

Wellcome Trust funded Research Technician

Applications are sought for a Research Technician in the lab of Dr. Christoph Engl at Queen Mary University of London.

Project description:

Understanding how antimicrobials act on their target is key for developing new knowledge-based strategies to potentiate antimicrobial efficacy. Many antimicrobials act via interfering with translation by bacterial ribosomes. Translation is a highly dynamic process that involves large-scale movements of ribosomal subunits and tRNAs. Single-molecule FRET enables the analyses of translation-dynamics with high spatio-temporal resolution and can thus provide novel mechanistic insights into how antimicrobials interfere with translation.

We have previously shown that the conserved rRNA repair-system RtcAB affects ribosome homeostasis and increases the tolerance of *E. coli* cells to ribosome-targeting antimicrobials. Whether and how RtcAB impacts translation-dynamics however is not clear.

In this project we will implement smFRET to reveal the impact of RtcAB on the conformation and population-dynamics of key states within the translation-apparatus. This will help us understand how RtcAB contributes to increased antimicrobial tolerance and provide a platform for future studies of the interplay between rRNA repair and ribosome-targeting antimicrobials.

Techniques include bacterial genetics, cell and molecular biology, biochemistry and fluorescence imaging.

Literature:

Engl et al. Cellular and molecular phenotypes depending upon the RNA repair system RtcAB of *Escherichia coli*.

Nucleic Acids Research 2016, 44: 9933-9941. <https://doi.org/10.1093/nar/gkw628>