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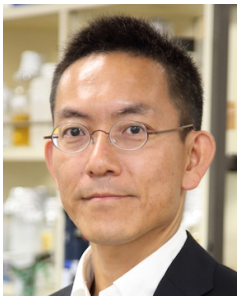
Curriculum Vitae

Hideki Taguchi



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Contact information

Education

1993: Ph.D. in Biochemistry, Tokyo Institute of Technology, Japan
Dissertation title: Studies on a Molecular Mechanism of Chaperonin
Supervisor: Prof. Masasuke Yoshida
1991: M.S. in Biochemistry, Tokyo Institute of Technology, Japan
1989: B.S. in Organic chemistry, Tokyo Institute of Technology, Japan

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Career

2016-present: Professor, Cell Biology Center, Institute of Innovative Research, Tokyo Institute of Technology
2010-2016: Professor, Graduate School of Biosciences and Biotechnology, Tokyo Institute of Technology
2003-2010: Associate Professor, Graduate School of Frontier Sciences, University of Tokyo
1995-2003: Assistant Professor, Chemical Resources Laboratory, Tokyo Institute of Technology
1993-1995: Postdoctoral Fellow, Japan Society for the Promotion of Science (JSPS) Postdoctoral Fellowship at Chemical Resources Laboratory, Tokyo Institute of Technology

Awards

1994 Seiichi Tejima Doctoral Dissertation Award, 2013 Seiichi Tejima Paper Award, 2019 Seiichi Tejima Paper Award, 2019 Seiichi Tejima Book Award, 2019 Best Teacher Award

Selected Publications

1. Miwa T, Chadani Y, *Taguchi, H. Escherichia coli small heat shock protein IbpA is an aggregation-sensor that self-regulates its own expression at post-transcriptional levels. ***Mol Microbiol*** (2020)
2. Konno H, †Watanabe-Nakayama T, Uchihashi T, Okuda M, Zhu L, Kodera N, Kikuchi Y, *Ando T, *Taguchi, H. † equally contributed authors Dynamics of oligomer and amyloid fibril formation by yeast prion Sup35 observed by high-speed atomic force microscopy. ***Proc Natl Acad Sci USA*** 117, 7831-7836 (2020)
3. Chadani Y, Niwa T, Izumi, T., Sugata, N., Nagao, A., Suzuki, T., Chiba S, *Ito K. and *Taguchi, H. Intrinsic ribosome destabilization underlies translation and provides an organism with a strategy of environmental sensing. ***Mol Cell*** 68, 528-539 (2017)
4. Chadani Y, Niwa T, Chiba S, *Taguchi, H, *Ito K. Integrated in vivo and in vitro nascent chain profiling reveals widespread translational pausing. ***Proc Natl Acad Sci USA*** 113, E829-38 (2016)
5. Okuda, M, Niwa, T., Taguchi, H.* Single-Molecule Analyses on the Dynamics of Heat Shock Protein 104 (Hsp104) and Protein Aggregates. ***J. Biol. Chem.*** 290, 7833-7840 (2015)
6. Ishimoto, T., Fujiwara, K., Niwa, T., Taguchi, H.* Conversion of a chaperonin GroEL-independent protein into an obligate substrate**. *J. Biol. Chem.*** 289 32073-32080 (2014)
7. Niwa, T., Kanamori T., Ueda, T.*, Taguchi, H.* Global Analysis of Chaperone Effects Using a Reconstituted Cell-Free Translation System. ***Proc Natl Acad Sci USA*** 109, 8937-8942 (2012)
8. Kawai-Noma, S., Pack, C-G., Kojidani, T., Asakawa, H., Hiraoka, Y., Kinjo, M., Haraguchi, T., Taguchi, H.*, and Hirata, A. *In vivo* evidence for the fibrillar structures of Sup35 prions in yeast cells**. *J. Cell Biol.*** 190, 223-231 (2010)
9. Fujiwara, K., Ishihama, Y., Nakahigashi, K., Soga, T. and Taguchi, H.* A systematic survey of *in vivo* obligate chaperonin-dependent substrates. ***EMBO J.*** 29, 1552-1564 (2010)
10. Niwa, T., Ying, B.-W., Saito, K., Jin, W. Z., Takada, S., Ueda, T.* and Taguchi, H.* Bimodal protein solubility distribution revealed by an aggregation analysis of the entire ensemble of Escherichia coli proteins. ***Proc Natl Acad Sci USA*** 106, 4201-4206 (2009)
11. Ueno, T.#, Taguchi, H.#, Tadakuma, H., Yoshida, M., Funatsu, T. [# equally contributed] GroEL mediates protein folding with a two successive timer mechanism. ***Mol Cell*** **14**, 423-434 (2004)
12. Taguchi, H., Ueno, T., Tadakuma, H., Yoshida, M., Funatsu, T. Single-molecule observation of protein-protein interactions in the chaperonin system. ***Nat Biotechnol.*** 19, 861-865 (2001)

Publication List

114. Miwa T, ***Taguchi, H.***
Novel self-regulation strategy of a small heat shock protein for prodigious and rapid expression

on demand (review).
Current Genetics (2021) in press

113. Deschoenmaeker F, Mihara S, Niwa T, **Taguchi H**, Wakabayashi KI, Toyoshima M, Shimizu H, *Hisabori T.
Thioredoxin pathway in *Anabaena* sp. PCC 7120: activity of NADPH-thioredoxin reductase C
J Biochem (2021) in press

112. Luu Trinh MD, Miyazaki D, Ono S, Nomata J, Kono M, Mino H, Niwa T, Okegawa Y, Motohashi K, Taguchi H, Hisabori T, *Masuda S.
The evolutionary conserved iron-sulfur protein TCR controls P700 oxidation in photosystem I.
iScience 2021 Jan 13;24(2):102059. doi: 10.1016/j.isci.2021.102059.

111. Miwa T, Chadani Y, ***Taguchi, H.**
Escherichia coli small heat shock protein IbpA is an aggregation-sensor that self-regulates its own expression at post-transcriptional levels.
Mol Microbiol 115:142-156 (2020) doi: 10.1111/mmi.14606.

110. Masuzawa T, *Sato S, Niwa T, Taguchi H, Nakamura H, and *Oyoshi T.
G-Quadruplex-Proximity Protein Labeling Based on Peroxidase Activity.
Chem Commun 56(78):11641-11644 (2020)

109. Kashiwagi D, Shen HK, Sim S, Sano K, Ishida Y, Kimura A, Niwa T, **Taguchi H**, *Aida T.
Molecularly engineered "Janus GroEL": Application to supramolecular copolymerization with a higher level of sequence control.
J Am Chem Soc 142, 13310-13315 (2020)
doi: 10.1021/jacs.0c05937

108. †Konno H, †Watanabe-Nakayama T, Uchihashi T, Okuda M, Zhu L, Kodera N, Kikuchi Y, *Ando T, ***Taguchi, H.** † equally contributed authors
Dynamics of oligomer and amyloid fibril formation by yeast prion Sup35 observed by high-speed atomic force microscopy.
Proc Natl Acad Sci USA 117, 7831-7836 (2020)
doi: 10.1073/pnas.1916452117

107. Muta M, *Iizuka R, Niwa T, Guo Y, Taguchi H and *Funatsu T
Nascent SecM chain interacts with outer ribosomal surface to stabilize translation arrest.
Biochem J 477, 557-566 (2020)
doi: 10.1042/BCJ20190723.

106. Tsushima M, Sato S*, Niwa T, **Taguchi, H**, *Nakamura H
Catalyst-Proximity Protein Chemical Labelling on Affinity Beads Targeting Endogenous Lectins.
Chem Commun 55, 13275-13278 (2019)
doi: 10.1039/c9cc05231c.

105. Fukuda, T, Kawai-Noma, S., Pack, C-G., ***Taguchi H**
Large-scale analysis of diffusional dynamics of proteins in living yeast cells using fluorescence correlation spectroscopy.
Biochem Biophys Res Commun 520, 237-242 (2019)
doi: 10.1016/j.bbrc.2019.09.066

104. Niwa T, Uemura E, Matsuno Y, ***Taguchi, H.**
Translation-coupled protein folding assay using a protease to monitor the folding status. [Protein Science Best Paper award 2019]
Protein Science 28, 1252-1261 (2019)

doi: 10.1002/pro.3624

103. Deschoenmaeker F, Mihara S, Niwa T, **Taguchi, H**, Wakabayashi KI, *Hisabori T.
Disruption of the gene *trx-m1* impedes the growth of *Anabaena* sp. PCC 7120 under nitrogen starvation.
Plant Cell Physiol. 60, 1504-1513 (2019)
doi: 10.1093/pcp/pcz056

102. *Nojima T, Niwa T, ***Taguchi H.**
Proteome analysis of phase-separated condensed proteins with ionic surfactants revealed versatile formation of artificial biomolecular condensate.
Biomacromolecules 20, 539-545 (2019)
doi: 10.1021/acs.biomac.8b01379

101. Furuki T, Niwa T, **Taguchi H**, Hatanaka R, Kikawada T, *Sakurai M.
A LEA model peptide protects the function of a red fluorescent protein in the dry state.
Biochem Biophys Rep 17: 27-31 (2018)
doi: 10.1016/j.bbrep.2018.11.006

100. Sugita S, Watanabe K, Hashimoto K, Niwa T, Uemura E, **Taguchi H**, *Watanabe YH.
Electrostatic interactions between middle domain motif-1 and the AAA1 module of the bacterial ClpB chaperone are essential for protein disaggregation.
J Biol Chem 293, 19228-19239 (2018)
doi: 10.1074/jbc.RA118.005496

99. Deschoenmaeker F, Mihara S, Niwa T, Taguchi H, Wakabayashi KI, *Hisabori T.
The absence of thioredoxin m1 and thioredoxin C in Anabaena sp. PCC 7120 leads to oxidative stress.
Plant Cell Physiol. 2018 in press

98. Uemura E, Niwa T, Minami S, Takemoto K, Fukuchi S, Machida K, Imataka H, Ueda T, Ota M, *Taguchi, H.
Large-scale aggregation analysis of eukaryotic proteins reveals an involvement of intrinsically disordered regions in protein folding.
Sci. Rep. 8:678. doi: 10.1038/s41598-017-18977-5. (2018)

97. Kashiwagi D, Sim S, Niwa T, Taguchi, H, *Aida, T.
Protein Nanotube Selectively Cleavable with DNA: Supramolecular Polymerization of DNA-Appended Molecular Chaperones.
J. Am. Chem. Soc. 140, 26-29 (2018)

96. *Pack CG, Inoue Y, Higurashi T, Kawai-Noma S, Hayashi D, Craig E, Taguchi, H.
Heterogeneous interaction network of yeast prions and remodeling factors detected in live cells.
BMB Rep. 50, 478-483 (2017)

95. Chadani Y, Niwa T, Izumi, T., Sugata, N., Nagao, A., Suzuki, T., Chiba S, *Ito K. and *Taguchi, H.
Intrinsic ribosome destabilization underlies translation and provides an organism with a strategy of environmental sensing.
Mol. Cell 68, 528-539 (2017)

94. *Fujiwara, K., Sawamura, T., Niwa, T, Deyama, T, Nomura, MS, Taguchi, H, Doi, N.
In vitro transcription-translation using bacterial genome as a template to reconstitute intracellular profile.
Nucleic Acids Res. 45, 11449-11458 (2017)

93. Sim, S.H., Niwa, T., Taguchi, H., *Aida, T.
Supramolecular Nanotube of Chaperonin GroEL: Length Control for Cellular Uptake Using Single-Ring GroEL Mutant as End-Capper.
J. Am. Chem. Soc. 138, 11152-11155 (2016)

92. Chadani Y, Niwa T, Chiba S, Taguchi, H.*, Ito K.*
Integrated in vivo and in vitro nascent chain profiling reveals widespread translational pausing.
Proc Natl Acad Sci USA. 113, E829-38 (2016)

91. Niwa. T, Fujiwara,, K., Taguchi, H.*
Identification of novel *in vivo* obligate GroEL/ES substrates based on data from a cell-free proteomics approach.
FEBS Lett. 590, 251-257 (2016)

90. Niwa T, Sasaki Y, Uemura E. Nakamura, S., Akiyama, M., Ando, M., Sawada, S., Mukai, S., Ueda, T., Taguchi, H.* and Akiyoshi, K.*
Comprehensive study of liposome-assisted synthesis of membrane proteins using a reconstituted cell-free translation system.
Sci. Rep. Dec 15;5:18025. doi: 10.1038/srep18025. (2015)

89. Niwa T, Sugimoto R, Watanabe L, Nakamura S, Ueda T, Taguchi, H.*
Large-scale analysis of macromolecular crowding effects on protein aggregation using a reconstituted cell-free translation system
Front Microbiol. 6, 1113 (2015) doi: 10.3389/fmicb.2015.01113. eCollection 2015

88. Ishino, S, Kawata, Y., Taguchi, H., Kajimura, N., Matsuzaki, K., *Hoshino, M.
Effects of C-terminal truncation of chaperonin GroEL on the yield of in-cage folding of the green fluorescent protein
J. Biol. Chem. 290, 15042-15051 (2015)

87. Sim, S.H., Miyajima, D., Niwa, T., Taguchi, H., *Aida, T.
Tailoring micrometer-long high-integrity 1D array of superparamagnetic nanoparticles in a nanotubular protein jacket and its lateral magnetic assembling behavior.
J. Am. Chem. Soc. 137, 4568-4561 (2015)

86. *Taguchi, H.,
Reaction cycle of chaperonin GroEL via symmetric "football" intermediate (review).
J. Mol. Biol. 427, 2912-2918 (2015)

85. Okuda, M, Niwa, T., *Taguchi, H.,
Single-Molecule Analyses on the Dynamics of Heat Shock Protein 104 (Hsp104) and Protein Aggregates.
J. Biol. Chem. 290, 7833-7840 (2015)

84. Odani, W, Urata, K, Okuda, M, Okuma, S, Koyama, H, Pack, CG, Fujiwara, K, Nojima, T, Kinjo, M, Kawai-Noma, S, *Taguchi, H.,
Peptide sequences converting polyglutamine into a prion in yeast.
FEBS J. 282, 477-490 (2015)

83. Ishimoto, T., Fujiwara, K., Niwa, T., *Taguchi, H.,
Conversion of a chaperonin GroEL-independent protein into an obligate substrate.
J. Biol. Chem. 289 32073-32080 (2014)

82. Koike-Takeshita, A., Mitsuoka, K., *Taguchi, H.,
Asp52 in combination with Asp398 plays a critical role in ATP hydrolysis of chaperonin GroEL.

J. Biol. Chem. 289 30005-30011 (2014)

81. Koike-Takeshita, A., Arakawa T., *Taguchi, H., *Shimamura, T.
Crystal structure of a symmetric football-shaped GroEL:GroES2 complex determined at 3.8Å reveals rearrangement between two GroEL rings.
J. Mol. Biol. 426, 3634-3641 (2014)

80. Ohta, S., Kawai-Noma, S., Kitamura, A., Pack, C-G., *Kinjo, M. & *Taguchi, H.
The interaction of Hsp104 with yeast prion Sup35 as analyzed by fluorescence cross-correlation spectroscopy
Biochem. Biophys. Res. Commun. 442, 28-32 (2013)

79. Yamakawa, K., Furuki, T., Furuta, T., Hatanaka, R., Kikawada, T., Niwa, T. Taguchi, H. Furusawa H., Okahata, Y., and Sakurai, M.
Experimental study on the mechanism underlying the anti-aggregation function of a group3LEA peptide.
Cryobiol. Cryotechnol. 59, 95-99 (2013)

78. Biswas, S., Kinbara, K., Niwa, T., Taguchi, H., Ishii, N., Watanabe, S., Miyata, K., Kataoka, K., *Aida, T.
Biomolecular Robotics for Chemomechanically Driven Guest Delivery Fueled by Intracellular ATP.
Nature Chemistry 5, 613-620 (2013)

77. *Nojima, T., Konno, H., Kodera, N., Seio, K., Taguchi, H. and Yoshida, M.
Nano-scale alignment of proteins on a flexible DNA back-bone.
PLoS One 7, e52534 (2012)

76. Nojima, T., Ikegami, T., Taguchi, H. and Yoshida, M.*
Flexibility of GroES mobile loop is required for efficient chaperonin function
J. Mol. Biol. 422, 291-299 (2012)

75. Niwa, T., Kanamori T., *Ueda, T., *Taguchi, H.
Global analysis of chaperone effects using a reconstituted cell-free translation system
Proc. Natl. Acad. Sci. U.S.A. 109, 8937-8942 (2012)

74. Fujiwara K*, Taguchi, H.
Mechanism of methionine synthase overexpression in chaperonin-depleted Escherichia coli
Microbiology 158, 917-924 (2012)

73. Takemoto K*, Niwa T, Taguchi H.
Difference in the distribution pattern of substrate enzymes in the metabolic network of *Escherichia coli*, according to chaperonin requirement.
BMC Syst Biol. 5, 98 (2011)

72. Sasaki, Y, Asayama, W., Niwa, T., Sawada, S., Ueda, T., Taguchi, H., Akiyoshi, K.*
Amphiphilic Polysaccharide Nanogels as Artificial Chaperones in Cell-Free Protein Synthesis
Macromol. Biosci. 11, 814-820 (2011)

71. Inoue, Y., Kawai-Noma, S., Koike-Takeshita, A., Taguchi, H. and Yoshida, M.*
Yeast prion protein New1 can break Sup35 amyloid fibrils into fragments in an ATP-dependent manner.
Genes to Cells 16, 545-556 (2011)

70. Tsuji, T., Kawai-Noma, S., Pack, C-G., Terajima, H., Yajima, J., Nishizaka, T., Kinjo, M. & Taguchi, H.*
Single-particle tracking of quantum dot-conjugated prion proteins inside yeast cells.

Biochem. Biophys. Res. Commun. 405, 638-643 (2011)

69. Zhou, Z-P., Shimizu, Y., Tadakuma, H.*, Taguchi, H., Ito, K. and Ueda, T.
Single molecule imaging of the trans-translation entry process via anchoring of the tagged ribosome.
J. Biochem. 149, 609-618 (2011)

68. Kawai-Noma, S., Pack, C-G., Kojidani, T., Asakawa, H., Hiraoka, Y., Kinjo, M., Haraguchi, T., Taguchi, H.*, and Hirata, A.
In vivo evidence for the fibrillar structures of Sup35 prions in yeast cells.
J. Cell Biol. 190, 223-231 (2010)

67. Fujiwara, K., Ishihama, Y., Nakahigashi, K., Soga, T. and Taguchi, H.*
A systematic survey of *in vivo* obligate chaperonin-dependent substrates.
EMBO J. 29, 1552-1564 (2010)

66. Taguchi, H.* and Kawai-Noma, S.
Diffuse oligomer-based transmission of yeast prions. (Review)
FEBS J. 277, 1359-1368 (2010)

65. Kubota, H., Mikhailenko, S. V., Okabe, H., Taguchi, H., and Ishiwata, S.*
D-loop of actin differently regulates the motor function of myosins II And V.
J. Biol. Chem. 284, 35251-35258 (2009)

64. Kawai-Noma, S., Pack, C-G., Tsuji, T., Kinjo, M., Taguchi, H.*
Single mother-daughter pair analysis to analyze the diffusion properties of yeast prion Sup35 in guanidine-HCl treated [PSI+] cells.
Genes to Cells, 14, 1045-1054 (2009)

63. Biswas, S., Kinbara, K., Oya, N., Ishii, N., Taguchi, H., Aida, T.*
A tubular biocontainer: Metal ion-induced 1D assembly of a molecularly engineered chaperonin.
J. Am. Chem. Soc. 131, 7556-7557 (2009)

62. Niwa, T., Ying, B.-W., Saito, K., Jin, W. Z., Takada, S., Ueda, T. Taguchi, H.*
Bimodal protein solubility distribution revealed by an aggregation analysis of the entire ensemble of Escherichia coli proteins
Proc. Natl. Acad. Sci. U.S.A. 106, 4201-4206 (2009)

61. Kanno, R., Koike-Takeshita, A., Yokoyama, K., Taguchi, H., Mitsuoka, K.*
Cryo-EM structure of the native GroEL-GroES complex from Thermus thermophilus encapsulating substrate inside the cavity.
Structure 17, 287-293 (2009)

60. Hosono, K., Ueno, T., Taguchi, H., Motojima, F., Zako, T., Yoshida, M., Funatsu, T.*
Kinetic analysis of conformational changes of GroEL based on the fluorescence of tyrosine 506.
Protein J. 27, 461-468 (2008)

59. Koike-Takeshita, A., Yoshida, M., Taguchi, H.*
Revisiting the GroEL-GroES reaction cycle via the symmetrical intermediate implied by novel aspects of the GroEL (D398A) mutant.
J. Biol. Chem. 283, 23774-23781 (2008) (selected as JBC Paper of the Week)

58. Uemura, S., Iizuka, R., Ueno, T., Shimizu, Y., Taguchi, H., Ueda, T., Puglisi, J., Funatsu, T.*
Single molecule imaging of full protein synthesis by immobilized ribosomes.
Nucleic Acids Research 36, e70 (2008)

57. Asayama, W., Sawada, S., Taguchi, H., Akiyoshi, K.*
Comparison of refolding activities between nanogel artificial chaperone and GroEL systems
Int. J. Biol. Macromol. 42, 241-246 (2008)

56. Fujiwara, K. and Taguchi, H.*
Filamentous morphology in GroE-depleted *Escherichia coli* induced by impaired folding of FtsE.
J. Bacteriol. 189, 5860-5866 (2007)

55. Suzuki, H. Ueda, T., Taguchi, H. Takeuchi, N.*
Chaperone properties of mammalian mitochondrial translation factor Tu.
J. Biol. Chem. 282, 4076-4084 (2007)

54. Kawai-Noma, S., Ayano, S., Pack, C-G., Kinjo, M., Yoshida, M., Yasuda, K., Taguchi, H.*
Dynamics of yeast prion aggregates in single living cells.
Genes to Cells 11, 1085-1096 (2006)

53. Ying, B.-W. Taguchi, H.*, Ueda, T.*
Co-translational binding of GroEL to nascent polypeptides is followed by post-translational encapsulation by GroES to mediate protein folding.
J. Biol. Chem. 281, 21813-21819 (2006)

52. Muramatsu, S., Kinbara, K., Taguchi, H., Ishii, N., Aida, T.*
Semibiological molecular machine with an implemented “AND” logic gate for regulation of protein folding.
J. Am. Chem. Soc. 128, 3764-3769 (2006)

51. Koike-Takeshita, A, Shimamura, T., Yokoyama, K., Yoshida, M., Taguchi, H.*
Leu-309 plays a critical role in the encapsulation of substrate protein into the internal cavity of GroEL.
J. Biol. Chem. 281, 962-967 (2006)

50. Taguchi, H.*
Chaperonin GroEL Meets the Substrate Protein as a "Load" of the Rings (review)
J. Biochem. 137, 543 - 549 (2005)

49. Ying, B.-W. Taguchi, H., Kondo, M., Ueda, T.*
Co-translational involvement of the chaperonin GroEL in the folding of newly translated polypeptides
J. Biol. Chem. 280, 12035-12040 (2005)

48. Inoue, Y., Taguchi, H., Kishimoto, A., Yoshida, M.*
Hsp104 binds to yeast sup35 prion fiber but needs other factor(s) to sever it.
J. Biol. Chem. 279, 52319-52323 (2004)

47. Ayano, S., Noma, S., Yoshida, M., Taguchi, H., Yasuda, K.*
On-chip single-cell observation assay for propagation dynamics of yeast Sup35 prion-like proteins
Jpn. J.Appl. Phys. 43, 1429-1432 (2004)

46. Taguchi, H., Tsukuda, K., Motojima, F., Koike-Takeshita, A., Yoshida, M.*
BeF_x stops chaperonin cycle of GroEL/GroES and generates a complex with double folding chambers
J. Biol. Chem. 279, 45737-45743 (2004)

45. Ying, B.W., Taguchi, H., Ueda, H., Ueda, T.*
Chaperone-assisted folding of a single-chain antibody in a reconstituted translation system.
Biochem. Biophys. Res. Commun. 320, 1359-1364 (2004)

44. Shimamura, T., Koike-Takeshita, A., Yokoyama, K., Masui, R., Murai, N., Yoshida, M., Taguchi H., Iwata, S.*
Crystal structure of the native chaperonin complex from *Thermus thermophilus* revealed unexpected asymmetry at the *cis*-cavity.
Structure 12, 1471-1480 (2004)

43. Ueno, T.#, Taguchi, H.#, Tadakuma, H., Yoshida, M.*, Funatsu, T.* [# equally contributed]
GroEL mediates protein folding with a two successive timer mechanism.
Mol. Cell 14, 423-434 (2004)

42. Kishimoto, A., Hasegawa, K., Suzuki, H., Taguchi, H., Namba, K*., Yoshida, M.*
Beta-helix is a likely core structure of yeast prion Sup35 amyloid fibers.
Biochem. Biophys. Res. Commun. 315, 739-745 (2004)

41. Suno, R., Taguchi, H., Masui, R., Odaka, M., Yoshida, M.*
Trigger factor from *Thermus themophilus* is a Zn^{2+}-dependent chaperone.
J. Biol. Chem. 279, 6380-6384 (2004)

40. Shimamura, T., Koike-Takeshita, A., Yokoyama, K., Yoshida, M., Taguchi H., Iwata, S.*
Crystallization of the chaperonin GroEL-GroES complex from *Thermus thermophilus* HB8.
Acta Crystallogr D Biol Crystallogr. 59:1632-1634 (2003)

39. Fay, N., Inoue, Y., Bousset, L., Taguchi H., Melki, R.*
Assembly of the yeast prion Ure2p into protein fibrils: Thermodynamic and kinetic characterization.
J. Biol. Chem. 278, 30199-30205(2003)

38. Sekiguchi, H., Arakawa, H., Taguchi H., Ito, T., Kokawa, R., Ikai, A.*
Specific interaction between GroEL and denatured protein measured by compression-free force spectroscopy.
Biophys. J. 85, 484-490 (2003)

37. Makyio H, Niwa H, Motohashi K, Taguchi H, Yoshida M.*
Stabilization of FtsH-unfolded protein complex by binding of ATP and blocking of protease.
Biochem. Biophys. Res. Commun. 296, 8-12 (2002)

36. Yoshida, T., Kawaguchi, R., Taguchi, H, Yoshida, M., Yasunaga, T., Wakabayashi, T., Yohda, M., Maruyama, T.*
Archaeal group II chaperonin mediates protein folding in the cis-cavity without a detachable GroES-like co-chaperonin.
J. Mol. Biol. 315, 73-85 (2002)

35. Fukami, T. A., Yohda, M., Taguchi, H., Yoshida, M., Miki, K.*
Crystal Structure of Chaperonin-60 from *Paracoccus denitrificans.*
J. Mol. Biol. 312, 501-509 (2001)

34. Inoue, Y., Kishimoto, A., Hirao, J., Yoshida, M.*, Taguchi, H.
Strong growth polarity of yeast prion-fiber revealed by single fiber imaging. [Accelerated publication]
J. Biol. Chem. 276, 35227-35230 (2001)

33. Taguchi, H., Ueno, T., Tadakuma, H., Yoshida, M., Funatsu, T.*
Single-molecule observation of protein-protein interactions in the chaperonin system.
Nat. Biotechnol. 19, 861-865 (2001)

32. Takada, K.*, Hirakawa, T., Yokosawa, H., Okawa, Y., Taguchi, H., Ohkawa, K.
Isolation of Ubiquitin-E2 (Ubiquitin-Conjugating Enzyme) Complexes from Erythroleukemia

Cells using Immunoaffinity Techniques.
Biochemical J. 356, 199-206 (2001)

31. Shiseki, K., Murai, N., Motojima, F., Hisabori, T., Yoshida, M., Taguchi, H.*
Synchronized domain opening motion of GroEL is essential for communication between the two rings.
J. Biol. Chem. 276, 11335-11338 (2001)

30. Yokoyama, K.*, Ohkuma, S., Taguchi, H., Yasunaga, T, Wakabayashi, T., Yoshida, M.
V-Type H^+-ATPase/synthase from a thermophilic eubacterium, *Thermus Thermophilus*; Subunit Structure And Operon.
J. Biol. Chem. 275, 13955-13961. (2000)

29. Watanabe, Y., Motohashi, K., Taguchi, H., Yoshida, M.*
Heat-inactivated proteins managed by DnaKJ-GrpE-ClpB chaperones are released as a chaperonin-recognizable nonnative form.
J. Biol. Chem. 275, 12388-12392 (2000)

28. Teshima, T., Kohda, J., Kondo, A.*, Taguchi, H., Yohda, M., Fukuda, H.
Preparation of *Thermus thermophilus* holo-chaperonin-immobilized microspheres with high ability to facilitate protein refolding.
Biotechnol Bioeng. 68, 184-190 (2000).

27. Asahara, Y., Atsuta, K., Motohashi, K., Taguchi, H., Yohda, M., Yoshida, M.*
FtsH recognizes unfolded proteins and hydrolyzes carboxyl side of hydrophobic residues.
J. Biochem. 127, 931-937 (2000)

26. Aoki, K., Motojima, F., Taguchi, H., Yomo, T. & Yoshida, M.*
GroEL binds artificial proteins with random sequences.
J. Biol. Chem., 275, 13755-13758 (2000).

25. Pack, C-G., Aoki, K., Taguchi, H., Yoshida, M., Kinjo, M., Tamura, M.*
Effect of electrostatic interactions on the binding of charged substrate to GroEL studied by highly sensitive fluorescence correlation spectroscopy.
Biochem. Biophys. Res. Commun., 267, 300-304 (2000)

24. Sakikawa, C., Taguchi, H., Makino, Y., Yoshida, M.*
On the maximum size of proteins to stay and fold in the cavity of GroEL underneath GroES.
J. Biol. Chem. 274, 21251-21256 (1999)

23. Pack, C-G., Nishimura, G., Tamura, M., Aoki, K., Taguchi, H., Yoshida, M., Kinjo, M.*
Analysis of interaction between chaperonin GroEL and its substrate using fluorescence correlation spectroscopy.
Cytometry, 36, 247-253 (1999)

22. Teshima, T., Kohda, J., Kondo, A.*, Taguchi, H., Yohda, M., Endo, I., Fukuda, H.
Protein refolding system using holo-chaperonin from thermophilic bacterium *Thermus thermophilus*.
J. Ferment. Bioeng., 85, 564-570 (1998)

21. Taguchi, H. and Yoshida, M.*
Chaperonin from thermophile *Thermus thermophilus.*
Methods Enzymol. 290, (1998) 169-180

20. Yoshida T., Yohda M.*, Iida T., Maruyama T., Taguchi H., Yazaki K., Ohta T., Odaka M., Endo I., and Kagawa Y.*
Structural and Functional Characterization of Homo-oligomeric Complexes of a and b

Chaperonin Subunits from the Hyperthermophilic Archaeum, Thermococcus strain KS-1.
J. Mol. Biol., 273, 635-645 (1997)

19. Aoki, K., Taguchi, H., Shindo, Y., Yoshida, M.*, Ogasahara, K., Yutani, K., Tanaka, N.
Calorimetric Observation of a GroEL-Protein Binding Reaction with Little Contribution of Hydrophobic Interaction.
J. Biol. Chem. 272, 32158-32162 (1997)

18. Nakamura, N., Taguchi, H., Ishii, N., Yoshida, M., Suzuki, M., Endo, I., Miura, K., Yohda, M.*
Purification and molecular cloning of the group II chaperonin from the acidothermophilic archaeon, Sulfolobus sp. strain 7.
Biochem. Biophys. Res. Commun. 236 (3), 727-732 (1997)

17. Taguchi, H., Amada, K., Murai, N., Yamakoshi, M., Yoshida, M.*
ATP-, K^+-dependent Heptamer Exchange Reaction Produces Hybrids between GroEL and Chaperonin from *Thermus thermophilus*.
J. Biol. Chem. 272, 18155-18160 (1997)

16. Makino, Y., Amada, K., Taguchi, H., Yoshida, M.*
Chaperonin-mediated folding of Green Fluorescent Protein.
J. Biol. Chem. 272, 12468-12474 (1997)

15. Amada, K., Yohda, M., Odaka, M., Endo, I., Ishii, N., Taguchi, H., and Yoshida, M.*
Molecular cloning, expression, and characterizatiion of chaperonin-60 and chaperonin-10 from a thermophilic bacterium, *Thermus thermophilus* HB8.
J. Biochem. 118, 347-354 (1995)

14. Murai, N., Taguchi, H. and Yoshida, M.*
Kinetic analysis of interaction between GroEL and reduced a-lactalbumin; Effect of GroES and nucleotides.
J. Biol. Chem. 270, 19957-19963 (1995)

13. Ishii, N., Taguchi, H., Sasabe, H., and Yoshida, M.*
Equatorial split of holo-chaperonin from *Thermus thermophilus* by ATP and K^+.
FEBS Lett. 362, 121-125 (1995)

12. Taguchi, H. and Yoshida, M.*
Chaperonin releases the substrate protein in a form with tendency to aggregate and ability to rebind to chaperonin.
FEBS Lett. 359, 195-198 (1995)

11. Motohashi, K., Taguchi, H., Ishii, N., and Yoshida, M.*
Isolation of the stable hexameric DnaK-DnaJ complex from *Thermus thermophilus*.
J. Biol. Chem. 269, 27074-27079 (1994)

10. Ishii, N., Taguchi, H., Sasabe, H., and Yoshida, M.*
Folding intermediate binds to the bottom of bullet-shaped holo-chaperonin and is readily accessible to antibody.
J. Mol. Biol. 236, 691-696 (1994)

9. Taguchi, H., Makino, Y., and Yoshida, M.*
Monomeric chaperonin-60 and its 50kD fragment possess the ability to interact with non-native proteins, to suppress aggregation, and to promote protein folding.
J. Biol. Chem. 269, 8529-8534 (1994)

8. Makino, Y., Taguchi, H. and Yoshida, M.*
Truncated GroEL monomer has the ability to promote folding of rhodanese without GroES and

ATP.
FEBS Lett. 336, 363-367 (1993)

7. Yoshida, M.*, Ishii, N., Muneyuki, E. and Taguchi, H.
A chaperonin from a thermophilic bacterium, *Thermus thermophilus.*
Phil. Trans. R. Soc. Lond. B 339, 305-312 (1993)

6. Taguchi, H. and Yoshida, M.*
Chaperonin from *Thermus thermophilus* can protect several enzymes from irreversible heat denaturation by capturing denaturation intermediate.
J. Biol. Chem. 268, 5371-5375 (1993)

5. Sumi, M., Taguchi, H., Yokoyama, K., Ishii, N. and Yoshida, M.*
Identification and characterization of a chaperonin from *Paracoccus denitrificans.*
Life Sci. Adv. 11, 179-182 (1992)

4. Ishii, N., Taguchi, H., Sumi, M. and Yoshida, M.*
Structure of holo-chaperonin studied with electron microscopy: Oligomeric cpn10 on top of two layers of cpn60 rings with two stripes each.
FEBS Lett. 299, 169-174 (1992)

3. Ishii, N., Taguchi, H., Yoshida, M., Yoshimura, H., and Nagayama, K.*
Image analysis by electron microscopy of two-dimensional crystals developed on a mercury surface of chaperonin from *Thermus thermophilus*.
J. Biochem. 110, 905-908 (1991)

2. Taguchi, H., Konishi, J., Ishii, N., and Yoshida, M.*
A chaperonin from a thermophilic bacterium, *Thermus thermophilus*, that controls refoldings of several thermophilic enzymes.
J. Biol. Chem. 266, 22411-22418 (1991)

1. Kobayashi, Y.*, Shimazaki, T., Taguchi, H., and Sato, F.*
Highly stereocontrolled total synthesis of Leukotriene B4, 20-hydroxyleukotriene B4, Leukotriene B3, and their analogues.
J. Org. Chem. 55, 5324-5335 (1990)

Books

4. *Taguchi, H.
The interaction networks of E. coli chaperones.
in "The Molecular Chaperones Interaction Networks in Protein Folding and Degradation", Springer, edited by W. Houry, (2014)

3. *Taguchi, H. and Kawai-Noma, S.
Fibrillar Structures of Yeast Prion Sup35 In Vivo.
in "Bio-nanoimaging: Protein Misfolding and Aggregation", Elsevier, edited by V. Uversky and Y. Lyubchenko, 271-280 (2013)

2. Yamakoshi, M., Taguchi, H., Ishii, N., *Yoshida, M.,
A Chaperonin from a Thermophilic Bacterium, *Thermus thermophilus*.
in "Molecular Chaperones in the life cycle of proteins", edited by A. L. Fink and Y. Goto), Marcel Dekker, 301-330 (1997)

1. Taguchi, H. and *Yoshida, M.

GroEL and GroES of *Thermus thermophilus.* in "Guidebook to Molecular Chaperones and Protein-folding catalysts" edited by M. -J. Gething, Sambrook and Tooze Publication at Oxford University Press 187-188 (1997).

Selected Invited talks

International Symposium on Proteins: From the Cradle to the Grave, August 26-29, 2018, Enryakuji, Japan, "Nascent chain-induced ribosome dynamics regulation."

Conference on Conformational Transitions in Proteins, May 3-6, 2018, Venice, Italy, "Conversion of a chaperonin GroEL-dependent substrate protein into GroEL-independent folders."

Cold Spring Harbor Laboratory meeting on Protein Homeostasis in Health and Diseases., April 17-21, 2018, Cold Spring Harbor, USA, "Intrinsic ribosome destabilization underlies translation and provides an organism with a strategy of environmental sensing."

3rd International Symposium on Protein Folding and Dynamics, November 8-11, 2016, Bangalore, India, "The chaperonin GroEL and its substrates: key features that define the GroEL dependency."

Nascent-Chain Biology meeting, September 1-3, 2016, Lake Kawaguchi, Japan, "Mechanism of nascent-chain quality control using a reconstituted cell-free translation system."

Cold Spring Harbor Laboratory meeting on Protein Homeostasis in Health and Diseases., April 18-22, 2016, Cold Spring Harbor, USA, "Integrated in vivo and in vitro nascent chain profiling reveals widespread translational pausing."

Viiki Monday Lecture Series in Helsinki University, September 7, 2015, Helsinki, Finland., "Molecular mechanism of chaperonin GroEL and the substrates."

The EMBO Conference "The Biology of Molecular Chaperones" May 8-13, 2015, Crete, Greece, "Conversion of a chaperonin GroEL-independent protein into an obligate substrate, and vice versa."

65th Mosbacher Kolloquim on Molecular quality control in health and disease. March 27-29, 2014, Mosbach Germany "Non-amyloid oligomer-based phenotype switch in yeast Sup35"

Symposium on Protein Folding, in and out of Anfinsens' closet, Arolla, Switzerland January 9-11 2014, "The chaperonin GroEL and its substrates: key features that define the GroEL dependency"

SPIE 2013: Nano-Bio Sensing, Imaging & Spectroscopy, February 20-22, 2013, Jeju-do, Korea, "In vivo structure and dynamics of yeast prion protein."

SFB 3rd International symposium “Molecular Machines in Protein Folding and Protein Transport” July 23-25, 2012, Munich, Germany, “Global analyses of protein aggregation and chaperone effects”

The EMBO Conference “The Biology of Molecular Chaperones” May 19-24, 2011, Grundlsee, Austria, “Global analysis of chaperone action using a reconstituted cell-free translation system”

3rd International Symposium on Protein Society, September 13-16, 2010, Nara, “A systematic survey of in vivo obligate chaperonin GroE-dependent substrates”

4th International Congress on Stress Responses in Biology and Medicine, Symposium "From chaperones to Translocators" October 6-9 2009, Sapporo, “A comprehensive survey of in vivo obligate GroEL/ES substrates.”

The EMBO Conference “The Biology of Molecular Chaperones” May 23-28, 2009, Dubrovnik, Croatia, “Bimodal protein solubility distribution revealed by an aggregation analysis of the entire ensemble of *Escherichia coli* proteins.”

International Conference “Protein Folding and Neurodegenerative Diseases” April 6-7, 2009, Kyoto, “Mechanism of yeast prion propagation revealed by direct observation of prion protein dynamics.”

The 12th SANKEN International Symposium “Frontiers of Science for Future Industries” Jan 22, 2009, Osaka, “Mechanism of prion propagation revealed by direct observation of yeast prion dynamics,”

2nd Pacific Rim International Conference on Protein Science, June 22-26, 2008 Cairns convention centre, Cairns, Australia “Direct observation of yeast prion dynamics in single-living cells”

Cold Spring Harbor Laboratory meeting on Molecular Chaperones and Stress Responses., April 30-May 4, 2008, Cold Spring Harbor, USA. “Direct observation of yeast prion Sup35 dynamics in single-living cells”

7th KIAS-Soongsil Conference on Protein Structure and Function. October 4-6, 2007, Soongsil University, Seoul, Korea, “Role of GroEL on the folding of newly translated polypeptides”

2006 IBC symposium on Structural and biochemical properties of prions and amyloids., October 16-17, 2006 Academia Sinica, Taipei, “Direct observation of yeast prion Sup35 dynamics: from a single-molecule to a single-cell approach”