

Abstract

Anxiety-like behaviour and the associated learning enable organism to recognize dangerous stimuli and situations responding effectively through defensive mechanism. While this behaviour is crucial for the survival of organism its disruptions can result in psychological disorders, including anxiety and post-traumatic stress disorders. One area of the brain that significantly contributes to the regulation of fear learning and behaviour is the prefrontal cortex. Modulated by acetylcholine, the nicotinic acetylcholine receptors abundant in the prefrontal cortex have been identified as a potential therapeutic target for the treatment of anxiety disorders. The aim of this work is to summarise the available knowledge about the role of nicotinic receptors expressed in the prefrontal cortex in governing physiological fear and anxiety-like behaviour and to assess their potential significance for the treatment of anxiety and stress disorders.

Key words: acetylcholine, nicotinic receptors, prefrontal cortex, anxiety disorders, fear behavior