Nano-Net 2009, Lucerne, Switzerland

Tutorial on Networking Science and Information Processing Technology for Nano-Biological Systems in the New Millennium

Speaker's Biography

KAZUHIRO OIWA

Professional Experience

Jul.2008 –present: Director general, Kobe Research Laboratories, National Institute of Information and Communications Technology

2008 –present: Group leader, Biological ICT Group Kobe Research Laboratories, National Institute of Information and Communications Technology

2006 – 2008: Group leader, Biological ICT Group Kobe Advanced ICT Research Center, National Institute of Information and Communications Technology

2004 – 2005: Group leader, Protein Biophysics Group National Institute of Information and Communications Technology (former Communications Research Laboratory)

2000 –present: Professor, Joint Appointment with the University of Hyogo

2001 – 2004: Group leader, Protein Biophysics Group, Communications Research Laboratory), Japan

1997 – 2001: Section chief, Biological Functions Section, Communications Research Laboratory, MPT, Japan

1994 – 1997: Senior researcher, Biological Functions Section, Communications Research Laboratory, MPT, Japan

1994 – 1995: Visiting researcher, Division of Physical Biochemistry National Institute for Medical Research, United Kingdom

1993 – 1994: Researcher, Biological Functions Section, Communications Research Laboratory, MPT, Japan

1989 – 1993: Assistant Professor, Department of Physiology, School of Medicine, Teikyo University, Japan

1988 – 1989: Research Associate, Department of Physiology, School of Medicine, Teikyo University, Japan

Selected publications

1. Adachi, K., Oiwa, K., Nishizaka, T., Furuike, S., Noji, H., Itoh, H., Yoshida, M., and Kinosita, K. (2007) Coupling of rotation and catalysis in F1-ATPase revealed by single-molecule imaging and manipulation. Cell, 130: 309-321.

2. Oiwa, K., Kometani, R., Li, D. Y., Shitaka, Y., Nakamori, R., Matsui, S., and Sakakibara, H. (2007) Molecular and Nanometer-Scale Self-Organaized System Generated by Protein Motor Functions. Materials Science Forum, 539-543: 3290-3296.

3. Oiwa, K., and Sakakibara, H. (2005) Recent progress in dynein structure and mechanism. Current Opinion in Cell Biology, 17: 98-103.

4. Nishizaka, T., Oiwa, K., Noji, H., Kimura, S., Muneyuki, E., Yoshida, M., and Kinosita, K. Jr. (2004) Chemomechanical coupling in F1-ATPase revealed by simultaneous observation of nucleotide kinetics and rotation. Nature Structural & Molecular Biology, 11: 142-148.

5. Burgess, S. A., Walker, M. L., Sakakibara, H., Knight, P. J., and Oiwa, K. (2003) Dynein structure and power stroke. Nature, 421: 715-718.

6. Oiwa, K., Jameson, D. M., Croney, J. C., Davis, C. T., Eccleston, J. F., and Anson, M. (2003) The 2'-O- and 3'-O-Cy3-EDA-ATP(ADP) complexes with myosin subfragment-1 are spectroscopically distinct. Biophysical Journal, 84: 634-642.

7. Yamada, A., Yoshio, M., Kojima, H., and Oiwa, K. (2001) An in vitro assay reveals essential protein components for the "catch" state of invertebrate smooth muscle. Proceedings of the National Academy of Sciences of the United States of America, 98: 6635-6640.

8. Oiwa, K., Eccleston, J. F., Anson, M., Kikumoto, M., Davis, C. T., Reid, G. P., Ferenczi, M. A., Corrie, J. E., Yamada, A., Nakayama, H., and Trentham, D. R. (2000) Comparative single-molecule

and ensemble myosin enzymology: sulfoindocyanine ATP and ADP derivatives. Biophysical Journal, 78: 3048-3071.
9. Sakakibara, H., Kojima, H., Sakai, Y., Katayama, E., and Oiwa, K. (1999) Inner-arm dynein c of Chlamydomonas flagella is a single-headed processive motor. Nature, 400: 586-590.
10. Ye, L. H., Kishi, H., Nakamura, A., Okagaki, T., Tanaka, T., Oiwa, K., and Kohama, K. (1999) Myosin light-chain kinase of smooth muscle stimulates myosin ATPase activity without phosphorylating myosin light chain. Proceedings of the National Academy of Sciences of the United States of America, 96: 6666-6671.
11. Oiwa, K., Yamaga, T., and Yamada, A. (1998) Direct observation of a central bare zone in a native thick filament isolated from the anterior byssus retractor muscle of Mytilus edulis using fluorescent ATP analogue. Journal of Biochemistry, 123: 614-618.