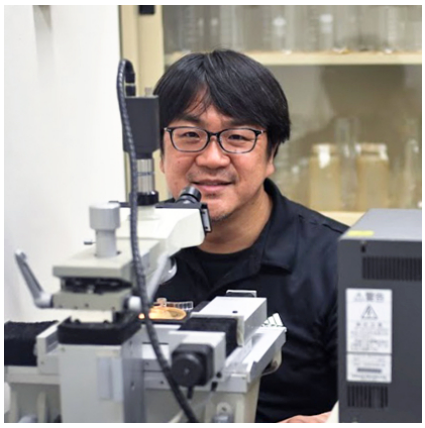
Molecular Cell Biology



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Major Scientific Interests of the Group

1) Post-transcriptional regulation of gene expression by RNA-binding proteins.
2) Molecular mechanism of mRNA localization and local translation regulating cell polarity, asymmetric cell division, and cell-fate.
3) Signaling pathway for the regulation of the endoplasmic reticulum stress response.
4) Developmental regulation for membrane traffic in meiosis.

Projects for Regular Students in Doctoral or Master's Programs

1) Post-transcriptional regulation of gene expression by Khd1, Ccr4, and Pbp1 in yeast.
2) Stability control of *LRG1* mRNA by RNA-binding proteins.
3) Regulation of the endoplasmic reticulum stress response by protein kinases.

Selected Publications

1) Valderrama AL, Fujii S, Duy DL, Irie K, Mizuno T, Suda Y, Irie K. Pbp1 mediates the aberrant expression of genes involved in growth defect of ccr4 and pop2 mutants in yeast Saccharomyces cerevisiae. Genes Cells. 2021 Mar 25.
2) Mizuno T, Muroi K, Irie K. Snf1 AMPK positively regulates ER-phagy via expression control of Atg39 autophagy receptor in yeast ER stress response. PLoS Genet. 2020 Sep 28;16(9):e1009053.
3) Lien PTK, Viet NTM, Mizuno T, Suda Y, Irie K. Pop2 phosphorylation at S39 contributes to the glucose repression of stress response genes, HSP12 and HSP26. PLoS One. 2019 Apr 11;14(4):e0215064.
4) Viet NTM, Duy DL, Saito K, Irie K, Suda Y, Mizuno T, Irie K. Regulation of *LRG1* expression by RNA-binding protein Puf5 in the budding yeast cell wall integrity pathway. Genes Cells. 2018 Dec;23(12):988-997.
5) Mizuno T, Nakamura M, Irie K. Induction of Ptp2 and Cmp2 protein phosphatases is crucial for the adaptive response to ER stress in *Saccharomyces cerevisiae*. Sci Rep. 2018 Aug 30;8(1):13078.
6) Suda Y, Tachikawa H, Inoue I, Kurita T, Saito C, Kurokawa K, Nakano A, Irie K. Activation of Rab GTPase Sec4 by its GEF Sec2 is required for prospore membrane formation during sporulation in yeast Saccharomyces cerevisiae. FEMS Yeast Res. 2018 Feb 1;18(1).
7) Kimura Y, Irie K, Mizuno T. Expression control of the AMPK regulatory subunit and its functional significance in yeast ER stress response. Sci Rep. 2017 Apr 21;7:46713.
8) Duy DL, Suda Y, Irie K. Cytoplasmic Deadenylase Ccr4 is Required for Translational Repression of *LRG1* mRNA in the Stationary Phase. PLoS One. 2017 Feb 23;12(2):e0172476.
9) Ito Y, Kitagawa T, Yamanishi M, Katahira S, Izawa S, Irie K, Furutani-Seiki M, Matsuyama T. Enhancement of protein production via the strong *DIT1* terminator and two RNA-binding proteins in *Saccharomyces cerevisiae*. Sci Rep. 2016 Nov 15;6:36997.
10) Lien PT, Izumikawa K, Muroi K, Irie K, Suda Y, Irie K. Analysis of the Physiological Activities of Scd6 through Its Interaction with Hmt1. PLoS One. 2016 Oct 24;11(10):e0164773.
11) Li X, Ohmori T, Irie K, Kimura Y, Suda Y, Mizuno T, Irie K. Different Regulations of *ROM2* and *LRG1* Expression by Ccr4, Pop2, and Dhh1 in the Saccharomyces cerevisiae Cell Wall Integrity Pathway. mSphere. 2016 Sep 28;1(5).
12) Mizuno T, Masuda Y, Irie K. The Saccharomyces cerevisiae AMPK, Snf1, Negatively Regulates the Hog1 MAPK Pathway in ER Stress Response. PLoS Genet. 2015 Sep 22;11(9):e1005491.