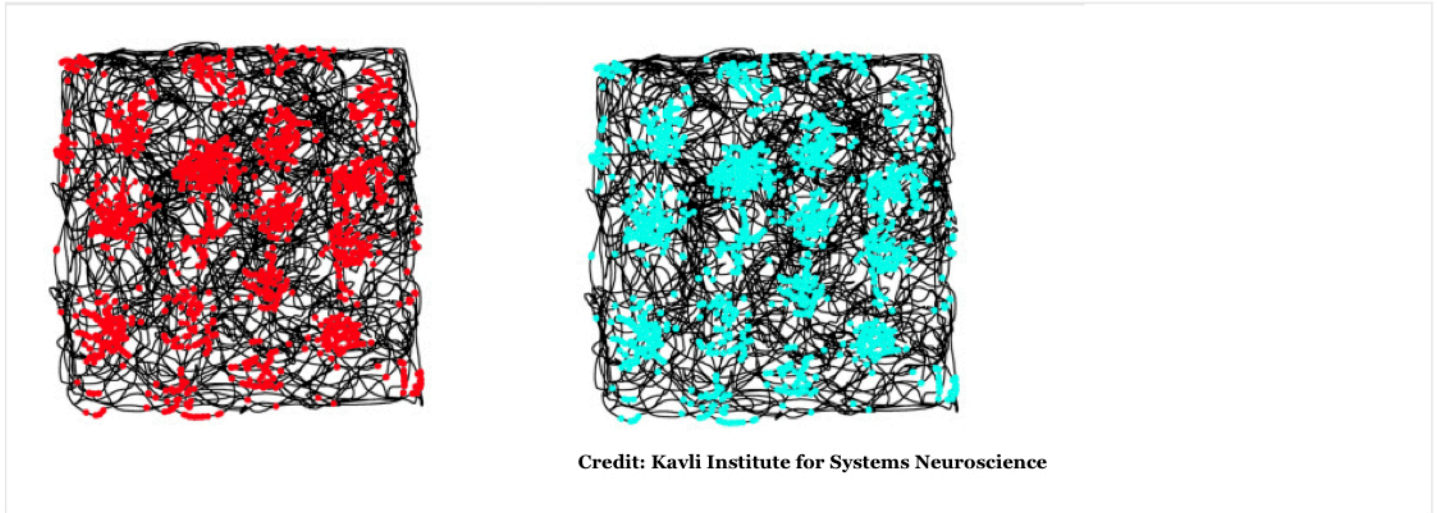


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New Cerebrum: Working to Solve the Alzheimer's Puzzle

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Earlier this week, a [study](#) published in the journal *Neurology* reported that Alzheimer's disease may be killing more than 500,000 people in the U.S. each year, making it possibly the third leading killer behind heart disease and cancer. As [Brain Awareness Week](#) (March 10-16) approaches, it's as good a time as any to take stock of whether neuroscience is getting closer to finding a treatment for Alzheimer's disease.

While the Obama administration's \$100 million Brain Initiative and the European Union's \$1 billion Human Brain Project give us reasons to hope for the future, the research outlined in "[Mapping Your Every Move](#)," *Cerebrum's* March feature, provides reason for optimism right now. Authors [May-Britt Moser](#), Ph.D., and [Edvard Moser](#), Ph.D., of the [Kavli Institute](#) in Norway are among a determined group of researchers worldwide who are making slow but steady progress in research that could lead to Alzheimer's treatment.

In their article, they write about the discovery of what they call a grid cell, a type of neuron that is central to how the brain calculates location and navigation. Grid cells—first found in the brain's entorhinal cortex in 2005—"create a regular, triangular grid by firing when an animal passes over equally spaced locations," write the authors. "The grid looks very much like the pattern on a Chinese checkers board."

In 2008, the Mosers and another lab simultaneously reported the existence of yet another type of neuron, called a border cell, which fires when an animal is near its environment's border, such as a wall or an edge.

Ongoing research hopes to reveal how the grid-cell navigation system communicates with neighboring place cells, border cells, and head direction cells in the hippocampus, a part of the brain critical in forming memories. All of these cells affect spatial awareness, memory, and decision-making. The role of other cells in the hippocampus and