

# June 2009 Highlights

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## YidC and Oxa1 Form Dimeric Insertion Pores on the Translating Ribosome

By Rebecca Kohler, Daniel Boehringer, Basil Greber, Rouven Bingel-Erlenmeyer, Ian Collinson, Christiane Schaffitzel, Nenad Ban ([2009](#)) [Molecular Cell, 34, 344-353.](#)

*Members of the YidC/Oxa1/Alb3 protein family insert membrane proteins in bacteria, mitochondria, and chloroplasts. Kohler et al. report the 3D structures of YidC and Oxa1 bound to translating ribosomes as dimers of two-fold symmetry. The dimeric channel forms a central pore and can open laterally to release transmembrane helices into the lipid bilayer, analogous to the functioning of the two halves of the SecY monomer. The image showing a nut cut into halves symbolizes this bipartite assembly. Image: Basil Greber, ETH Zurich.*

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## Mammalian expression of Infrared fluorescent proteins engineered from a bacterial phytochrome.

By Shu, X., Royant, A., Lin, M.Z., Aguilera, T.A., Lev-Ram, V., Steinbach, P.A. & Tsien, R.Y. (2009) *Science* 324, 804-807.



*GFP has revolutionized cell biology but has met limited success in whole-body imaging. A scientist from the IBS has contributed in Roger Tsien's lab at the UCSD to the development of a fluorescent protein suitable for whole-body imaging, based on the directed evolution of a truncated phytochrome from *Deinococcus radiodurans*. Fluorescence Molecular Tomography imaging of mice infected by an adenovirus expressing the Infrared fluorescent protein and specifically targeting the liver has demonstrated the potential of this genetically-encoded marker.*

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## Highlight from the ESRF Structural Biology Beamlines



### The structure of yeast Sac3:Cdc31:Sus1:Thp1 (TREX-2) complex.

*The yeast Sac3:Cdc31:Sus1:Thp1 (TREX-2) complex facilitates the repositioning and association of actively transcribing genes with nuclear pores that is central to integrating transcription, processing, and mRNA nuclear export. Crystal structures for the Sac3:CID:Sus1:Cdc31 complex have been solved by researchers from the MRC laboratory of Molecular Biology (UK) and Heidelberg University (Germany). The CID region of Sac3 forms a continuous 12.5 nm alpha helix, which is encircled by two Sus1 chains and one Cdc31 chain. Data for these structures were collected*

*on the ESRF beamlines ID23-1, ID29 and ID14-1. See **Jani, D. et al. Mol. Cell, 33, 727-737 (2009).***