BDR SEMINAR (Yokohama & Virtual)

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Tuesday, June 13, 2023

14:00-15:00

2F C210-212, Central Building, Yokohama / Broadcast online via Zoom

Zoom meeting URL will be announced on the event day by e-mail.

※Non-BDR members: Please register from the following link.

https://krs1.riken.jp/m/bdrseminarregistration (Registration deadline June 9)

eIF3 mediates translational heat shock response through the RNA-binding g subunit

Summary

While heat shock response is crucial for protein folding homeostasis and the rapid growth of cells including cancer, its translational control remains a mystery. Here, we performed genome-wide translational profiling of yeast temperature-sensitive mutant mapping in the i subunit of translation factor eIF3 [1] and found that, along with its RNA-binding partner, eIF3g, it promotes translation of a subset of mRNA in response to heat. The eIF3i/g-regulated genes include SSA1/2 encoding Hsp70. Its translational control is mediated by direct eIF3g-binding to the GUCG motif located 12-bases downstream of the start codon. SELEX analysis indicates that eIF3g binds a consensus GUCGGC through its RRM. We propose that eIF3g binding to the leading edge of mRNA within the scanning pre-initiation complex promotes translation initiation from a subset of mRNAs in response to heat.

[1] Asano, K. et al, J. Biol. Chem. 1998, 273, 18573-18585.

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