

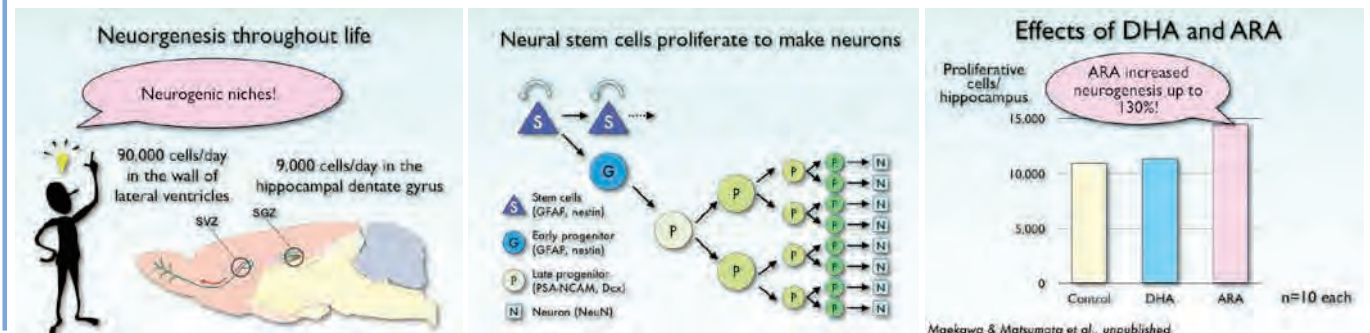
Profile



Prof. Osumi graduated Tokyo Medical and Dental University, was awarded her PhD thesis from the same university, and has been a professor of Tohoku University School of Medicine since 1998. She has been appointed in various governmental committees such as those addressing ethical issues, grant system development, and career paths for young scientists, and was also chosen as the youngest member of the Japanese Council Japan in 2005. Her research interest covers broad areas such as pre- and postnatal development of the brain and craniofacial region, and behavior of animals as models of psychiatric diseases. More specifically, she has recently been investigating the regulatory mechanisms of neurogenesis and the maintenance of neural stem cells at cellular and molecular levels both in embryonic and postnatal stages. Manipulating embryos and imaging brain cells are the specialism of her lab. She has translated two books into Japanese: *Essential Developmental Biology* by Jonathan Slack and *The Birth of the Mind* by Gary Marcus. She is a representative of the CREST project (2005-2009) supported by JST and of Global COE project (2007-2011) supported by MEXT.

Research Activities

Our brain functions are based on a huge number of brain cells, i.e., neurons and glia (astrocytes, oligodendrocytes, and microglia), and blood vessels that supply oxygen and nutrients to all the brain cells. During the development of the brain, neurons arise from neural stem and progenitor cells lining the ventricle of the neural tube (the ventricular zone). Subsequently, in the adult brain, a subset of astrocyte-like cells remain as neural stem cells in the subventricular zone of the lateral ventricle and the dentate gyrus of the hippocampus, giving rise to neuronal progenitors that in turn produce neurons throughout life. The understanding of embryonic and adult neurogenesis, and possible medical applications, are fields of highly active research. Our laboratory is working on both embryonic and postnatal neurogenesis at the molecular and cellular levels. We have recently revealed that polyunsaturated fatty acids such as arachidonic acid can promote neurogenesis. Since decreased neurogenesis seems to be associated with depression and other mental diseases, administration of arachidonic acid can be used as a therapy to prevent / treat mental illness.



Message

For scientists, nothing is more precious than the joy of finding truth. Each step on the path to discovery requires careful observation with eyes unclouded by preconceptions or bias. Each new discovery is made even more enjoyable when shared with other lab members or researchers in different fields. And indeed, exchanging information and ideas with people from different backgrounds may open up new key questions. It is also equally important and enjoyable to find ways to make use of discoveries in the world outside the lab. The benefits of scientific achievement should be returned to society whenever possible. Although it may sometimes seem difficult to share your findings with people who are unfamiliar with science and technology, such communication with the public may in fact tell you where you are and where you need to go, possibly leading you on the road to new endeavors. I sincerely hope that you will make good use of your power of peering deeply into things in making the future fruitful both for yourself and for society.