

Silencing brain catalase expression reduces ethanol intake in developmentally-lead-exposed rats

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© 2018 Elsevier B.V. Lead (Pb) is a developmental neurotoxicant. We have demonstrated that perinatally Pb-exposed rats consume more ethanol than their control counterparts, a response that seems to be mediated by catalase (CAT) and centrally-formed acetaldehyde, ethanol's first metabolite with attributed reinforcing effects in the brain. The present study sought to disrupt ethanol intake (2?10% ethanol v/v) in rats exposed to 220 ppm Pb or filtered water during gestation and lactation. Thus, to block brain CAT expression, a lentiviral vector coding for a shRNA against CAT (LV-antiCAT vector) was microinfused in the posterior ventral tegmental area (pVTA) either at the onset or towards the end of a chronic voluntary ethanol consumption test. At the end of the study, rats were euthanized and pVTA dissected to measure CAT expression by Western blot. The LV-antiCAT vector administration not only reversed, but also prevented the emergence of the elevated ethanol intake reported in the perin