—Photogravure—

Research on fear/anxiety

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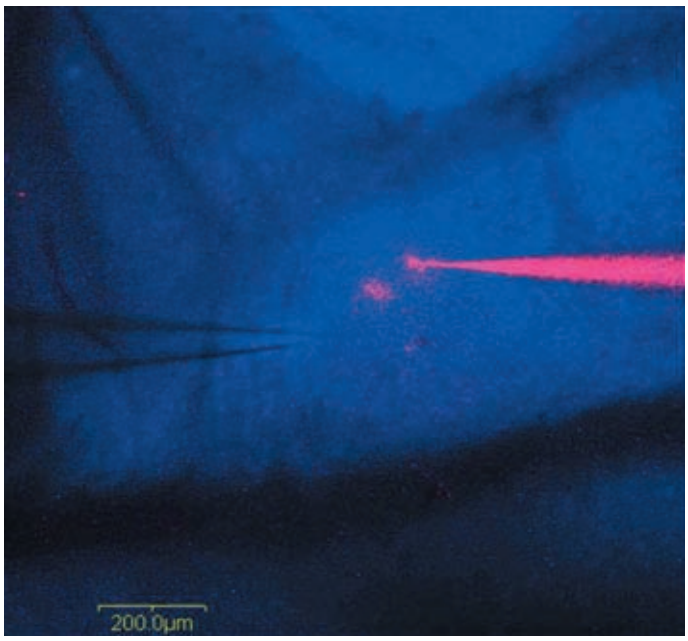
Fig. 1A



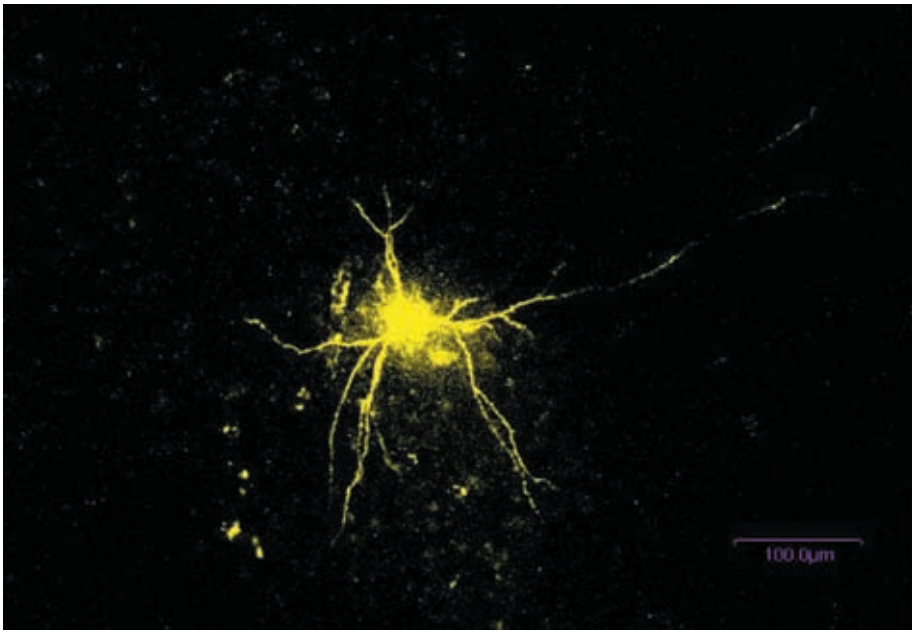


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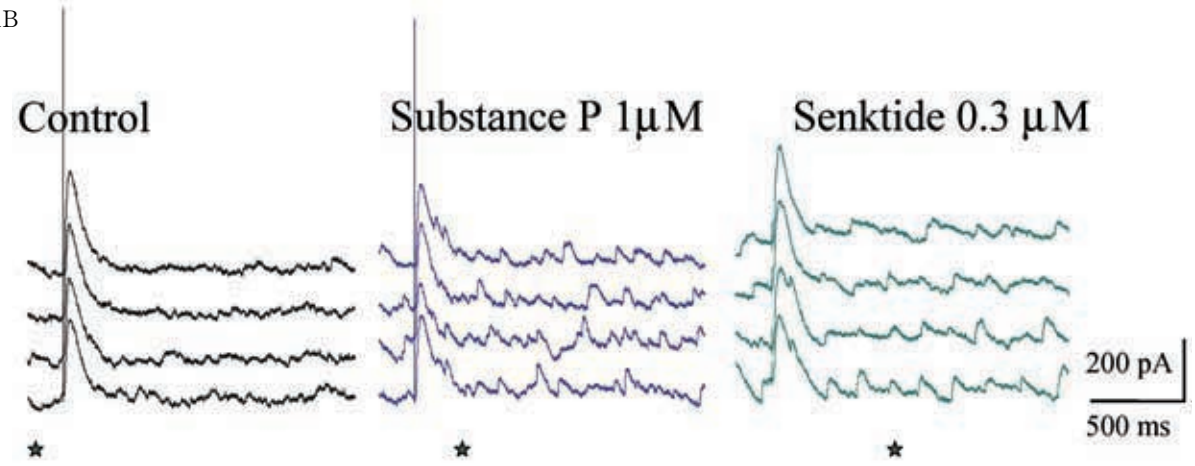
Fig. 1B



Fear/anxiety is a basic and evolutionally conserved emotion essential for survival. Since a great number of patients suffer from fear/anxiety-related disorders, it is important to reveal the neural mechanisms underlying fear/anxiety in terms of medicine as well as neuroscience. Elaborate experimental strategies have been developed for emotion research, including behavioral, biochemical and electrophysiological experiments. Since the amygdala, a well-defined subcortical nuclear group, is thought to be a center which processes information on fear/anxiety, it is one of the targets for electrophysiological analyses in emotion research. In an experiment illustrated in the top photomicrograph of **Fig. 1A**, a whole-cell recording was made from neurons in the amygdala in transverse brain slices cut from young rats. Fluorescent dye contained in a microelectrode (stained in red) made it possible to identify neuronal morphology. The principal neurons in the basolateral amygdala (colored in yellow on the bottom photomicrograph of **Fig. 1A**) exhibited profound activity of spontaneous and evoked inhibitory postsynaptic currents (IPSCs) under blockade of excitatory transmission (control in **Fig. 1B**). Applied by superfusion, substance P (an NK-1 agonist) and senktide (an NK-3 agonist) markedly increased the frequency of spontaneous IPSCs (**Fig. 1B**). This result suggests the involvement of tachykininergic systems in the processing of fear/anxiety-related information.