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## Publication

### 3BBV: The tRNA(phe) fitted into the low resolution Cryo-EM map of the 50S.nc-tRNA.Hsp15 complex

#### JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

**ID** 4531021

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**Year** 2008

**Title** 3BBV: The tRNA(phe) fitted into the low resolution Cryo-EM map of the 50S.nc-tRNA.Hsp15 complex

**Journal** Worldwide Protein Data Bank

**Pages / Article-Number** 3BBV

**Keywords** ribosome

**Mesh terms** Science & TechnologyLife Sciences & BiomedicineBiochemistry & Molecular BiologyBiochemistry & Molecular Biology

When heat shock prematurely dissociates a translating bacterial ribosome, its 50S subunit is prevented from reinitiating protein synthesis by tRNA covalently linked to the unfinished protein chain that remains threaded through the exit tunnel. Hsp15, a highly upregulated bacterial heat shock protein, reactivates such dead-end complexes. Here, we show with cryo-electron microscopy reconstructions and functional assays that Hsp15 translocates the tRNA moiety from the A site to the P site of stalled 50S subunits. By stabilizing the tRNA in the P site, Hsp15 indirectly frees up the A site, allowing a release factor to land there and cleave off the tRNA. Such a release factor must be stop codon independent, suggesting a possible role for a poorly characterized class of putative release factors that are upregulated by cellular stress, lack a codon recognition domain and are conserved in eukaryotes.

**edoc-URL** <https://edoc.unibas.ch/75950/>

**Full Text on edoc** No;

**Digital Object Identifier DOI** 10.2210/pdb3bbv/pdb

**ISI-Number** 2012140001767533

**Document type (ISI)** Data set