA