A novel inhibitory nucleo-cortical circuit controls cerebellar Golgi cell activity.

By \textit{elsc\_admin}

Created \textit{5/15/2015}

By \textit{elsc\_admin} May 15, 2015


\textbf{Abstract:}

The cerebellum, a crucial center for motor coordination, is composed of a cortex and several nuclei. The main mode of interaction between these two parts is considered to be formed by the inhibitory control of the nuclei by cortical Purkinje neurons. We now amend this view by showing that inhibitory GABA-glycinergic neurons of the cerebellar nuclei project profusely into the cerebellar cortex, where they make synaptic contacts on a GABAergic subpopulation of cerebellar Golgi cells. These spontaneously firing Golgi cells are inhibited by optogenetic activation of the inhibitory nucleo-cortical fibers both in vitro and in vivo. Our data suggest that the cerebellar nuclei may contribute to the functional recruitment of the cerebellar cortex by decreasing Golgi cell inhibition onto granule cells.

\textbf{Journal:}
eLife

\textbf{Volume:}
4

\textbf{Date Published:}
2015 May 12

\textbf{Custom 1:}


UPCOMING EVENTS

Learn more about our exciting upcoming events!

read more

Studying at ELSC
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