

## Characterization of an alcohol addiction-prone phenotype in rats

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A multidimensional description of alcohol addiction prone phenotype is still missing in laboratory animals. The models that already exist allow only limited conclusions regarding alcohol addiction<sup>1</sup>. In this study we hypothesized that the three-criteria addiction model of Piazza et al., based on the DSM-5, could be a valid model to study an alcohol addiction-prone phenotype in rats<sup>2,3</sup>. We used msP and wistar rats in an intermittent two bottle choice paradigm and then they were trained to self-administer 10% alcohol in operant skinner boxes<sup>4</sup>. During the prolonged self-administration period we measured the persistence for alcohol seeking when alcohol was not available, motivation for alcohol and resistance to negative consequences when alcohol delivery was paired with a foot-shock. Each animal was assigned to a criteria subgroup based on the amount of criteria met for which they scored equal or above the 66th percentile. Using this approach, we identified two different populations for the three addiction-like behaviours that reached different scores, showing more or less propensity for addiction. We are now validating the model and studying the molecular changes in the addicted prone-phenotype brain, to identify the pathways involved in the shift to compulsion and loss of control for alcohol.