

CV for Etsuko Muto

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Education:

1975-1979	B.S., Biology	Ochanomizu University, Tokyo, Japan
1979-1982	M.S., Molecular Biology	Nagoya University, Nagoya, Japan
1985-1987	Ph.D., Molecular Biology	Nagoya University, Nagoya, Japan

Academic appointments:

2008 – Present	Laboratory Head, Laboratory for Molecular Biophysics, RIKEN-BSI
2004 – 2008	Unit Leader, Brain Development Research Group, RIKEN-BSI
2000 – 2004	Senior Scientist, Developmental Brain Science Group, RIKEN-BSI
1997 – 2000	Researcher, PRESTO (Precursory Research for Embryonic Science and Technology), JST
1992 – 1997	Researcher, Yanagida Biomotron Project, ERATO (Exploratory Research for Advanced Technology), JST

Other professional positions:

1989 – 1992	Lecturer, Aichi Prefectural University of Fine Arts
1987 – 1989	Visiting Scientist, Department of Ultrastructural Research, The Tokyo Metropolitan Institute of Medical Science
1982 – 1985	Visiting Scientist, National Cancer Institute, NIH

Award:

1990	Kazato Research Encouragement Prize (Kazato Research Foundation)
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List of selected papers:

Muto E, Sakai H, Kaseda K. Long-range cooperative binding of kinesin to a microtubule in the presence of ATP. J. Cell Biol. 168: 691-696, 2005.

Minoura I, Muto E. Dielectric measurement of individual microtubules using the electroorientation method. Biophys. J. 90: 3739-3748, 2006.

Uchimura S, Oguchi Y, Katsuki M, Usui T, Osada H, Nikawa J, Ishiwata S, Muto E. Identification of a strong binding site for kinesin on the microtubule using mutant analysis of tubulin. EMBO J. 25: 5932-5941, 2006.

Minoura I, Katayama E, Sekimoto K, Muto E. One-dimensional Brownian motion of charged nanoparticles along microtubules: A model system for weak binding interactions. Biophys. J. 98: 1589-1597, 2010.

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Uchimura S, Fujii T, Takazaki H, Ayukawa R, Nishikawa Y, Minoura I, Hachikubo Y, Kurisu G, Sutoh K, Kon T, Namba K, and Muto E. A flipped ion pair at the dynein-microtubule interface is critical for dynein motility and ATPase activation. J. Cell Biol. 208: 211-222, 2015.

All publications in English:

Hasegawa E, Kamiya R, Asakura S. Thermal transition in helical forms of *Salmonella* flagella. J. Mol. Biol. 160: 609-621, 1982.

Chen WT, Hasegawa E, Hasegawa T, Weinstock C, Yamada KM. Development of cell surface linkage complexes in cultured fibroblasts. J. Cell Biol. 100: 1103-1114, 1985.

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Akiyama SK, Hasegawa E, Hasegawa T, Yamada KM. The interaction of fibronectin fragments with fibroblastic cells. J. Biol. Chem. 260: 13256-13260, 1985.

McDonald JA, Quade BJ, Broekelmann TJ, LaChance R, Forsmant K, Hasegawa E, Akiyama S. Fibronectin's cell-adhesive domain and an amino-terminal matrix assembly domain participate in its assembly into fibroblast pericellular matrix. *J. Biol. Chem.* 262: 2957-2967, 1987.

Newman SA, Frenz DA, Hasegawa E, Akiyama SK. Matrix-driven translocation: Dependence on interaction of amino-terminal domain of fibronectin with heparin-like surface components of cells or particles. *Proc. Natl. Acad. Sci. U.S.A.* 84: 4791-4795, 1987.

Hasegawa E, Hayashi H, Asakura S, Kamiya R. Stimulation of in vitro motility of *Chlamydomonas* axonemes by inhibition of cAMP-dependent phosphorylation. *Cell Motil. Cytoskel.* 8: 302-311, 1987.

Kamiya R, Hasegawa E. Intrinsic difference in beat frequency between the two flagella of *Chlamydomonas reinhardtii*. *Exp. Cell Res.* 173: 299-304, 1987.

Muto E, Kamiya R, Tsukita S. Double-rowed organization of inner-dynein arms in *Chlamydomonas* flagella revealed by tilt-series, thin-section electron microscopy. *J. Cell Sci.* 99: 57-66, 1991.

Kamiya R, Kurimoto E, Muto E. Two types of *Chlamydomonas* flagellar mutants missing different components of inner-arm dynein. *J. Cell Biol.* 112: 441-447, 1991.

Muto E, Edamatsu M, Hirono M, Kamiya R. Immunological detection of actin in the 14S ciliary dynein of *Tetrahymena*. *FEBS Lett.* 343: 173-176, 1994.

Muto E, Kojima H, Yanagida T. Piconewton force and nano-meter step measurements of single kinesins by a glass microneedle. *Jpn. J. Physiol.* 45, suppl.2: s89, 1995.

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Miyamoto Y, Muto E, Mashimo T, Iwane AH, Yoshiya I, Yanagida T. Direct inhibition of microtubule-based kinesin motility by local anesthetics. *Biophys J.* 78: 940-949, 2000.

Nishiyama M, Muto E, Inoue Y, Yanagida T, Higuchi H. Substeps within the 8-nm step of the ATPase cycle of single kinesin molecules. *Nat. Cell Biol.* 3: 425-428, 2001.

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