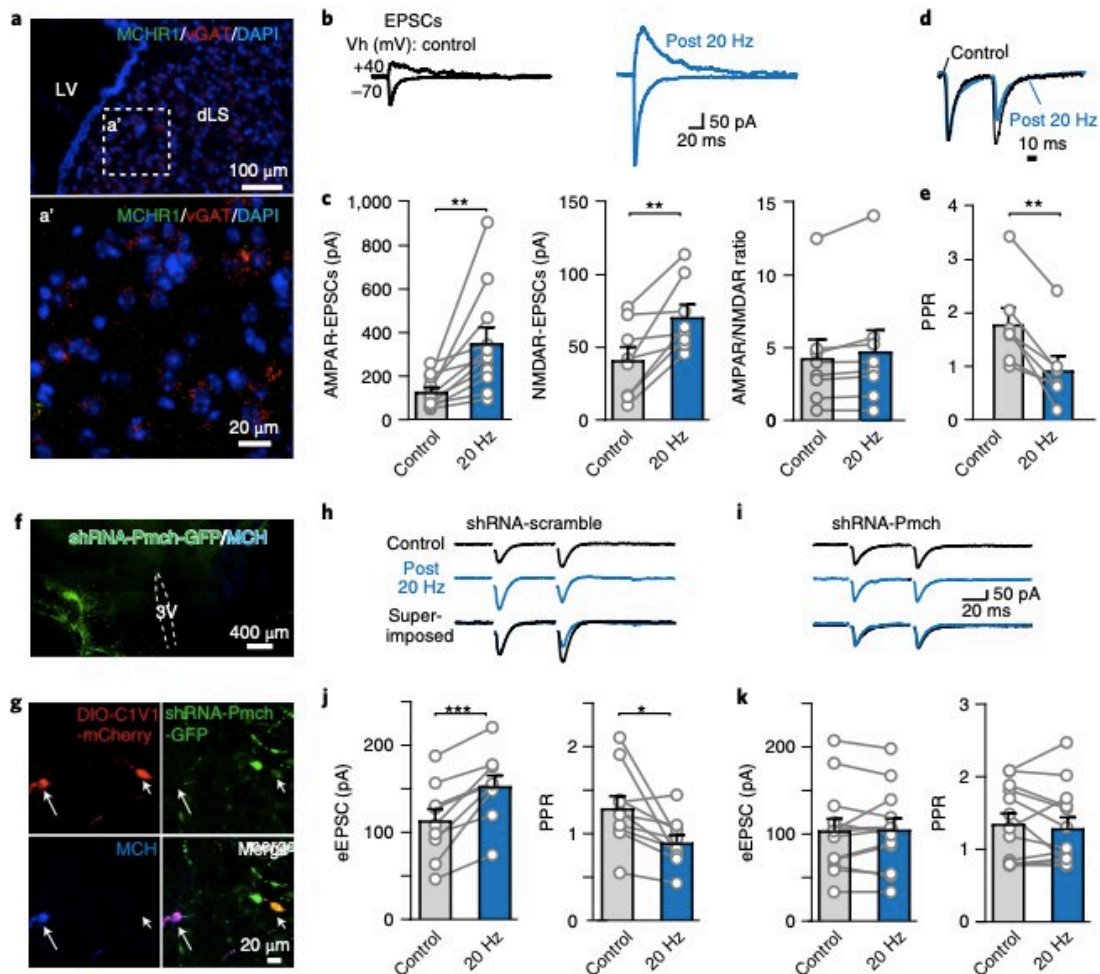


Study: Hypothalamic melanin-concentrating hormone regulates activity in the dorsolateral septum

January 24 2022, by Ingrid Fadelli



MCH enhances excitatory synaptic transmission in the dLS . a, RNAScope in situ hybridization result using probes against MCHR1 and vGAT. b, Sample

traces of evoked AMPAR-mediated ($V_h = -70$ mV) and NMDAR-mediated ($V_h = +40$ mV) EPSCs in dLS-LHA neurons via field stimulations before (control) and after 20-Hz, 2-min optogenetic stimulation of MCH axons expressing ChR2. c, Pooled normalized data showing the amplitude of AMPAR-EPSCs ($n = 11/8$, neurons/mice), NMDAR-EPSCs ($n = 8/6$, neurons/mice) and ratios of AMPAR-EPSC/NMDAR-EPSC ($n = 8/6$, neurons/mice). Numbers of neurons/animals analyzed are indicated in bars. Paired two-tailed Student's t-tests were used: AMPAR-EPSC, $P = 0.0057$; NMDAR-EPSC, $P = 0.0064$; and AMPAR/NMDAR ratio, $P = 0.0508$. d, Superimposed sample traces of evoked EPSCs by paired pulses of field stimulations before and after prolonged optogenetic stimulation. e, Pooled data of PPR and the normalized amplitudes of evoked EPSCs ($n = 7/6$, neurons/mice). Paired two-tailed Student's t-tests were used, $P = 0.0014$. f, shRNA knockdown of *Pmch* in the hypothalamus in MCH-Cre mice. Viruses were injected into one side. g, AAV-DIO-C1V1 injection-labeled MCH neurons (arrow and arrowhead). shRNA-infected neurons show no expression of MCH (arrowhead). h, Representative evoked EPSCs and pooled data in control (shRNA-scramble). i, Representative evoked EPSCs in MCH knockdown (shRNA-*Pmch*) animals. j, Pooled data of evoked EPSCs and PPR in scramble shRNA group, $n = 9/4$, neurons/animals. Paired two-tailed Student's t-tests were used, $P = 0.004$ for eEPSC and $P = 0.016$ for PPR. k, Pooled data of evoked EPSCs and PPR in the shRNA-*Pmch* group, $n = 12/3$ neurons/animals. Paired two-tailed Student's t-tests were used, $P = 0.774$ for eEPSCs and $P = 0.4796$ for PPR. Data are mean \pm s.e.m. * P

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