

Study shows brain area involved in eye movements, heading

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An area of the brain involved in eye movements also plays an important role in establishing our direction and navigating our environment, a Dartmouth College study finds.

The study appears in *The Journal of Neuroscience*.

The researchers studied a brain area called the nucleus prepositus that has long been thought to be involved in [eye movements](#). They studied this area in terms of its importance for head direction cells. These brain cells are part of the neural mechanisms underlying our sense of location and directional heading, which forms the basis of our perceived [spatial orientation](#) in the environment. Knowing your spatial orientation is essential for being able to navigate to a goal. In the past few decades, researchers have discovered a number of cell types in the brain that respond in relation to where you are (place cells) and your perceived directional heading ([head direction cells](#)). More recently, a third cell type called grid cells was discovered that is activated at multiple places in the environment.

The Dartmouth study shows that when the nucleus prepositus brain area is lesioned in rats' brains, it disrupts the head direction signal. This indicates that the nucleus prepositus plays an important role in generating the head direction cell signal in addition to its role in eye movements.

Provided by Dartmouth College

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