Exploring how psychedelic drugs affect a rat's brain

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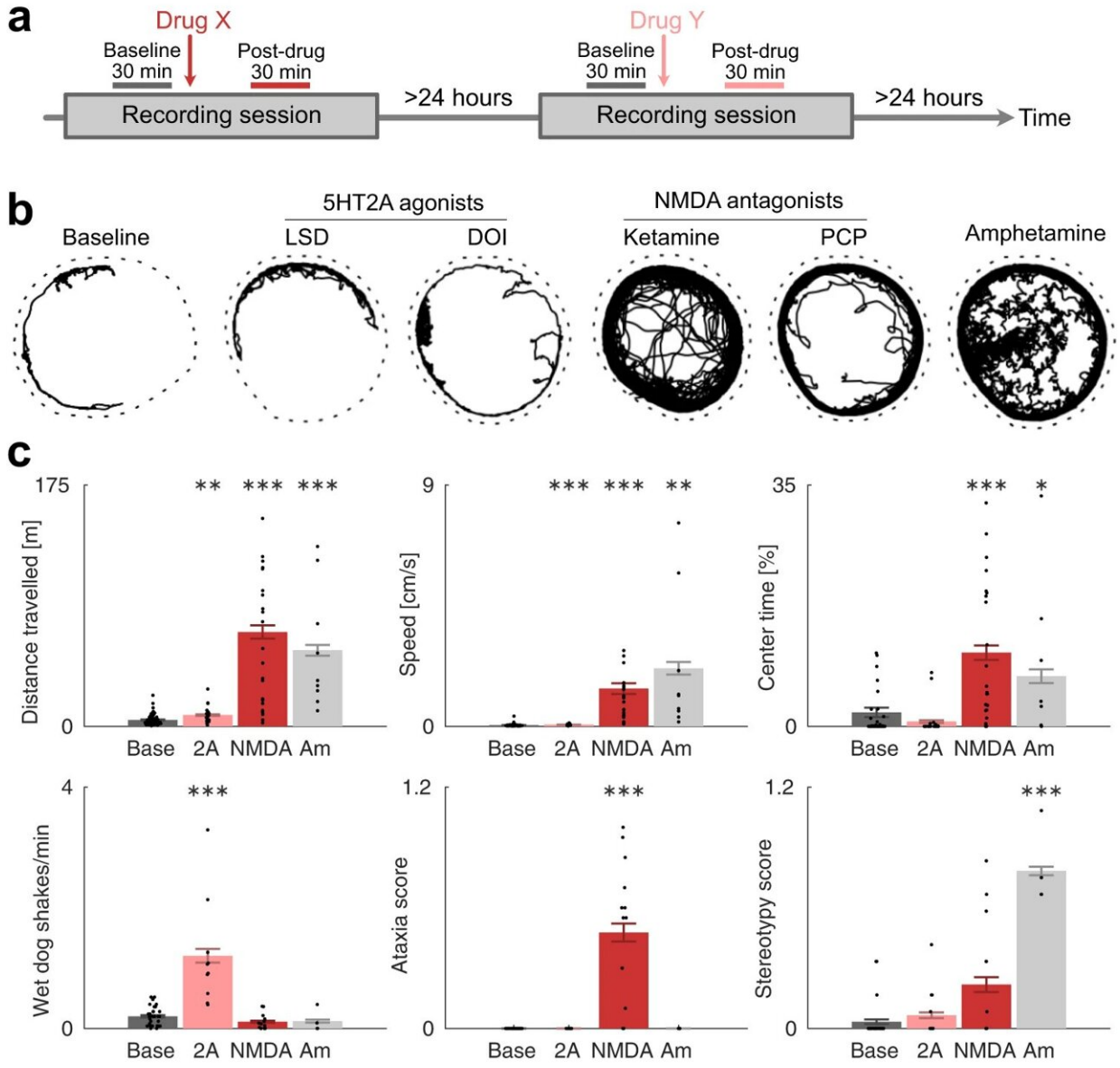

A specific pattern of behavioral changes is induced by each drug class. **a** Timeline of experiment. Each recording session consisted of 60 min baseline followed by a drug injection and recording for another 60–120 min. Behavioral and electrophysiological data were averaged over -35 to -5 min for baseline measurements and 30 to 60 minutes for on-drug measurements (relative to drug injection). At least 24 h passed between recording sessions. **b** Examples of tracked motion for each condition. On baseline, the animal was mostly passive and moved occasionally in bouts along the walls of the circular arena (indicated by the dashed line). On the 5-HT2AR psychedelics LSD and DOI, the locomotion behavior was very similar to baseline. In contrast, the NMDAR psychedelics ketamine and PCP induced clear hyperlocomotion, and especially ketamine induced ataxic, unstable gait. Amphetamine induced strong hyperlocomotion and vigorous sniffing (seen here as wiggly traces). **c** Average changes in behavior for each condition (Base = baseline, 2A = LSD or DOI, NMDA = ketamine or PCP, Am = amphetamine). Bars show mean and SEM, asterisks show significance at the *p*