From cytosol to ER: Translation, translocation and modification of protein

2015 Nov 30 2 pm

Lecture room A
Life Science Project Research Laboratory
Katahira Campus Tohoku Univ.

14:00-14:45 Kenji Inaba (Tohoku Univ.)
Dynamic natures of PDI-family member proteins in catalysis of oxidative protein folding and ER associated degradation

14:45-15:15 Hiroshi Kadokura (Tohoku Univ.)
Mechanisms of oxidative folding of newly-synthesized secretory proteins in the ER of mammalian cells

15:15-16:30 Roland Beckmann (University of Munich, Gene Center)
Structural snapshots of cotranslational targeting and translocation

16:30-17:00 Yoshitaka Matsuo (Tohoku Univ.)
Quality controls induced by translation arrest

Prof. Roland Beckmann

BIOGRAPHICAL NOTE:
1992
BS, Freie Universität Berlin
1995
PhD. Freie Universität Berlin
1995-2000
Postdoc, Rockefeller University, USA
2001-2006
Group leader, Humboldt Universität Berlin
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Professor, University of Munich, Gene Center Biochemistry

1.Gogala, M., *et al.* Structures of the Sec61-complex engaged in nascent peptide translocation or membrane insertion. ***Nature*** 506, 107-110 (2014)
2.Anger A.M., *et al.* Structures of the human and Drosophila 80S ribosome. ***Nature*** *497*, 80-85 (2013)
3.Becker, T., *et al.* Structural basis of highly conserved ribosome recycling in eukaryotes and archaea. ***Nature*** *482*, 501-506 (2012)
4.Seidelt, B., *et al.* Structural Insight into Nascent Polypeptide Chain-Mediated Translational Stalling ***Science*** *326*, 1412-1415 (2009)
5.Becker, T. et al. Structure of Monomeric Yeast and Mammalian Sec61 Complexes Interacting with the Translating Ribosome. ***Science*** *326*, 1369-1373 (2009)
6.Halic, M. et al. Following the Signal Sequence from Ribosomal Tunnel Exit to Signal Recognition Particle. ***Nature*** *444*, 507-511 (2006)
7.Halic, M. et al. Signal Recognition Particle Receptor Exposes the Ribosomal Translocon Binding Site. ***Science*** *312*, 745-747 (2006)
8.Andersen, C.B., et al. Structure of eEF3 and the Mechanism of Transfer Rna Release from the E-Site. ***Nature*** *443*, 663-668 (2006)
9.Halic, M., et al. Structure of the Signal Recognition Particle Interacting with the Elongation-Arrested Ribosome. ***Nature*** *427*, 808-814 (2004)
10.Beckmann, R. et al Architecture of the Protein-Conducting Channel Associated with the Translating 80S Ribosome. ***Cell*** *107*, 361-372 (2001)
11.Beckmann, R. et al. Alignment of Conduits for the Nascent Polypeptide Chain in

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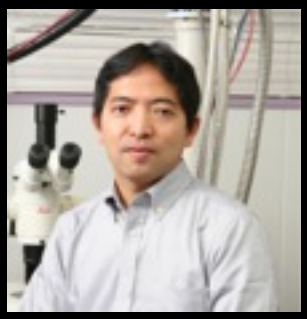

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1993
BS, Kyoto University
1998
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Principal Scientist, JST PREST
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Associate Professor, Kyushu University
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1.Kojima, R., Okumura, M. et al., Radically different thioredoxin domain arrangement of ERp46, an efficient disulfide-bond introducer of the mammalian PDI family. ***Structure*** 22, 431-443 (2014)G
2.Vavassori, S., Masui, S. et al. A pH-Regulated Quality Control Cycle for Surveillance of Secretory Protein Assembly. ***Mol. Cell*** 50, 783-792 (2013)
3.Hagiwara, M., Maegawa, K. et al.Structural basis of an ERAD pathway mediated by the ER-resident disulfide reductasse ERdj5. ***Mol. Cell*** 41, 432-444 (2011)
4.Inaba, K.* et al. Crystal structures of human Ero1a reveal the mechanisms of regulated and targeted oxidation of PDI. ***EMBO J*** 29, 3330-3343 (2010)
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6.Inaba, K.* et al.Crystal structure of the DsbB-DsbA complex reveals a mechanism of disulfide bond generation. ***Cell*** 127, 789-801 (2006)
7Inaba, K. et al. Critical role of a thiolate-quinone charge transfer complex and its adduct form in de novo disulfide bond generation by DsbB. ***Proc. Natl. Acad. Sci. USA***.103, 287-292 (2006)
8.Inaba, K. and Ito, K. Paradoxical redox properties of DsbB and DsbA in the protein disulfide-introducing reaction cascade. ***EMBO J*** 21, 2646-2654 (2002)

Organized by
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