

## **THE ILL-EMBL Deuteration Laboratory – a platform for isotope-labelling of biological macromolecules**

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The ability to deuterate samples has for a long time been a key issue for biological neutron scattering. As part of the expansion of its life sciences programme the ILL, in collaboration with the EMBL-Grenoble, has established a joint laboratory to support the deuteration of biological molecules for neutron scattering experiments. This initiative as part of the Partnership for Structural Biology Programme provides the tools and facilities required for the specific and selective isotopic-labelling of complex bio-molecules such as proteins, nucleic acids, lipids and sugars. The provision of these deuterated molecules should greatly enhance both the quality and quantity of neutron experiments that can be done at ILL and in many cases will make feasible new more sophisticated experiments than can presently be performed.

The laboratory has a young and vigorous research program aimed at developing procedures for deuterium labelling and high density cell culture techniques as well as applying these methods to provide material for in-house studies. We are optimizing labelling strategies for over-expressed proteins, primarily in *E. coli* and are testing the feasibility of alternative labeling strategies.

Access to the Deuteration facility is via a peer review procedure, details of which can be found at <http://www.ill.fr/deuteration>. For approved proposals, users will come to the Deuteration Laboratory and work alongside experienced staff in a laboratory that has all of the facilities required to produce their deuterated bio-molecules.

The facility's user program has to date provided a variety of deuterated samples for experiments in protein crystallography, fibre diffraction, small angle scattering and reflectometry, some examples of which are described in the poster.