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The NIDA, ABCD, HBCD, COGA and NESARC Biobanks: Sampled Provides a Critical Resource for Research into the Genetics and Epigenetics of Substance Abuse in Humans

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Since 1999 Sampled, formerly known as RUCDR Infinite Biologics®/ Infinity BiologiX, has continuously been the federal grantee or contractor for a number of NIH institute biobanking awards including NIDA, NIAAA and NIMH. Sampled established and serves as the NIDA Center for Genetic Studies (NGCS) and the biobank for the Adolescent Brain Cognitive Development (ABCD) study. While the NGCS was conceived as a cell, DNA and clinical data repository designed to facilitate cost-effective sample sharing among researchers, it has surpassed that original mandate by providing the latest technological services to NIH grantees. This is demonstrated by the implementation of services including cutting edge genomics such as genotyping, methylation and transcriptome microarrays, next-generation sequencing, clinical diagnostics and iPSC derivation.

To date, the NGC has received more than 100,000 samples from NIDA and NIAAA subjects, producing more than 825,000 aliquots of nucleic acids, plasma, PBMCs and other biomaterials. NGA analytical services has run and analyzed more than 60,000 samples on Smokescreen arrays, sequenced >30,000 whole exomes and > 1 million samples on Infinium and Axiom arrays. We will consider examples of how this data, available in dbGAP, has contributed to research in important areas such as opioid dependence and addiction susceptibility.

This presentation will also highlight the latest omics technologies that Sampled has validated for the use of the addiction research community, including targeted methylation sequencing, single cell RNA Seq and ATAC-Seq, and OLink proteomics, with examples of each. These services are available directly from Sampled or through the NCGS pending programmatic approval.