Domna Karagogeos
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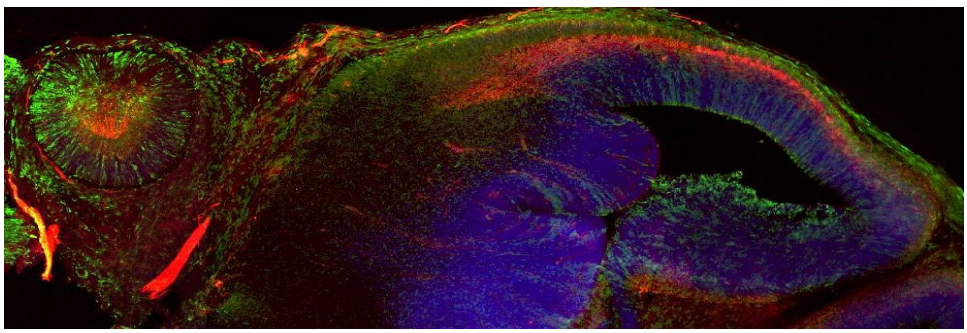
Professional History

2008: Professor of Molecular Biology-Developmental Neurobiology
1999: Associate Professor of Neuroscience,
1993: Assistant Profesor of Neuroscience, Univ of Crete Medical School
1991: Researcher, Institute of Molecular Biology and Biotechnology (IMBB), Heraklion, Crete
1997: Visiting Researcher, Biology Department, Ecole Normale Superieure, Paris
1995: Visiting Scholar, Biology Department, Boston College
1989 -1993: Lecturer in Neuroscience, Univ of Crete Medical School
1986 -1989: Postdoctoral Researcher, Howard Hughes Medical Institute, Center for Neurobiology and Behavior, Columbia University, College of Physicians and Surgeons

Research Interests

The main research interests in the laboratory include (i) axon guidance and neuronal migration during development and (ii) insulation of the nervous system and architecture of myelinated fibers.
Axon guidance and neuronal migration are crucial for the patterning of neural connections and depend signaling events. We have been focusing on the role of recognition molecules of the Immunoglobulin superfamily (IgSF) and especially the glycoprotein TAG-1/contactin-2 and its ligands. Our research takes advantage of various transgenic animals to study the in vivo role of TAG-1 in neuronal migration, axon growth and in the function of the adult nervous system. Our analyses include molecular, cellular, ultrastructural, functional and behavioural characterization of the phenotypic abnormalities observed. In addition, since TAG-1 is required for the proper organization of myelinated fibers, we are investigating its role in axo-glial interactions of demyelinating pathologies and axonal degeneration. Related interests include:

1) the function of TAG-1/Contactin homologue in C.elegans
2) the development of nervous system insulation and epithelial permeability barriers in D.melanogaster



Representative Publications

1. Savvaki M, Panagiotaropoulos T, Stamatakis A, Sargiannidou I, Karatzioula P, Watanabe K, Stylianopoulou F, Karagogeos D, Kleopa KA. (2008) Impairment of learning and memory in TAG-1 deficient mice associated with shorter CNS internodes and disrupted juxtaparanodes. Mol Cell Neurosci. 39(3):478-90.

2. Ma QH, Futagawa T, Yang WL, Jiang XD, Zeng L, Takeda Y, Xu RX, Bagnard D, Schachner M, Furley AJ, Karagogeos D, Watanabe K, Dawe GS, Xiao ZC. (2008) A TAG1-APP signalling pathway through Fe65 negatively modulates neurogenesis. Nat Cell Biol. Mar;10(3):283-94. Epub 2008 Feb 17.

3. Strigini, M., Cantera, R., Morin, X., Bastiani, M., Bate, M., and Karagogeos, D. (2006) The IgLON protein Lachesin, is required for the blood-brain barrier in Drosophila Mol Cell Neurosci. 32(1-1): 91-101.

4. Denaxa, M., Kyriakopoulou, K., Theodorakis, K., Trichas, G., Vidaki, M., Takeda, Y., Watanabe, K., and Karagogeos, D. (2005) The adhesion molecule TAG-1 is required for proper migration of the superficial migratory stream in the medulla but not of cortical interneurons Dev. Biol. 288(1):87-99

5. Traka, M. *, Goutebroze, L. *, Denisenko, N., Bessa, M., Nifli, F., Havaki, S., Iwakura, Y., Fukamauchi, F., Watanabe, K., Girault, J.A. and Karagogeos, D. (2003) TAG-1 associates with Caspr-2 and is essential for the molecular organization of juxtaparanodal regions of myelinated fibers J Cell Biol 162 (6): 1161-1172

6. Kyriakopoulou, K., DeDiego, I., Wassef, M. and Karagogeos, D. (2002) A combination of chain and neurophilic migration involving the adhesion molecule TAG-1 in the caudal medulla Development 129: 287-296.

7. Traka, M. Dupree, J.L., Popko, B. and Karagogeos, D. (2002) The neuronal adhesion protein TAG-1 is expressed by Schwann cells and oligodendrocytes and is localized to the region of the node of Ranvier in myelinated fibers. J. Neurosci. 22(8):3016-3024.

8. Denaxa, M., Chan, C-H., Schachner, M., Parnavelas, J.G. and Karagogeos, D. (2001) The adhesion molecule TAG-1 mediates the migration of cortical interneurons along the corticofugal fiber system Development 128: 4635-4644.

9. Furley, A., Morton, S. B., Manalo, D., Karagogeos, D., Dodd, J. and Jessell, T. M. (1990) The axonal glycoprotein TAG-1 is an immunoglobulin superfamily member with neurite outgrowth-promoting activity. Cell 61: 157-170.

10. Dodd, J., Morton, S. B., Karagogeos, D., Yamamoto, M. and Jessell, T. M. (1988) Spatial regulation of axonal glycoprotein expression on subsets of embryonic spinal neurons. Neuron 1: 105-116.