

## Poster Presentation

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### *Anaerobic crystallization for protein crystallography*

M. Senda<sup>1</sup>, T. Senda<sup>1</sup>

<sup>1</sup>*Structural Biology Research Center (SBRC), IMSS, KEK, Tsukuba, Japan*

Crystallization has been a bottleneck in protein crystallography. Major problems in protein crystallization are 1) to find crystallization conditions effectively at the initial crystallization screening and 2) to improve the reproducibility of protein crystallization. To overcome these problems, we have proposed some techniques such as the immediate observation method (1). Recently, we realized that films and precipitates of oxidized proteins hampered the crystal formation, leading to poor reproducibility of the crystallization. To avoid oxidation of proteins, we examined anaerobic crystallization in an anaerobic chamber. The anaerobic chamber (Anaerobic 'HARD', Hirasawa) was designed to carry out controlled anaerobic experiments for electron-transfer proteins. We have so far established typical procedures for the anaerobic crystallization (2). On the basis of our earlier experiences, the anaerobic crystallization was tested for various proteins. We found obvious differences between aerobic and anaerobic crystallization in some cases; some proteins could crystallize only under anaerobic conditions. Furthermore, the anaerobic crystallization improved reproducibility of crystallization as expected. We will report some examples of the anaerobic crystallization.

[1] Senda, M. et al. (2012). *ACA annual meeting 2012.*, [2] Senda, M. et al. (2007). *Acta Cryst. F63*, 311

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