

Cryo-fluorescence and Cryo-CLEM: sample handling, microscope integration and new workflow options with the Linkam CMS196V3

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Abstract

Keywords Cryo-Fluorescence, Correlative light and electron microscopy (CLEM), vitrified biological samples, TEM, cryo-ET, cryo-sample handling

In this workshop at MMC2021 we will give an overview on several aspects of the cryo-CLEM technique and the related cryo-fluorescence workflow.

Biological material and proteins can be preserved in a near-native state when frozen rapidly and transformed into a vitrified “glass-like” state. Both fluorescence imaging as well as Electron microscopy can be performed on vitrified samples. The fluorescence techniques are highly specific and can highlight biological, chemical or genetic events while EM can provide highest resolution and structural context – in some cases down to the protein structures.

The first part of the session will give an introduction to the cryo-technique and applications, the different workflow options and also a background for the development of the Linkam CMS196V3 cryo stage and its operating principle.

In the second part we will give a practical demonstration of the instrument, hints on sample handling as well as comments on microscope integration and software options.

The final third part of the workshop will be a live discussion where we like to hear your comments, questions or indeed ideas.