Early indices of deviance detection in humans and animal models.

By inelken
Created 3/22/2017
By inelken March 22, 2017


Abstract:

Detecting unexpected stimuli in the environment is a critical function of the auditory system. Responses to unexpected "deviant" sounds are enhanced compared to responses to expected stimuli. At the human scalp, deviance detection is reflected in the mismatch negativity (MMN) and in an enhancement of the middle-latency response (MLR). Single neurons often respond more strongly to a stimulus when rare than when common, a phenomenon termed stimulus-specific adaptation (SSA). Here we compare stimulus-specific adaptation with scalp-recorded deviance-related responses. We conclude that early markers of deviance detection in the time range of the MLR could be a direct correlate of cortical SSA. Both occur at an early level of cortical activation, both are robust findings with low-probability stimuli, and both show properties of genuine deviance detection. Their causal relation with the later scalp-recorded MMN is a key question in this field.

Journal:
Biological Psychology

Volume:
Volume 116

Date Published:
April 2016

Custom 1:
Our Int'l Ph.D. program provides outstanding students with top-notch courses in computational neuroscience.

read more

The Building

The Jerusalem Brain Sciences Building will provide a state-of-the-art research and teaching facility for the Edmond and Lily Safra Center for Brain Sciences.

read more

ELSC Media Channel

Get into our media channel and investigate ELSC's latest videos: seminars, public lectures, courses and video articles.

read more