

Core Facility for CryoEM Newsletter

THE IDEA

We are very excited to present a new cryo-EM facility to Berlin structural biology community. It is now possible for us to **welcome** our first users on site, and offer them a complete **workflow** for their experiments.



The Core Facility cryo-EM provides advanced instrumentation for state-of-the-art three dimensional in-situ imaging of frozen hydrated biological samples.

To request a visit to discuss your experiment with us or book our instruments, you will find us on [Iris](https://iris.charite.de/Landing/Provider/1772)

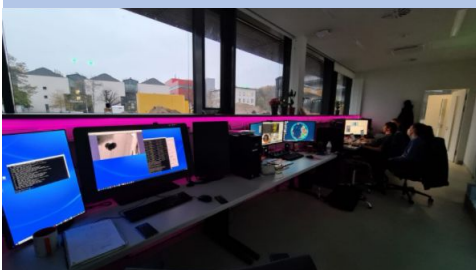
Who are we?

Christoph Diebolder, PhD, head of the facility, background in biophysics, structural immunology and expert in cryo electron tomography

Thiemo Sprink, PhD, biochemist and structural biologist, main operator of the Titan Krios and responsible for data processing

Metaxia (Xenia) Stavroulaki, MSc, neurobiologist, in charge of the cryo correlative part of the workflow and main operator of the Aquilos.

Our team offers training for all the instruments and techniques available. The aim is to have independent users, able to work autonomously on their samples.



The Workflow

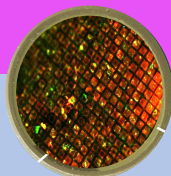
Specimen preservation by vitrification in liquid ethane can be done using a **ThermoFisher Vitrobot Mark IV** plunge freezer.

We use cryo electron tomography for three-dimensional imaging at cryogenic temperatures using a **ThermoFisher 300 keV Titan Krios TEM** equipped with advanced direct electron detectors (K3 and Falcon III), energy filter, and Volta phase plate.

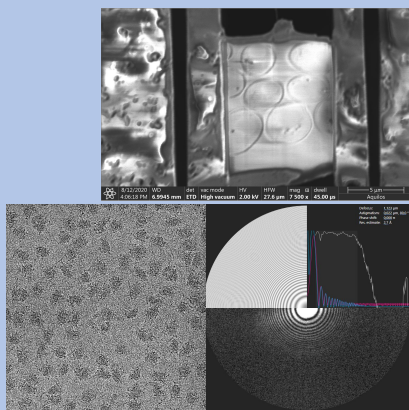
Thick samples like entire cells or tissue can be imaged after thinning by focused ion beam milling. Our facility provides a **Thermo Fisher Aquilos dual beam FIB/SEM** to cut lamella suited to be imaged in the Titan Krios microscope.

Targeting areas of interest is guided by cryo-correlative light and electron microscopy (cryo-CLEM) using a **LEICA SP8 confocal cryo light microscope**.

SO FAR..



The entire workflow is ready for use since December 2020. With the first real test samples we could achieve a resolution of 2.4 Å. Also the first tilt series of in house made lamellas were recorded and are currently being processed.



Funding

Are you eligible for DFG funding? Then don't forget to claim financial support when writing your next grant proposal. According to [DFG form 55.04](https://www.dfg.de/en/DFG-form-55.04), our main microscopes are classified as:

Krios: EM device cat. III,
Aquilos: EM device cat. II and
LEICA SP8: LM device cat. III.

KEY DATES

16.12.2020 - 10.01.2021

Christmas closure (sounds better than COVID lock down)

10.01.2021 !!!

We are opening the facility to our users



CONTACT

IRIS

<https://iris.charite.de/Landing/Provider/1772>

WEBSITE

<http://www.cryo-em.charite.de>



TWITTER

[@CFcryoEM](https://twitter.com/CFcryoEM)
[@CFcryo](https://twitter.com/CFcryo)

EMAIL

cryoem@charite.de
christoph.diebolder@charite.de