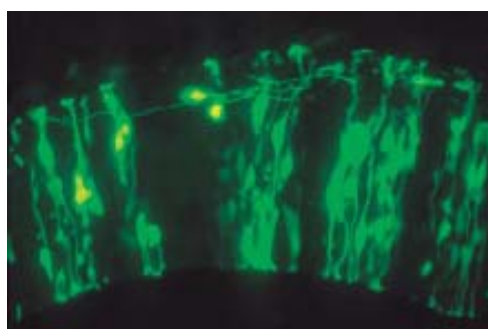


Possibilities for Arachidonic Acid and Future Brain Sciences



"Diseases may be cured, but a person's life is unhappy if he/she is depressed and feels miserable. I would like to continue the research to make the brain and the mind healthy," said Prof. Osumi.



Neuroepithelial cells labeled with a fluorescent protein to be visualized. Cells with intense fluorescence in the upper part are neurons produced from neuroepithelial cells that have finished the final divisions.



"Young Forum," one of the Neuroscience GCOE Programs. New collaborations have been created from various activities, and new research projects have started this year. The activities of, and communication among young researchers, exert great power.



Items carried by Prof. Osumi, who travels around the world, including PC memory and a transformer connector. The fountain pen is a source of ideas for her, who values a sense of an analog world. The green notebook returned from Greece across the seas, a lucky item?

Professor **Noriko Osumi**

Division of Developmental Neuroscience, Department of Functional Genomics, Tohoku University Graduate School of Medicine, Center for Translation and Advanced Animal Research on Human Diseases

Born in 1960. Graduated from Tokyo Medical and Dental University, Graduate School of Medical and Dental Sciences. PhD in dental science. In her current position since 1998 as Director of Tohoku Neuroscience Global CEO, and representative for Core Research for Evolution Science and Technology (CREST) of Japan Science and Technology Agency (JST). Titled as Distinguished Professor.

Prof. Osumi's group discovered that arachidonic acid, a polyunsaturated fatty acid (PUFA), promotes neurogenesis in the brain, which might prevent the mental illness such as depression. The development of the brain is not complete in the embryonic period, but new nerve cells (neurons) are produced in the brain. In the hippocampus, among others, which is the entrance gate to learning or memory, many neural stem cells, i.e., "seed cells," divide, proliferate, and are differentiated into neurons and glial cells. In this neogenesis process, glia cells support the functions of neurons, and develop, interacting with blood vessels to take in oxygen and nutrients. In the process, proteins produced by genes play important roles and PUFAs that bind to such proteins are also greatly involved.

They found that arachidonic acid, one of the major PUFAs, like docosahexaenoic acid (DHA), switches on the activation of the brain, promoting the neurogenesis in the brain. In addition, they discovered that, because mental problems such as depression have a relationship with a decrease in the neurogenesis, arachidonic acid may prevent/improve such problems.

Prof. Osumi is also Director of Tohoku Neuroscience Global COE (GCOE), which aims at encouraging opening new scientific areas in neuroscience and communicating with the public.

This GCOE includes the "Young Forum" planned and operated by postgraduate students and postdoctoral researchers, where they exchange knowledge by discussing their own research with researchers in different fields.

It also holds "Open Lab" to allow people to experience some part of the neuroscience, and "Brain Café" for interaction with citizens.

Thus it explores the great possibilities of neuroscience together with young researchers.

<http://www.dev-neurobio.med.tohoku.ac.jp/en/>

<http://www.sendaibrain.org/>