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The central amygdala circuits in fear regulation.

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The amygdala is essential for fear learning and expression. The central amygdala (CeA), once viewed as a passive relay between the amygdala complex and downstream fear effectors, has emerged as an active participant in fear conditioning. However, how the CeA contributes to the learning and expression of fear remains unclear. Our recent studies in mice indicate that fear conditioning induces robust plasticity of excitatory synapses onto inhibitory neurons in the lateral subdivision of CeA (CeL). In particular, this plasticity is cell-type specific and is required for the formation of fear memory. In addition, sensory cues that predict threat can cause activation of the somatostatin-positive CeL neurons, which is sufficient to drive freezing behavior. Here I will report our recent findings regarding the circuit and cellular mechanisms underlying CeL function in fear processing.