Abstract

The involvement of the basolateral and the medial amygdala in fear conditioning was evaluated using different markers of neuronal activation. The method described here is a combination of cytochrome oxidase (CO) histochemistry and c-Fos immunocytochemistry on fresh frozen brain sections. Freezing behavior was used as an index of auditory and contextual fear conditioning. As expected, freezing scores were significantly higher in rats exposed to tone-shock pairings in a distinctive environment (conditioned; COND), as compared to rats that did not receive any shocks (UNCD). CO labeling was increased in the basolateral and medial amygdala of the COND group. Conversely, c-Fos expression in the basolateral and medial amygdala was lower in the COND group as compared to the UNCD group. Furthermore, c-Fos expression was particularly high in the medial amygdala of the UNCD group. The data provided by both techniques indicate that these amygdalar nuclei could play different roles on auditory and contextual fear conditioning.