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Epigenetic effects on substance abuse through immune re-modelling

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Drug abuse has long been speculated to induce addiction by hijacking the reward circuitry. Findings including our own revealed some profound impacts by controlled substance on the immune system within CNS. How such changes contribute to addiction and relapse remains unclear. Here we identified the significant impacts of fentanyl use on the innate immune system in the mouse brain. Our data suggest epigenetic factors play important roles mediating these impacts. We further evaluated how altering CNS immune system modifies fentanyl addiction behaviorally. These findings highlight the significance of immune system as a substrate of drug abuse and their alterations as a mechanism sub-serving drug addiction.