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**The Cocaine Biobank: A repository of biological samples from genetically characterized outbred rats that exhibit compulsive-like escalation of cocaine self-administration**

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Identification of the mechanisms that underlie compulsive cocaine use in animal models is a major goal for understanding the genetic risk factors for cocaine use disorder and facilitating the identification of novel druggable targets. A key issue for the field is the lack of a repository that contains biological samples from behaviorally and genetically characterized rats. We introduce the Cocaine Biobank ([www.cocainebiobank.org](http://www.cocainebiobank.org)), a repository of biological samples from a unique, genetically diverse strain of outbred heterogeneous stock (HS) rats that have been behaviorally and genetically characterized using next-generation sequencing, state-of-the-art behavioral screening, and a variety of preservation techniques. Male and female rats are trained to self-administer cocaine (0.5 mg/kg/inf) in daily 6 h sessions and tested using progressive-ratio responding and responding despite adverse consequences (contingent footshocks). Results show high individual variability with vulnerable and resistant rats that is likely to facilitate the detection of gene variants and the molecular and cellular mechanisms of addiction. Preservation techniques include perfusion, snap-freezing, and cryopreservation maximize the compatibility of this tissue bank with cellular, molecular, and anatomical methods. The Cocaine Biobank provides free access to over 20 organs. The use of the Cocaine Biobank has the potential to have a sustained impact on the field of addiction they will identify novel druggable targets, provide a comprehensive analysis of compulsive cocaine in both males and females, and provide unique data/tissue repository that will facilitate follow-up and replication studies.