Researcher's profile

Name: Akira Nakagawara, MD, PhD (Born in 1947)

Affiliation & Title: Director, Chiba Cancer Center Research Institute

Brief history:

1972 Graduated from Kyushu University School of Medicine
1972 Department of Surgery II, Kyushu University Hospital
1980 Visiting Assistant Professor, Rockefeller University, NY, USA
1981 Lecturer, Department of Pediatric Surgery, Kyushu University
1990 Associate Professor, Department of Pediatric Surgery, Kyushu University
1990 Visiting Professor, Department of Pediatrics (Hematology and Oncology), Washington University, St. Louis, USA
1993 Visiting Scientist, Department of Radiation Oncology, University of Pennsylvania, Philadelphia, USA
1995 Head, Division of Biochemistry, Chiba Cancer Center Research institute
2004 Director, Chiba Cancer Center Research institute

Meetings:

2006 President, The 21st Japanese Association of Pediatric Oncology
2008 President, The 13th Advances in Neuroblastoma Research (ANR2008)

Main projects: Unveiling molecular mechanisms of carcinogenesis, aggressive behavior and spontaneous regression as well as developing novel diagnostic and therapeutic strategies in neuroblastoma

Short summary:

The prognosis of neuroblastoma, one of the typical childhood cancers, is still poor. Professor Nakagawara has been working on unveiling molecular mechanisms of carcinogenesis, aggressive clinical behavior and spontaneous regression in neuroblastoma. He discovered that TrkA, a high-affinity receptor for nerve growth factor (NGF), plays an important role in regulating differentiation and programmed cell death in neuroblastomas with favorable prognosis. On the other

hand, he also found that TrkB and its ligands, BDNF and NT-4, are expressed at high levels in aggressive neuroblastomas, and enhance the tumor cells growth by functioning in an autocrine and/or paracrine manner. In addition, he and his colleagues as well as other groups have recently discovered that ALK tyrosine kinase receptor is mutated or amplified in some of primary neuroblastomas to make the tumor cells more aggressive. By using comprehensive genomic strategies, he is developing new diagnostic systems and also trying to find out new drugs targeting the important molecules he found. Professor Nakagawara also working on other pediatric and adult cancers using similar approaches.

Key words: Neuroblastoma, Carcinogenesis, Trk, Development, Spontaneous regression

Main papers:

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3. Nakagawara, A., Azar, C.G., Scavarda, N.J., Brodeur, G.M. Expression and function of TRK-B and BDNF in human neuroblastomas. ***Mol. Cell. Biol.*** 14:759-767, 1994
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5. Munirajan, A. K., Ando K., Mukai, A., Takahashi, M., Suenaga, Y., Ohira, M., Koda, T., Hirota, T., Ozaki, T., and Nakagawara, A. *KIF1Bβ* functions as a haploinsufficient tumor suppressor gene mapped to chromosome 1p36.2 by inducing apoptotic cell death. ***J. Biol. Chem.*** 283:24426-24434, 2008
6. Chen, Y., Takita, J., Choi, Y. L., Kato, M., Ohira, M., Sanada, M., Soda, M., Kikuchi, A., Igarashi, T., Nakagawara, A., Hayashi, Y., Mano, H., and Ogawa, S. Novel oncogenic mutations of ALK kinase in neuroblastoma. ***Nature*** 455:971-974, 2008