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PhD position:

Structural, dynamical and functional characterization of chaperone-based import of membrane proteins into mitochondria

A 3-year PhD position is open at the Structural Biology Institute (IBS) in Grenoble to characterize **how mitochondrial membrane proteins are imported** through the aid of **chaperones** from their location of synthesis, in the eukaryotic cytosol, to the mitochondrial membranes in which they perform their function. The project will use an **integrated structural biology** approach centered around NMR spectroscopy, and including SAXS, MD simulations and various biophysical and biochemical approaches, as well as in-vivo data. References to our recent work are provided below.

The candidate will work in the Biomolecular NMR group at the Structural Biology Institute in Grenoble, taking advantage of the expertise in various aspects of solution/solid-state NMR, biophysics and biochemistry, and will be part of a small team, ensuring efficient exchange within the team.

He/she will have access to **state-of-the-art structural biology facilities**, including six high-field NMR spectrometers (950 MHz, 850 MHz, 700 MHz, 600 MHz) equipped with the latest-generation hardware for solution- and solid-state NMR, SAXS, cryo-EM and biophysical platforms. A fully equipped wetlab for sample production is set up for all sample preparation needs. The close **international collaboration** of our team with researchers that are experts on the biological/in-vivo aspects will be very useful to place our structural studies in the biological context.

Grenoble is a very pleasant medium-sized city, often considered as the "capital of the Alps". A nice climate, immediate access to the mountains and proximity to southern France, as well as a large international student community make it a very attractive place.

Grenoble hosts **one of the most active structural biology communities in Europe**, with a number of large infrastructures, such as the European Synchrotron Radiation Facility, the European Molecular Biology Laboratory or the neutron source at ILL. The synergy of this large community comes with great opportunities for exchanging, joint use of facilities and talks from international researchers several times per week.

Candidates should have a **strong interest in structural biology and ideally have experience with preparation and characterization of protein samples**, and have a degree in biochemistry, biophysics or related disciplines.

Please send a Curriculum vitae, a detailed letter of motivation and the names of 2-3 references **to both beate.bersch@ibs.fr and paul.schanda@ibs.fr**, no later than January 20, 2019. The PhD thesis is supposed to start in April 2019.

References to our recent work:

Weinhäupl K, Lindau C, Hessel A, Wang Y, Schütze C, Jores T, et al.
Structural Basis of Membrane Protein Chaperoning through the Mitochondrial Intermembrane Space.
Cell. 2018;175: 1365–1379.e25. [https://www.cell.com/cell/fulltext/S0092-8674\(18\)31395-3](https://www.cell.com/cell/fulltext/S0092-8674(18)31395-3)
Highlighted here: http://www.pr.uni-freiburg.de/pm-en/press-releases-2018/channels-for-the-supply-of-energy?set_language=en
and here: <http://www.esrf.eu/home/news/spotlight/content-news/spotlight/spotlight329.html>

Kurauskas V, Hessel A, Dehez F, Chipot C, Bersch B, Schanda P.
Dynamics and interactions of AAC3 in DPC are not functionally relevant.
Nature Structural & Molecular Biology. 2018;25: 745–747. Highlighted here:
<https://prelights.biologists.com/highlights/dynamics-interactions-adpatp-transporter-aac3-dpc-detergent-not-functionally-relevant-major-concerns-integrity-mitochondrial-adpatp-carrier-dodecyl-phosphocholine-u/>

Kurauskas V, Izmailov SA, Rogacheva ON, Hessel A, Ayala I, et al. & Schanda P
Slow conformational exchange and overall rocking motion in ubiquitin protein crystals.
Nature Communications. 2017;8: 145. <https://www.nature.com/articles/s41467-017-00165-8>

Bersch B, Dörr JM, Hessel A, Killian JA, Schanda P.
Proton-Detected Solid-State NMR Spectroscopy of a Zinc Diffusion Facilitator Protein in Native Nanodiscs.
Angewandte Chemie Int Ed. 2017; 56: 2508–2512.

Full list:

[https://europepmc.org/search?query=\(AUTH%3A%22Paul%20Schanda%22\)%20OR%20\(AUTH%3A%22Beate%20Bersch%22\)](https://europepmc.org/search?query=(AUTH%3A%22Paul%20Schanda%22)%20OR%20(AUTH%3A%22Beate%20Bersch%22))

Websites of the group, related research facilities & Grenoble:

<http://www.ibs.fr/research/research-groups/biomolecular-nmr-spectroscopy-group-paul-schanda/>

<http://www.epn-campus.eu/>

<http://www.psb-grenoble.eu/>

<https://www.grenoble-tourisme.com/en/>