



**Supplemental Fig. S4.** Mouse GWAS meta-analyses results of 366 traits annotated to Vertebrate Trait ontology parent term VT:0010488 Response to Addictive Substance and child terms Response to Alcohol, Cocaine, Nicotine, and Withdrawal Response to Addictive Substance (VT:0010489, VT:0010718, VT:0010719, VT:0010721, and VT:0010722, respectively). The circular plot provides a bird's eye view of these five meta-analyses, variant effects, and associated genes. Along the outer ring, mouse genes are annotated to each variant. Mouse genes in purple were also detected in multi-substance human GWAS (Hatoum et al. 2023). The colors of each ring and dots within rings correspond to separate meta-analyses for response to addictive substance (blue), cocaine (green), alcohol (red), nicotine (orange), and withdrawal response to addictive substance (purple). Dots indicate measures where the variant effect exists ( $m$ -value  $> 0.9$ ; Han and Eskin 2011) to enable discernment between substance-specific effects and polysubstance effects.