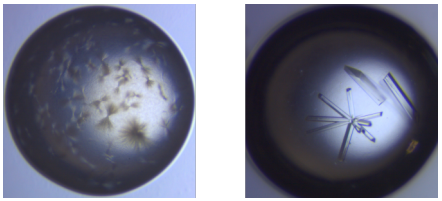

Figure 1. Crystallization drops obtained for the same protein without (left) and with the all in one lanthanide complex (right).

Keywords: Crystallization, Nucleation, Phasing, Anomalous, Luminescence, Lanthanide complex

MS13 Hot structures in biology

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MS13-O1 Bacterial Resistance to Silver: The Role of SilE Protein

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Silver has been used for hundreds of years for its antimicrobial properties. Since the emergence of many multi-resistant bacterial strains against classical antibiotics, the research of new silver compounds is now at its apogee. While these drugs have been shown to be highly able to kill bacteria, some of these pathogens have developed a resistance to high concentrations of Ag^+. This resistance is provided by the plasmid pMG101, which encodes for eight proteins that act together in an efflux pump system to deal with silver ions. Among these, the SilE protein is the only one of which its mode of action is actually unknown.

To identify the role of SilE in this bacterial machinery, two approaches have been intended in our group. While one way is to study the interaction of the whole protein with silver ions, the other is based on a bottom-up approach, investigating the interaction of silver ions with short peptide sequences of this protein. By NMR studies of these peptide models, we were able to highlight a potential methionine participation in the complexation of Ag^+ by SilE.

S. Silver, L. T. Phung, G. Silver, *J. Ind. Microbiol. Biotechnol.* **2006**, 33, 627-634.

S. Eckhardt, P. S. Brunetto, J. Gagnon, M. Priebe, B. Giese, K. M. Fromm, *Chem. Rev.* **2013**, 113, 4708-4754.

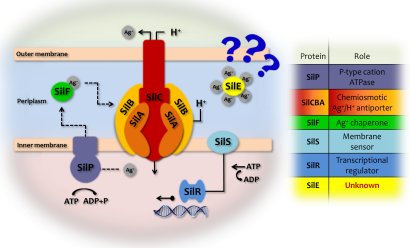

Figure 1. Proteins products of pMG101 silver resistance genes.

Keywords: Bacterial resistance, Silver(I), Metalloprotein, Methionine