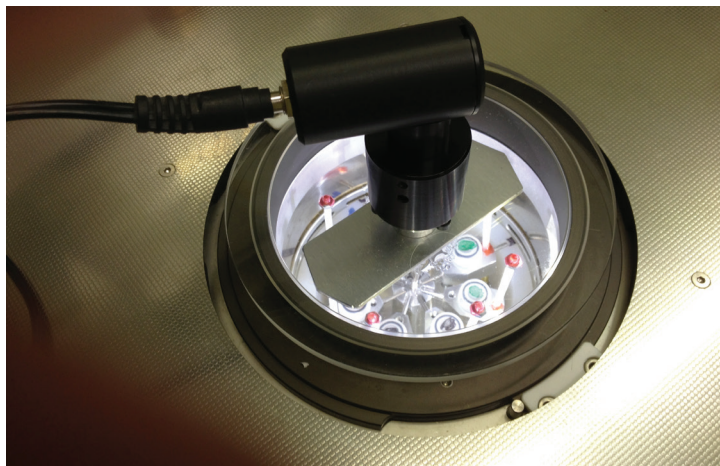


Agitation module for automated freeze substitution

Freeze substitution is a technique that is commonly used in biological sample analysis (e.g. bacteria, unicellular organisms, culture cells and tissues of both the animal and plant kingdoms). In order to improve sample preparation for electron microscopy (inclusively of analytical methods such as EDX, EELS, NanoSIMS) one initiates the process of substitution of the frozen water with a solvent (usually acetone or methanol). Particularly with the low temperatures needed for the substitution process freeze substitution has established itself as a notoriously slow technique.

BACKGROUND

The agitation module for the automated substitution process developed at the Faculty of Life Sciences of the University of Vienna is designed to decrease the time needed for the freeze substitution. It can be attached to any existing automated freeze substitution (AFS) unit, as shown below. With the module attached the substitution time can be improved by an order of magnitude without the need for technical changes on the AFS unit itself.



BENEFITS

- Freeze substitution of biological samples for light- and electron microscopy
- Detection of chemical substances with EDX, EELS, NanoSIMS
- Short operation times
- Attachable to any existing automated AFS units (Leica EM AFS2 etc.)
- Minimal extraction of biological material
- Reduced liquid nitrogen consumption

APPLICATION:

Automated Freeze substitution

DEVELOPMENT STATUS:

This module has been successfully tested in the lab.

IPR:

Austrian patent (A 50272/2014, filed April 2014) will be granted. PCT application filed (PCT/AT2015/050093)

INVENTORS:

- Siegfried Reipert
- Helmuth Goldammer

CONTACT:

Tom Withnell

University of Vienna
Technology Transfer
Berggasse 7 (2.Stock),
1090 Vienna
T: +43.1.4277.18245
tom.withnell@univie.ac.at
<https://techtransfer.univie.ac.at>

