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**The Effect of Heroin Self-Administration on Perineuronal Nets
using an Animal Conflict Model of Abstinence and Relapse**

Perineuronal Nets (PNNs) are specialized extracellular matrix structures of the brain that are found around specific neurons. PNNs play a role in structural and developmental plasticity, it remains unknown how they are affected by drugs of addiction. In the US, drug use has a very profound impact medically, economically, and socially. We used a conflict model which mimicked human drug seeking behaviors. Abstinence of heroin seeking was achieved by placing an electric barrier between the animal and drug access and increasing the shock intensities. Relapse was induced by non-contingent presentations of a drug cue. We conducted an analysis on PNN density using Wisteria Floribunda Agglutinin, We found that there was a strong negative correlation between PNN density and heroin infusion volumes during the drug acquisition phase. These findings suggest that PNNs are affected by heroin self-administration and may play a role in regulating plasticity within the brains of drug abusers.