

Master gene controls stem cell development in brain's movement centers

Athletes and artists perform their extraordinary feats relying on the cerebellum. As well, the cerebellum is critical for the everyday tasks and activities that we perform, such as walking, eating and driving a car. By removing Snf2h, researchers found that the cerebellum was smaller than normal, and balance and refined movements were compromised.

Led by Dr. David Picketts, a senior scientist at the Ottawa Hospital Research Institute and professor in the Faculty of Medicine at the University of Ottawa, the team describes the Snf2h gene, which is found in our brain's neural stem cells and functions as a master regulator. When they removed this gene early on in a mouse's development, its cerebellum only grew to one-third the normal size. It also had difficulty walking, balancing and coordinating its movements, something called cerebellar ataxia that is a component of many neurodegenerative diseases.

"Without Snf2h there to keep things organized, genes that should be packed away are left turned on, while other genes are not properly activated. This disorganization within the cell's nucleus results in a neuron that doesn't perform very well — like a car running on five cylinders instead of six."

Read the full, original story: [Gene critical for development of brain motor center found](#)