

High-Speed AFM paper list (2015/6/8 update)

NO.	Classification	Sample	Author	Title	Journal	Research organizations
137	Biological Sample	IgA antibody	T Suzuki, A Kawaguchia, A Ainai, S Tamura, R Ito, P Multihartina, V Setiawaty, K N A Pangesti, Odagiri, M Tashiro H Hasegawaa	Relationship of the quaternary structure of human secretory IgA to neutralization of influenza virus	PNAS doi: 10.1073/pnas.1503885112	National Institute of Infectious Diseases
136		Centralspindlin CYK4	T Davies, N Kodera, GSK Schierle, E Rees, M Erdelyi, CF Kaminski, T Ando, M Mishima	CYK4 Promotes Antiparallel Microtubule Bundling by Optimizing MKLP1 Neck Conformation	PLOS ONE DOI: 10.1371/journal.pbio.1002121 Published: April 13, 2015	Univ. of Cambridge Kanazawa Univ. Univ. of Warwick
135		Bacteria	Z Oestreichera, A Taoka, Y Fukumori	A comparison of the surface nanostructure from two different types of gram-negative cells: Escherichia coli and Rhodobacter sphaeroides	Micron Volume 72, May 2015, Pages 8–14	Kanazawa Univ.
134		Cell	M Shibata, T Uchihashi, T Ando, R Yasuda	Long-tip high-speed atomic force microscopy for nanometer-scale imaging in live cells	Scientific Reports 5, Article number: 8724 doi:10.1038/srep08724	Max Planck Florida Institut Kanazawa Univ.
133		Cofilin	KX Ngo, N Kodera, E Katayama, T Ando, TQP Uyeda	Cofilin-induced unidirectional cooperative conformational changes in actin filaments revealed by high-speed atomic force microscopy	eLife 2015;4:e04806 DOI: http://dx.doi.org/10.7554/eLife.04806	Kanazawa Univ. Osaka city Univ. Yokohama city Univ.
132		trp-RNA binding attenuation protein	M Imamura, T Uchihashi, T Ando, A Leifert, U Simon, AD Malay, JG Heddle	Probing Structural Dynamics of an Artificial Protein Cage Using High-Speed Atomic Force Microscopy	Nano Lett., 2015, 15 (2), pp 1331–1335	RIKEN Kanazawa Univ. Tokyo Tech
131		Chromatin	YL. Lyubchenko, Luda S. Shlyakhtenko	Chromatin Imaging with Time-Lapse Atomic Force Microscopy	Chromatin Protocols Methods in Molecular Biology Volume 1288, 2015, pp 27-42	Nebraska Univ.
130		Membrane Protein	J Preiner, A Horner, A Karner, N Ollinger, C Siligan, P Pohl, P Hinterdorfer	High-Speed AFM Images of Thermal Motion Provide Stiffness Map of Interfacial Membrane Protein Moieties	Nano Lett., 2015, 15 (1), pp 759–763 DOI: 10.1021/nl504478f	Johannes Kepler Univ. of Linz
129		Cytochrome c	K Takeda, T Uchihashi, H Watanabe, T Ishida, K Igarashi, N Nakamura, H Ohno	Real-Time Dynamic Adsorption Processes of Cytochrome c on an Electrode Observed through Electrochemical High-Speed Atomic Force Microscopy	PLOS ONE DOI: 10.1371/journal.pone.0116685	Tokyo Univ. Agri. & Tech. Kanazawa Univ. Univ. of Tokyo
128		collagen	R Matsumoto, T Uemura, Z Xu, I Yamaguchi, T Ikoma, J Tanaka	Rapid oriented fibril formation of fish scale collagen facilitates early osteoblastic differentiation of human mesenchymal stem cells.	J Biomed Mater Res A. 2014 Dec 25. doi: 10.1002/jbm.a.35387. [Epub ahead of print]	AIST
127	Flagellar	N Kodera, K Uchida, T Ando, S Aizawa	Two-Ball Structure of the Flagellar Hook-Length Control Protein FliK as Revealed by High-Speed Atomic Force Microscopy	Journal of Molecular Biology Volume 427, Issue 2, 30 January 2015, Pages 406–414	Kanazawa Univ. Hiroshima Univ.	

126	Biological Sample	Nucleosome	AJ Katan, R Vlijm, A Lusser, C Dekker	Dynamics of Nucleosomal Structures Measured by High-Speed Atomic Force Microscopy.	Small. 2014 Oct 21.	TU Delft Innsbruck Medical University
125		Photoresponsive DNA nanocapsule	T Takenaka, M Endo, Y Suzuki, Y Yang, T Emura, K Hidaka, T Kato, T Miyata, K Namba, H Sugiyama	Photoresponsive DNA nanocapsule having an open/close system for capture and release of nanomaterials.	Chemistry. 2014 Nov 10;20(46):14951-4.	Kyoto Univ.
124			Y Fujita, R Furushima, H Ohno, F Sagawa, T Inoue	Cell-surface receptor control that depends on the size of a synthetic equilateral-triangular RNA-protein complex	Scientific Reports 4, Article number: 6422 doi:10.1038/srep06422 Received 07 April 2014 Accepted 26 August 2014 Published 19 September 2014	Kyoto Univ
123		Review	T Ando	High-speed AFM imaging	Curr. Opin. Struct. Biol. 28: 63-68 (2014).	Kanazawa Univ.
122		Hef protein	S Ishino, T Yamagami, M Kitamura, N Kodera, T Mori, T Ando, N Goda, H Hiroaki, Y Ishino	Multiple Interactions of the Intrinsically Disordered Region between the Helicase and Nuclease Domains of the Archaeal Hef Protein	J. Biol. Chem. 289: 21627-21639 (2014).	Kanazawa Univ. Kyusyu Univ. Nagoya Univ.
121		DNA origami	M Endo, H Sugiyama	Single-Molecule Imaging of Dynamic Motions of Biomolecules in DNA Origami Nanostructures Using High-Speed Atomic Force Microscopy	Acc. Chem. Res. In Press	Kyoto Univ.
120		Cell Force mapping	C Braunschmann, J Seifert, J Rheinlaender, TE Schäffer	High-speed force mapping on living cells with a small cantilever atomic force microscope	Rev Sci Instrum. 2014 Jul;85(7):073703.	Univ. of Tübingen
119		Antibody	J Preiner, N Kodera, J Tang, A Ebner, M Brameshuber, D Blaas, N Gelbmann, H Gruber, T Ando, P Hinterdorfer	IgGs are made for walking on bacterial and viral surfaces	Nature Communications 5: 4394 (2014)	Johannes Kepler Univ. of Linz Kanazawa Univ.
118		Force spectroscopy.	F Eghiaian, F Rico, A Colom, I Casuso, S Scheuring	High-speed atomic force microscopy: imaging and force spectroscopy.	FEBS Lett. 2014 Oct 1;588(19):3631-8.	Aix-Marseille Univ.
117		Review	N Kodera, T Ando	The path to visualization of walking myosin V by high-speed atomic force microscopy	Biophys. Rev. (published online). DOI:10.1007/s12551-014-0141-7	Kanazawa Univ.
116	Chitinases	K Igarashi, T Uchihashi, T Uchiyama, H Sugimoto, M Wada, K Suzuki, S Sakuda, T Ando, T Watanabe, M Samejima	Two-way traffic of glycoside hydrolase family 18 processive chitinases on crystalline chitin	Nature Communications 5: 3975 (2014).	Univ.of Tokyo Kanazawa Univ. Niigata Univ.	
115	Cellulase	Y Shibafuji, A Nakamura, T Uchihashi, N Sugimoto, S Fukuda, H Watanabe, M Samejima, T Ando, H Noji, A Koivula, K Igarashi, R Iino	Single-molecule imaging analysis of elementary reaction steps of Trichoderma Reesei cellobiohydrolase I (Cel7A) hydrolyzing crystalline cell.	J. Biol. Chem. 289:14056-14065 (2014)	Univ.of Tokyo Kanazawa Univ.	

114	Biological Sample	Intermediates of G-Hairpin and G-Triplex	A Rajendran, M Endo, K Hidaka, H Sugiyama	Direct and single-molecule visualization of the solution-state structures of G-hairpin and G-triplex intermediates.	Angew Chem Int Ed Engl. 2014 Apr 14;53(16):4107-12.	Kyoto Univ.
113		Cellulase	A Nakamura, H Watanabe, T Ishida, T Uchihashi, M Wada, T Ando, K Igarashi, M Samejima	Trade-off between processivity and hydrolytic velocity of cellobiohydrolases at the surface of crystalline cellulose	J. Am. Chem. Soc. 136:4584-4592 (2014)	Univ.of Tokyo Kanazawa Univ.
112		DNA origami	Y Yang, M Endo, Y Suzuki, K Hidaka, H Sugiyama	Direct Observation of the Dual-Switching Behaviours Corresponding to the State Transition in a DNA Nanoframe	Chem. Comm. 2014,50, 4211-4213	Kyoto Univ.
111		Review	T Ando, T Uchihashi, S Scheuring	Filming biomolecular processes by high-speed atomic force microscopy	Chem. Rev. 114(6):3120-3188 (2014).	Kanazawa Univ.
110		DNA Origami Lipid membrane	Y Suzuki, M Endo, Y Yang, H Sugiyama	Dynamic Assembly/Disassembly Processes of Photoresponsive DNA Origami Nanostructures Directly Visualized on a Lipid Membrane Surface	J. Am. Chem. Soc. 2014, 136, 1714-1717.	Kyoto Univ.
109		Intermediates of G-Hairpin and G-Triplex	A Rajendran, M Endo, K Hidaka, H Sugiyama	Direct and Single-Molecule Visualization of the Solution-State Structures of G-Hairpin and G-Triplex Intermediates	Angew. Chem. Int. Ed. In Press.	Kyoto Univ.
108		DNA origami	A Rajendran, M Endo, K Hidaka, PLT Tran, MP Teulade-Fichou, JL Mergny, H Sugiyama	G-quadruplex-binding ligand-induced DNA synapsis Inside a DNA Origami Frame	RSC. Adv. 2014, 4, 6346-6355.	Kyoto Univ.
107		DNA origami	Y Suzuki, M Endo, Y Katsuda, K Ou, K Hidaka, H Sugiyama	DNA Origami Based Visualization System for Studying Site-Specific Recombination Events	J. Am. Chem. Soc. 2014, 136, 211-218.	Kyoto Univ.
106		Review	A Rajendran, M Endo, H Sugiyama	State-of-the Art High Speed Atomic Force Microscopy for the Investigation of Single-Molecular Dynamics of Proteins	Chem. Rev. 2014, 114, 1493-1520.	Kyoto Univ.
105		DNA Origami Nucleocapsid protein	A Rajendran, M Endo, K Hidaka, PLT Tran, JL Mergny, RJ Gorelick, H Sugiyama	HIV-1 Nucleocapsid Proteins as Molecular Chaperones for Tetramolecular Antiparallel G-Quadruplex Formation	J. Am. Chem. Soc. 2013, 135, 18575-18585.	Kyoto Univ.
104		DNA origami	M Endo, M Inoue, Y Suzuki, C Masui, H Morinaga, K Hidaka, H Sugiyama	Regulation of B-Z Conformational Transition and Complex Formation with a Z-form-binding Protein by Introduction of Constraint to Double-stranded DNA using DNA Nanoscaffold	Chem. Eur. J. 2013, 19, 16887-16890.	Kyoto Univ.
103	Titin Force spectroscopy	F Rico, L Gonzalez, I Casuso, M Puig-Vidal, S Scheuring	High-Speed Force Spectroscopy Unfolds Titin at the Velocity of Molecular Dynamics Simulations	SCIENCE VOL 342 8 NOVEMBER 2013	Aix-Marseille Univ. Universitat de Barcelona	

102	Biological Sample	DNA cytosine deaminase APOBEC3G	LS Shlyakhtenko, AY Lushnikov, A Miyagi, M Li, RS Harris, YL Lyubchenko	Atomic force microscopy studies of APOBEC3G oligomerization and dynamics.	J Struct Biol. 2013 Nov;184(2):217-25.	Nebraska Univ.
101		AAA+ chaperone p97	K Noi, D Yamamoto, S Nishikori, K Arita-Morioka, T Kato, A Ando, T Ogura	High-speed atomic force microscopic observation of ATP-dependent rotation of the AAA+ chaperone p97	Structure 21: 1992-2002 (2013).	Kumamoto Univ.
100		Lipid Membranes Lysenin	N Yilmaz, T Yamada, P Greimel, T Uchihashi, T Ando, T Kobayashi	Real-time visualization of assembling of a sphingomyelin-specific toxin on planar lipid membranes	Biophys. J., 105 , 2013 1397–1405	RIKEN Kanazawa Univ.
99		Cell	A Colom, I Casuso, F Rico, S Scheuring	A hybrid high-speed atomic force-optical microscope for visualizing single membrane proteins on eukaryotic cells	Nat Commun, 2013, 4 , 2155	Aix-Marseille Univ.
98		DNA Origami	A Rajendran, M Endo, K Hidaka, PLT Tran, J-L Mergny and H Sugiyama	Controlling the stoichiometry and strand polarity of a tetramolecular G-quadruplex structure by using a DNA origami frame	Nucleic Acids Research, 2013, 41 , 8738-8747	Kyoto Univ.
97		Cell	Y Suzuki, N Sakai, A Yoshida, Y Uekusa, A Yagi, Y Imaoka, S Ito, K Karaki, K Takeyasu	High-speed atomic force microscopy combined with inverted optical microscopy for studying cellular events	Sci Rep., 2013, 3 , 2131	Kyoto Univ. Olympus Corporation
96		Review	T Ando, T Uchihashi, N Kodera	High-speed AFM and applications to biomolecular systems	Annu. Rev. Biophys., 2013 (in press).	Kanazawa Univ.
95		Chromatin	M Hashimoto, N Kodera, Y Tsunaka, M Oda, M Tanimoto, T Ando, K Morikawa, S Tate	Phosphorylation-coupled intramolecular dynamics of unstructured regions in chromatin remodeler FACT	Biophys. J., 2013, 104 , 10, 2222–2234	Hiroshima Univ. Kanazawa Univ.
94		Review	LN Liu, S Scheuring	Investigation of photosynthetic membrane structure using atomic force microscopy.	Trends Plant Sci. 2013 May;18(5):277-86.	Univ. of Liverpool Aix-Marseille Univ.
93		Bacteriorhodopsin	H Yamashita, K Inoue, M Shibata, T Uchihashi, J Sasaki, H Kandori, T Ando	Role of trimer-trimer interaction of bacteriorhodopsin studied by optical spectroscopy and high-speed atomic force microscopy	J. Struct. Biol., 2013 (in press)	Kanazawa Univ.
92	DNA Origami	M Endo, S Yamamoto, K Tatsumi, T Emura, K Hidaka, H Sugiyama	RNA-templated DNA origami structures	Chem. Comm., 2013, 49 , 2879-2881	Kyoto Univ.	
91	Protein–DNA Interactions	YL Lyubchenko	AFM visualization of protein–DNA interactions	Biophysics for the Life Sciences, 2013, 2 , 97-117	Nebraska Univ.	

90	Biological Sample	Proteins	T Uchihashi, N Kodera, T Ando	Nanovisualization of proteins in action using high-speed AFM	Biophysics for the Life Sciences, 2013, 2 , 119-147	Kanazawa Univ.
89		erythrocyte membrane	L Picas L, F Rico, M Deforet, S Scheuring	Structural and mechanical heterogeneity of the erythrocyte membrane reveals hallmarks of membrane stability.	ACS Nano, 2013, 7 (2), pp 1054–1063	Aix-Marseille Univ. Pierre and Marie Curie Univ. Institut Curie
88		Review	T Ando	Molecular machines directly observed by high-speed atomic force microscopy	FEBS Lett., 2013, 587 , 8, 997–1007	Kanazawa Univ.
87		Review	T Ando	High-speed atomic force microscopy	Microscopy, 2013, 62 , 1, 81-93	Kanazawa Univ.
86		DNA Origami	A Rajendran, M Endo, K Hidaka, H Sugiyama	Control of the two-dimensional crystallization of DNA origami with various loop arrangements	Chem. Comm., 2013, 49 , 686-688.	Kyoto Univ.
85		DNA Binding Protein	T Nojima, H Konno, N Kodera, K Seio, H Taguchi, M Yoshida	Nano-scale alignment of proteins on a flexible DNA backbone	PLoS One, 2012, 7, 12, e52534	Kyoto sangyo Univ. Kanazawa Univ. Tokyo Tech
84		Ion Channel	Y Suzuki, TA Goetze, D Stroebel, D Balasuriya, SH Yoshimura, RM Henderson, P Paoletti, K Takeyasu, JM Edwardson	Visualization of structural changes accompanying activation of N-methyl-D-aspartate (NMDA) receptors using fast-scan atomic force microscopy imaging	Biol. Chem., 2013, 288 , 2, 778-84	Kyoto Univ. Univ. of Cambridge
83		Review DNA Origami	M Endo, Y Yang, H Sugiyama	DNA origami technology for biomaterials applications	Biomater. Sci., 2013, 1 , 347-360.	Kyoto Univ.
82		DNA Origami	S Dhakal, H Mao, A Rajendran, M Endo, H Sugiyama	G-quadruplex nanostructures probed at the single molecular level by force based methods	Guanine Quartets: Structure and Application (Royal Society of Chemistry), 2013, 73-85.	Kyoto Univ.
81		DNA Origami	A Rajendran, M Endo, K Hidaka, H Sugiyama	Direct and real-time observation of rotary movement of a DNA nanomechanical device	J. Am. Chem. Soc., 2013, 135 , 1117-1123.	Kyoto Univ.
80		Antibody	M Iijima M Somiya, N Yoshimoto, T Niimi, S Kuroda	Nano-visualization of oriented-immobilized IgGs on immunosensors by high-speed atomic force microscopy	Sci Rep., 2012, 2 , 790	Nagoya Univ.
79		Hyaluronic Acid Polymer	T Mori, A Hirose, T Hagiwara, M Ohtsuka, Y Kakuta, K Kimata, Y Okahata	Single-molecular enzymatic elongation of hyaluronan polymers visualized by high-speed atomic force microscopy	J. Am. Chem. Soc., 2012, 134 , 50, 20254–20257	Tokyo Tech

78	Biological Sample	DNA Origami	Y Yang, M Endo, K Hidaka, H Sugiyama	Photo-controllable DNA origami nanostructures assembling into pre-designed multiorientational patterns	J. Am. Chem. Soc., 2012, 134 , 51, 20645-20653.	Kyoto Univ.
77		DNA Binding Protein	LS Shlyakhtenko, AY Lushnikov, A Miyagi, M Li, RS Harris, YL Lyubchenko	Nanoscale structure and dynamics of ABOBEC3G complexes with single-stranded DNA	Biochemistry., 2012, 51 , 32, 6432-6440	Univ. of Nebraska Univ. of Minnesota
76		DNA Origami	M Endo, Y Yang, K Hidaka, H Sugiyama	Single-molecule visualization of the hybridization and dissociation of photoresponsive oligonucleotides and their reversible switching behavior in a DNA nanostructure	Angew. Chem. Int. Ed., 2012, 51 , 10518-10522.	Kyoto Univ.
75		Membrane Protein	A Colom, I Casuso, T Boudier, S Scheuring	High-speed atomic force microscopy: cooperative adhesion and dynamic equilibrium of junctional microdomain membrane proteins	J Mol Biol., 2012, 423 , 2, 249-256.	Aix-Marseille Univ.
74		DNA Structure	K Mohri, M Nishikawa, N Takahashi, T Shiomi, N Matsuoka, K Ogawa, M Endo, K Hidaka, H Sugiyama, Y Takahashi, Ytakakura	Design and development of nano-sized DNA assemblies in polypod-like structures as efficient vehicles for immunostimulatory CpG motifs to immune cells	ACS Nano, 2012, 6 , 7, 5931-5940.	Kyoto Univ.
73		Membrane Protein	I Casuso, J Khao, M Chami, P Paul-Gilloteaux, M Husain, JP Duneau, H Stahlberg, JN Sturgis, S Scheuring	Characterization of the motion of membrane proteins using high-speed atomic force microscopy	Nat Nanotechnol., 2012, 7 , 525-529	Aix-Marseille Univ.
72		HS-AFM Methods	T Uchihashi, N Kodera, T Ando	Guide to video recording of structure dynamics and dynamic processes of proteins by high-speed atomic force microscopy	Nature Protocols, 2012, 7 , 1193-1206	Kanazawa Univ.
71		Bacterial Cell	H Yamashita, A Taoka, T Uchihashi, T Asano, T Ando, Y Fukumori	Single molecule imaging on living bacterial cell surface by high-speed AFM	J. Mol. Biol.,] 2012, 422 , 2, 300-309	Kanazawa Univ.
70		Review	T Ando, T Uchihashi, N Kodera	High-speed atomic force microscopy	Jpn. J. Appl. Phys., 2012, 51 , 8, 08KA02-08-KA02-15	Kanazawa Univ.
69		RNA Polymerase Transcription	M Endo, K Tatsumi, K Terushima, Y Katsuda, K Hidaka, Y Harada, H Sugiyama	Direct visualization of the movement of a single T7 RNA polymerase and transcription on a DNA nanostructure	Angew. Chem. Int. Ed., 2012, 51 , 8778-8782.	Kyoto Univ.
68		Review DNA Origami	A Rajendran, M Endo, H Sugiyama	DNA origami: synthesis and self-assembly	Curr. Protoc. Nucleic Acid Chem., 2012, 48 , 12.9.1-12.9.18.	Kyoto Univ.
67		Review	A Rajendran, M Endo, H Sugiyama	Structural and functional analysis of proteins by high-speed atomic force microscopy	Adv. Protein Chem. Struct. Biol., 2012, 87 , 5-55.	Kyoto Univ.

66	Biological Sample	Cellulase	K Igarashi, T Uchihashi, A Koivula, M Wada, S Kimura, M Penttilä, T Ando, M Samejima	Visualization of cellobiohydrolase I from <i>Trichoderma reesei</i> moving on crystalline cellulose using high-speed atomic force microscopy	Methods Enzymol., 2012, 510 , 169-182	Univ. of Tokyo Kanazawa Univ.
65		HS-AFM Methods	T Ando and N Kodera	Visualization of mobility by atomic force microscopy	Methods Mol. Biol., 2012, 896 : 57-69	Kanazawa Univ.
64		Review	T Ando, T Uchihashi, N Kodera	High-speed AFM for observing dynamic processes in liquid	Book: Atomic Force Microscopy in Liquid, 189-208	Kanazawa Univ.
63		Bacteria RNA Polymerase	Y Suzuki, M Shin, A Yoshida, SH Yoshimura, K Takeyasu	Fast microscopical dissection of action scenes played by <i>Escherichia coli</i> RNA polymerase	FEBS Lett., 2012, 586 , 19, 3187-92	Kyoto Univ.
62		Review	R Jungmann, M Scheible, FC Simmel	Nanoscale imaging in DNA nanotechnology	Wiley Interdiscip. Rev. Nanomed. Nanobiotechnol., 2012, 4 , 1, 66-81	Harvard Univ. Tech. Univ. Munich
61		DNA Origami	E Nakata, LW Fong, C Uwatoko, S Kiyonaka, Y Mori, Y Katsuda, M Endo, H Sugiyama, T Morii	Zinc finger proteins as adaptor for locating proteins at specific addresses of DNA origami structures	Angew Chem. Int. Ed., 2012, 51 , 2421-2424.	Kyoto Univ.
60		DNA Origami	SFJ Wickham, J Bath, Y Katsuda, M Endo, K Hidaka, H Sugiyama, AJ Tuberfield	A DNA-based molecular motor that can navigate a network of tracks	Nature Nanotechnol., 2012, 7 , 169-173.	Univ. of Oxford Kyoto Univ.
59		Review	AJ Katan, C Dekker	High-speed AFM reveals the dynamics of single biomolecules at the nanometer scale	Cell, 2011, 147 , 5, 979-82	TU Delft
58		Review	T Ando	High-speed atomic force microscopy coming of age	Nanotechnology, 2012, 23 , 062001	Kanazawa Univ.
57		DNA Origami	T Yoshidome, M Endo, G Kashiwazaki, K Hidaka, T Bando, H Sugiyama	Sequence-selective single molecule alkylation with a pyrrole-imidazole polyamide visualized in a DNA nanoscaffold	J. Am. Chem. Soc., 2012, 134 , 4654-4660.	Kyoto Univ.
56		Restriction Enzyme	Y Suzuki, JL Gilmore, SH Yoshimura, RM Henderson, YL Lyubchenko, K Takeyasu	Visual analysis of concerted cleavage by type IIF restriction enzyme SfiI in subsecond time region.	Biophys. J., 2011, 101 , 12, 2992-2998	Kyoto Univ. Univ. of Nebraska Univ. of Cambridge
55		DNA Binding Protein	H Sanchez, Y Suzuki, M Yokokawa, K Takeyasu, C Wyman	Protein-DNA interactions in high speed AFM: single molecule diffusion analysis of human RAD54	Integr. Biol., 2011, 3 , 11, 1127-1134	Cancer Genomics Centre Kyoto Univ.

54	Biological Sample	Nucleosome	A Miyagi, T Ando, YL Lyubchenko	Dynamics of nucleosomes assessed with time-lapse high-speed atomic force microscopy	Biochemistry, 2011, 50, 37, 7901–7908	Univ. of Nebraska Kanazawa Univ.
53		DNA Structure	M Endo, R Miyazaki, T Emura, K Hidaka, H Sugiyama	Transcription regulation system mediated operation of a DNA nanostructure	J. Am. Chem. Soc., 2012, 134, 2852-2855.	Kyoto Univ.
52		Cellulase	K Igarashi, T Uchihashi, A Koivula, M Wada, S Kimura, T Okamoto, M Penttilä, T Ando, M Samejima	Traffic jams reduce hydrolytic efficiency of cellulase on cellulose surface	Science, 2011, 333, 1279-1282	Univ. of Tokyo Kanazawa Univ.
51		Synthetic Proteo-Nucleic Structure	A Laisne, M Ewald, T Ando, E Lesniewska, D Pompon	Self-assembly properties and dynamics of synthetic proteo-nucleic building blocks in solution and on surfaces	Bioconjugate Chem., 2011, 22, 9, 1824–1834	CGM Univ. of Bourgogne Kanazawa Univ.
50		F ₁ -ATPase	T Uchihashi, R Iino, T Ando, H Noji	High-speed atomic force microscopy reveals rotary catalysis of rotorless F ₁ -ATPase	Science, 2011, 333, 1279	Kanazawa Univ.
49		Review	I Casuso, F Rico, S Scheuring	High-speed atomic force microscopy: Structure and dynamics of single proteins	Curr. Opin. Chem. Biol., 2011, 15, 5, 704-709	Aix-Marseille Univ.
48		Review DNA Origami	A Rajendran, M Endo, H Sugiyama	Single-molecule analysis using DNA origami	Angew. Chem. Int. Ed., 2012, 51, 874-890.	Kyoto Univ.
47		Review Nucleic Acids	YL Lyubchenko, LS. Shlyakhtenko, T Ando	Imaging of nucleic acids with atomic force microscopy	Methods, 2011, 54, 274–283	Univ. of Nebraska Kanazawa Univ.
46			M Endo, K Hidaka, H Sugiyama	Direct AFM observation of an opening event of a DNA cuboid constructed via a prism structure	Org. Biomol. Chem., 2011, 9, 2075-2077	Kyoto Univ.
45		DNA Origami	M Endo, T Sugita, A Rajendran, Y Katsuda, T Emura, K Hidaka, H Sugiyama	Two-dimensional DNA origami assemblies using a four-way connector	Chem. Commun., 2011, 47, 3213	Kyoto Univ.
44		DNA Origami	A Rajendran, M Endo, Y Katsuda, K Hidaka, H Sugiyama	Photo-cross-linking-assisted thermal stability of DNA origami structures and its application for higher-temperature self-assembly	J. Am. Chem. Soc., 2011, 133, 37, 14488–14491	Kyoto Univ.
43		Review	I Casuso, F Rico, S Scheuring	Biological AFM: where we come from--where we are--where we may go	J. Mol. Recognit., 2011, 24, 3, 406-413	Aix-Marseille Univ.

42	Biological Sample	Review	T Uchihashi, T Ando	High-speed atomic force microscopy and biomolecular processes	Methods Mol. Biol., 2011, 736 , 285-300	Kanazawa Univ.
41		DNA	Y Suzuki, Y Yoshikawa, SH Yoshimura, K Yoshikawa, K Takeyasu	Unraveling DNA dynamics using atomic force microscopy	Wiley Interdiscip. Rev. Nanomed. Nanobiotechnol., 2011, 3 , 6, 574–588	Kyoto Univ.
40		DNA Origami	SF Wickham, M Endo, Y Katsuda, K Hidaka, J Bath, H Sugiyama H, AJ Turberfield	Direct observation of stepwise movement of a synthetic molecular transporter	Nat. Nanotechnol., 2011, 6 , 166–169	Univ. of Oxford, Kyoto Univ.
39		DNA Origami	A Rajendran, M Endo, Y Katsuda, K Hidaka, H Sugiyama	Programmed two-dimensional self-assembly of multiple DNA origami jigsaw pieces	ACS Nano, 2011, 5 , 1, 665-671	Kyoto Univ.
38		Ferritin	S-I Yamamoto, T Okada, Y Uraoka, I Yamashita S Hasegawa	Static and dynamic observation of supermolecular protein, ferritin, using high-speed atomic force microscope	J. Appl. Phys., 2011, 109 , 3, 034901-034905	Ryukoku Univ.
37		Bacteriorhodopsin	M Shibata, T Uchihashi, H Yamashita, H Kandori, T Ando	Structural changes in bacteriorhodopsin in response to alternate illumination observed by high-speed atomic force microscopy	Angew. Chem. Int. Ed., 2011, 50, 4410–4413	Kanazawa Univ.
36		Amyloid-Like Fibrils	P-E Milhiet, D Yamamoto, O Berthoumieu, P Dosset, CL Grimellec, J-M Verdier, S Marchal, T Ando	Deciphering the structure, growth and assembly of amyloid-like fibrils using high-speed atomic force microscopy	PLoS One, 2010, 5 , 10, e13240	Kanazawa Univ.
35		Sample preparation	YL Lyubchenko	Preparation of DNA and nucleoprotein samples for AFM imaging	Micron 2011 February ; 42(2): 196–206. doi:10.1016/j.micron.2010.08.011.	Nebraska Univ.
34		Myosin V	N Kodera, D Yamamoto, R Ishikawa, T Ando	Video imaging of walking myosin V by high-speed atomic force microscopy	Nature, 2010, 468 , 72-76	Kanazawa Univ.
33		Membrane Protein	I Casuso, P Sens, F Rico, S Scheuring	Experimental Evidence for Membrane-Mediated Protein-Protein Interaction	Biophysical Journal Volume 99 October 2010 L47–L49	Institut Curie
32	DNA Origami	Y Sannohe, M Endo, Y Katsuda, K Hidaka, H Sugiyama	Visualization of dynamic conformational switching of the G-quadruplex in a DNA nanostructure	J. Am. Chem. Soc., 2010, 132 . 16311-16313	Kyoto Univ.	
31	DNA Structure	F Tanaka, T Mochizuki, X Liang, H Asanuma, S Tanaka, K Suzuki, S Kitamura, A Nishikawa, K Ui-Tei, M Hagiya	Robust and photocontrollable DNA capsules using azobenzenes	Nano Lett., 2010, 10 , 9, 3560-3565	Univ. of Tokyo	

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17	resist		S Minegishi, T Itani	The effect of resist material composition on development behavior	Proc. SPIE 9425, Advances in Patterning Materials and Processes XXXII, 94251I (March 20, 2015); doi:10.1117/12.2085820	EIDEC
16	resist		JJ Santillan, K Yamada, T Itani	In situ analysis of negative-tone resist pattern formation using organic-solvent-based developer process	Appl. Phys. Express 7 016501 doi:10.7567/APEX.7.016501	
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14	Review		JJ Santillan, M Shichiri, T Itani	The effect of resist dissolution process on pattern formation variability: an in situ analysis using high-speed atomic force microscopy	Proc. SPIE 9425, Advances in Patterning Materials and Processes XXXII, 942506 (March 20, 2015); doi:10.1117/12.2085746	EIDEC
13	Review		JJ Santillan, M Shichiri, T Itani	An in situ analysis of resist dissolution in alkali-based and organic solvent-based developers using high speed atomic force microscopy	Proc. SPIE 9051, Advances in Patterning Materials and Processes XXXI, 90510O (March 27, 2014); doi:10.1117/12.2045886	EIDEC

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11			BP Brown, L Picco, MJ. Miles, CFJ Faul	Opportunities in high-speed atomic force microscopy	Small, 2013 (online version)	
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