

## Recent insights into remote fear memory attenuation

How to attenuate traumatic memories has long been the focus of intensive research efforts, since traumatic memories are extremely persistent and heavily impinge on one's quality of life. However, surprisingly few studies have investigated treatment options for long-lasting traumata in animal models and the molecular and cellular mechanisms underlying these treatments. The few that have unanimously concluded that exposure therapy-based treatments, the most successful behavioral intervention for the attenuation of recent traumata in humans, fail to effectively reduce remote fear memories. Recently, we have identified a pharmacological approach by which even remote fear memories become amenable to attenuation: By combining exposure therapy-like approaches with histone deacetylase inhibitors in mice, chromatin-templated neuroplasticity could be reinstated, which resulted in persistent fear reduction on the behavioral level.

Currently, we are in the process of investigating the cellular and molecular underpinnings of this finding using a transgenic mouse that allows for the visualization and manipulation of neuronal subpopulations implicated in storing remote fear memories.