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Arkansas Women in STEM Conference

Hannah Rossell Ouachita Baptist University, ros69259@obu.edu

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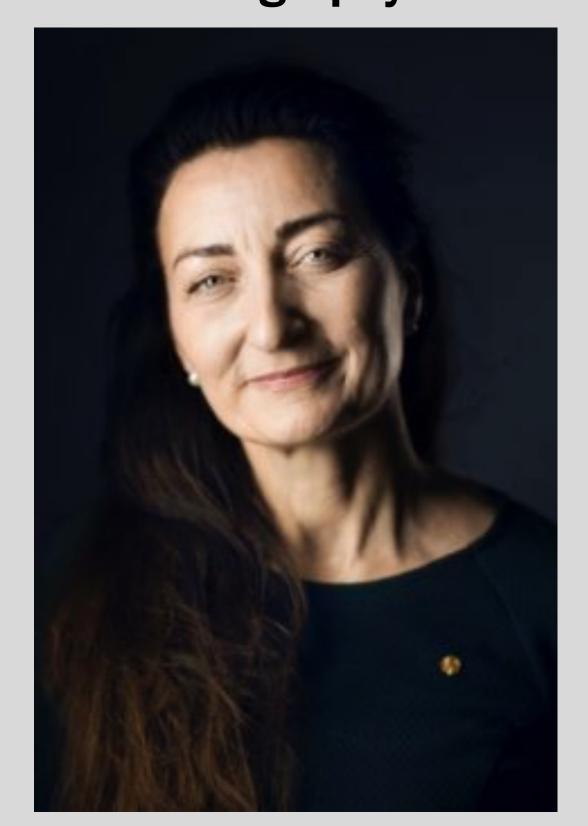
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May-Britt Moser

Hannah Rossell

Biography



May-Britt Moser was born on a small island on the west coast of Norway on January 4, 1963. Her father was a carpenter, and her mother took care of their farm and livestock while raising May and her four siblings.

"I learned at an early age that work makes you happy" she quoted after watching her parents work so hard for so long.

She studied psychology at the University of Oslo then went on to complete her doctoral work at the University of Edinburgh and University College London.

It was during her undergraduate study that she met her future husband, Edvard. They now have two daughters together.

Upon completing her doctoral work May and Edvard Moser moved to the Norwegian University of Science and Technology where she is now a professor of neuroscience and the Director of the Center for Neural Computation.

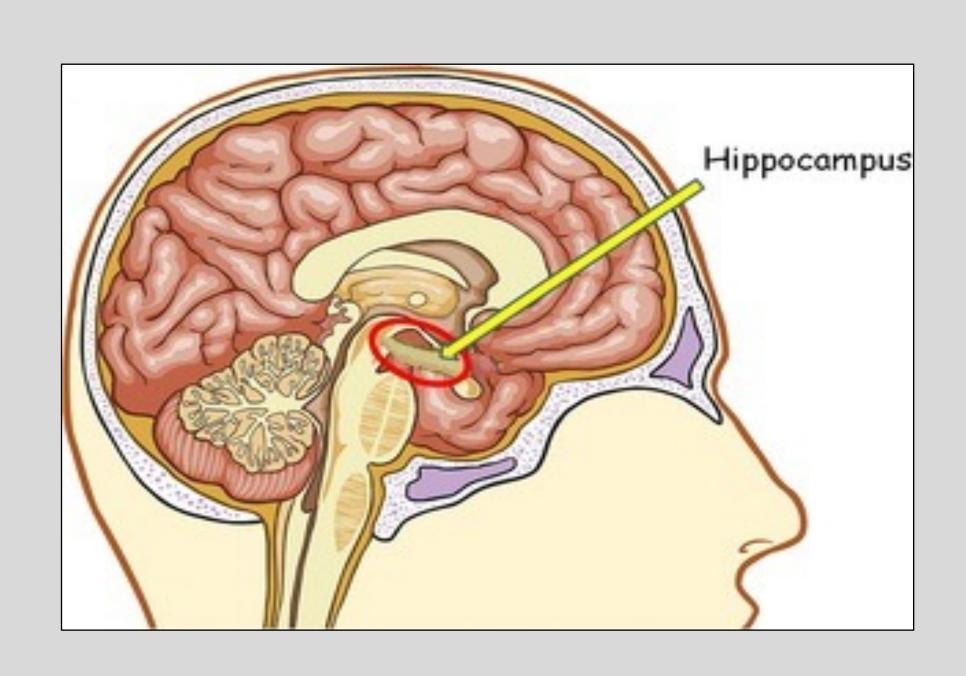
Recognition and Awards:

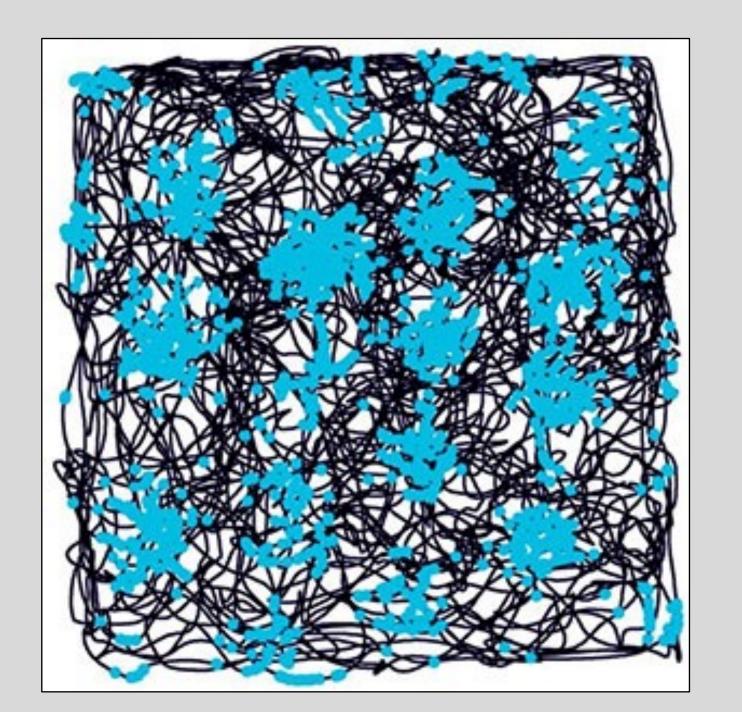
- May-Britt Moser founded and directed the Centre for Neural Computation, Co-Directed the Kavli Institute for Systems Neuroscience, Co-founder for the Centre for the Biology of Memory- which has become a research Centre of Excellence.
- In 2013 she was presented with the Louisa Gross Horwitz Prize for Biology and Biochemistry. In 2014 May-Britt Moser and long-time collaborator and husband, Edvard Moser were awarded the Nobel Prize along with partner, John O'Keefe, for their work in Physiology and Medicine.

May and Edvard are one of only five married couples to win the award.

Grid Cells and the Hippocampus:

• Her most recognizable work is from the discovery and advancement of grid cells.





Places where grid cell fires Bright areas have a high rate of fire of grid cell

Mental Maps

Researchers are studying how brain cells in the entorhinal cortex help rats and other mammals build maps of the environment.

A RANDOM WALK

At left, gray lines show the rat's path as it moves around a box eating pieces of food.

IMPOSING A PATTERN

Grid cells in the rat's entorhinal cortex fire when the rat moves through certain locations. The firing pattern of a single grid cell is marked here with dots. Groups of dots form a hexagonal grid, and the firing pattern persists even in darkness, when the rat cannot see where it is.

GRID CELLS

The grid cells seem to form a map of the local environment. Each grid cell, like the one enlarged at left, fires in a hexagonal pattern that helps the rat track where it is in space. Grid cells are thought to be involved with pathfinding, dead reckoning and the formation of mental maps.

THE NEW YORK TIMES

Relation to Alzheimer's and Memory Related Disease:

- May-Britt Moser has made considerable strides towards Alzheimer's research
- Her development and use of grid cells has given others the ability to look deeper into cognitive processes and spatial deficits associated with human neurological conditions, such as Alzheimer's Disease.

Discovery and Achievements

• Moser's work relates to Alzheimer's because the area of brain where the grid cells are located is typically one of the first areas attacked by the disease.

Acknowledgements

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References

- 1. Alzheimer's Association. (n.d.). Retrieved March 18, 2021, from https://www.alz.org/research
- 2. Anne Forde Nov. 4, 2., Katie Langin Feb. 9, 2., Elisabeth Pain Mar. 21, 2., Julia Gala de Pablo Jan. 28, 2., & Ryoichi Fujiwara Feb. 11, 2. (2017, December 11). The biology of memory. Retrieved March 18, 2021, from https://www.sciencemag.org/careers/2005/11/biology-memory
- 3. Gorman, J. (2013, April 29). A sense of where you are. Retrieved March 18, 2021, from https://www.nytimes.com/2013/04/30/science/may-britt-and-edvard-moser-explore-the-brains-gps.html
- 4. Kavli Institute for Systems Neuroscience Centre for Neural Computation. (n.d.). Retrieved March 18, 2021, from https://www.ntnu.edu/kavli/moser-group#/view/about
- 5. May-Britt Moser. (n.d.). Retrieved March 18, 2021, from https://www.ntnu.edu/employees/may-britt.moser
- 6. Press release. NobelPrize.org. Nobel Media AB 2021. Wed. 17 Mar 2021. https://www.nobelprize.org/prizes/medicine/2014/press-release/
- 7. Rogers, K. (2014, October). May-Britt Moser. Retrieved March 18, 2021, from https://www.britannica.com/biography/May-Britt-Moser
- 8. The Nobel Prize in Physiology or medicine 2014. (2015). Retrieved March 18, 2021, from https://www.nobelprize.org/prizes/medicine/2014/may-britt-moser/biographical/