January 2022

NCRAD GWAS Plan

In December 2021 we shipped out samples from UDS subjects that do not meet ADGC criteria for GWAS. This shipment (Round 15) included samples from over 1,000 UDS subjects! Just like the samples genotyped by the ADGC, these were sent to the Center for Applied Genomics (CAG) at the Children's Hospital of Philadelphia (CHOP). Annually, we will continue to send samples for GWAS from UDS subjects not meeting ADGC criteria. Our goal is to have GWAS data on all UDS subjects with a DNA sample at NCRAD. GWAS data will be returned to the contributing ADRC and will be made available to all researchers through NIAGADS.

Biomarker Assay Laboratory (BAL)

With the establishment of the Biomarker Assay Laboratory (BAL), NCRAD has expanded our services to include processing of well-established fluid-based biomarkers and provide more support to research studies. The goal is to ensure standardized processing and reliable research biomarker results. This approach allows for longitudinal quality monitoring and consistent delivery of results over time, as well as the opportunity for cross-laboratory comparability studies.

Plasma assays currently* available in the BAL:

- P-tau 181
- NfL
- Aβ40
- Aβ42

*GFAP assay validation to start early 2022

All assays processed at the NCRAD Biomarker Assay Laboratory are research-based results only. For investigators interested in CLIA results, requests can be facilitated by NCRAD, in collaboration with C2N.

To request a quote and/or letter of support for the above assays through NCRAD, please complete the following form. For more information on the BAL, please visit our website here.

Annual Call Update

Historically, we have scheduled an annual thirty-minute call with center members to review the previous year's samples received, distributions, and new initiatives taking place at your site. Because Covid has significantly impacted Centers the past two years, and in the interest of reducing Zoom meetings, we have replaced the annual call with a detailed email that will include the Sample Distribution Report, as well as our typical updates. If your Center would prefer to hold a call with NCRAD, please feel free to reach out to Kaci Lacy (lacy@iu.edu) to schedule a time.

Annual Sample Distribution Reports

Our annual Sample Distribution Reports are designed to help your Center easily document your contributions to central sample banking efforts encouraged by NIA. Reports are sent out every January to the Center Director. Please contact Kaci Lacy (lacy@iu.edu) if you would like a copy sent directly to others as well.

An example report is provided on the next page. To provide the most comprehensive summary of the wide range of samples we are receiving from the ADRCs, the Sample Distribution Report summarizes the number of subjects with each sample type provided by your site as part of initiatives banking samples at NCRAD. This summary encompasses 2021 and overall. For example, a Center may send samples as part of the ADRC, ADNI, and AGMP initiatives. The report would show the number of subjects with DNA, plasma, serum, stool, RNA and PBMC samples in each study. Note that the number of subjects shown on the report is a count of unique individuals with each sample type within a study. Many studies collect longitudinal samples, and these will show as a single subject, not number of visits.

The annual report also summarizes how many samples contributed by your site are requested by researchers. The report shows the total number of aliquots distributed to researchers from samples contributed by your center. We report aliquots for both 2021 and overall. This is a total count of aliquots distributed and is not restricted to unique subjects. Samples from the same subject may be requested by more than one investigator. Please note, this count does not reflect the samples that were returned to the contributing site as their one free aliquot.

Our summary report also provides the number of unique investigators that have requested samples contributed by your center. We provide this information for 2021 and in a cumulative form across all years. Finally, all NIH grants that were supported by the samples contributed by your site are listed. Those grants in blue font supported 2021 distributions.

Please contact Kaci Lacy (lacy@iu.edu) for a custom report with specific date ranges.

NCRAD

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NCRAD Sample Distribution Report

Example University

Date Range: 1/1/2021 to 12/31/2021

Unique Subjects Received (Date Range/Overall)

Study	Buffy Coat	Cell Line	DNA	PBMC	Plasma	RBC	RNA	Stool	WBLD
ADC	0/90	0/0	0/1078	0/0	0/0	0/0	0/0	0/0	0/0
ADCFB	8/96	0/0	0/0	0/101	8/96	0/0	0/0	0/0	0/0
ADNI	0/4	0/8	0/6	0/0	0/0	0/0	0/4	0/0	0/0
ADNI-3	0/11	0/9	0/11	0/9	0/0	0/11	0/11	0/0	0/0
AGMP	0/0	0/0	0/0	0/0	0/0	0/0	0/0	8/11	8/11
Total	**8/201**	**0/17**	**0/1095**	**0/110**	**8/96**	**0/11**	**0/15**	**8/11**	**8/11**

Aliquots Distributed (Date Range/Overall)

Study	Cell Line	DNA	Plasma	RBC	WBLD RNA
ADC	0/0	105/1906	0/0	0/0	0/0
ADCFB	0/0	0/0	15/40	0/0	0/0
ADNI	0/1	0/44	0/0	0/0	0/1
ADNI-3	0/0	0/17	0/0	11/11	0/0
Total	**0/1**	**105/1967**	**15/40**	**11/11**	**0/1**

Investigators Receiving Samples (Date Range/Overall): 1/26

Number of NIH Grants Supported (Date Range/Overall): 2/19

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NCRAD Sample Distribution Report

Example University

Date Range: 1/1/2021 to 12/31/2021

NIH Grants Supported*

R01-AG044546
R43-AG063589
RC2-AG036535
U19-AG024904
R01-AG016208
RC2-AG036528
U01-AG049508
U01-AG062943
U24-AG021882
R01-AG039700
U01-AG006781
U01-AG024904
R01-AG027224
R41-AG066328
U01-AG032984
U01-AG057659
U24-AG021886
U01-AG051406
U01-AG051412

*Blue indicates grant is associated with a distribution within date range.

Please contact us with any questions or concerns about NCRAD at 800-526-2839, by email at alzstudy@iu.edu or visit our website: www.ncrad.org. Thanks!!

FILER: a framework for harmonizing and querying large-scale functional genomics knowledge

PNGC is pleased to announce the release of the FILER, a functional genomics repository developed by NIAGADS, now published in NAR Genomics and Bioinformatics.

Functional genomic and annotation data such as tissue-specific regulatory/enhancer elements, transcription factor binding, chromatin states and interactions are widely used in systems biology, genetic and genomic studies, e.g., to interpret non-coding genome-wide association study signals or to characterize the experimentally identified genomic regions.

We built FILER to provide a scalable, unified, high-throughput and robust access to massive, heterogeneous functional genomic (FG) data collections (> 59,000 datasets) across > 1,000 tissue/cell types curated, harmonized, and integrated from > 20 data sources including ENCODE, GTEx, FANTOM5, NIH Roadmap Epigenomics and other large-scale projects.

All data in FILER can be queried by tissue/cell type, biological sample, assay, genomic feature type and other data attributes. Importantly, genomic queries by intervals/regions of interest are supported with high efficiency thanks to the FILER genomic indexing and search engine. In addition to uniquely providing harmonized FG and annotation data in uniform, consistent data formats, FILER provides pre-processed data per tissue/cell type, to allow users to customize which tissues/cell types to include depending on their research questions.
FILER is also available as a stand-alone version for offline, batch processing in cloud or high-performance computing (HPC) environments. For example, FILER FG and annotation data can be integrated together with the investigation/user specific experimental data and used within custom / user high-throughput genetic and genomic analysis workflows.

New Datasets available at https://www.niagads.org/datasets

NG00115 - Similar Genetic Architecture of Alzheimer's Disease and Differential APOE Effect Between Sexes-Wang et al. 2021

NG00119 - Health and Retirement Study Genotype Data 2006-2012