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Mouse Phenome Database: Resources and analysis tools for curated and integrated primary mouse addiction related phenotype data

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The Mouse Phenome Database (MPD; <https://phenome.jax.org>) is a widely used resource that provides access to primary experimental data, protocols and analysis tools for mouse phenotyping studies. Data are contributed by investigators around the world and represent a broad scope of phenotyping endpoints and disease-related characteristics in naïve mice and those exposed to drugs, environmental agents or other treatments. MPD is engineered to facilitate interactive data exploration and quantitative analysis. It encompasses data from inbred strains and other reproducible panels, including HMDP, KOMP, Collaborative Cross (CC), CC-RIX, and founder strains, along with primary data from mapping populations, including historic mapping crosses and advanced high-diversity mouse populations such as Diversity Outbred mice. A new Study Intake Platform (SIP) for data contributors allows domain experts to submit and annotate their own data with relevant ontology terms, including newly expanded terminology for substance use related traits. Submitters also provide detailed information for protocols and animal environmental conditions to fulfill ARRIVE guidelines. Data are exposed to analysis tools within MPD and are available through APIs to other systems such as GeneNetwork. We will demonstrate new functionality, including strain outlier tools to identify multidimensional, polygenic mouse models of human conditions and disease, and QTL metanalysis tools to find evidence for multi-trait variant effects.

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