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Biobanking as a Foundational Component of NIH Research: The NIDA Center for Genetic Studies Provides A Critical Resource for Research into the Genetics and Epigenetics of Substance Abuse

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Since 1999, SAMPLED, formerly known as RUCDR Infinite Biologics®/ Infinity BiologiX, has continuously been the contractor for the NIDA Center for Genetic Studies (NCGS) and more recently the Adolescent Brain Cognitive Development (ABCD) and HEALthy Brain and Child Development (HBCD) Studies.

The NCGS has surpassed its original model as a cell, DNA and clinical data repository by providing the latest technologies to NIH grantees, including cutting edge genomics (e.g., genotyping, methylation and transcriptomic arrays, next-generation sequencing including methylseq and single cell profiling), clinical diagnostics and iPSC derivation. To date, the NCGS 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. NCGS 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 how the NCGS biospecimens and data, available in dbGAP, has contributed to critical progress in research in opioid dependence, addiction susceptibility and behavioral issues relating to addiction.

Through the application of numerous modalities, including genomics, toxin and drug exposure assays, imaging, and behavioral assessments, the HBCD study will study a large cohort of pregnant women from regions of the country significantly affected by the opioid crisis and follow them and their children through early childhood. The study will collect information beginning at birth and continuing through early childhood. The critical role of centralized Global Integrated Analytical Biorepository services in this effort will be discussed.