



Dr. Jérôme Basquin, Crystallization Facility, Max-Planck-Institute for Biochemistry (MPI Biochem), Martinsried, Germany in front of the D8 VENTURE with METALJET

The Department of Structural Cell Biology at the Max Planck Institute of Biochemistry works at understanding the mechanisms underpinning basic biological processes of the cell at the atomic level. At present, the department includes four groups that use biophysics, biochemistry and molecular biology to understand the structural basis of different cellular processes. X-ray crystallography is one of the key analytical methods despite having to work with poorly diffracting crystals yielded from the large protein complexes investigated in many of our projects.

Prior to the installation of the D8 VENTURE with METALJET, we had in operation another manufacturer's system with a microfocus source. However, this system was often insufficient to even characterize our crystals. In-house data collection was entirely out of reach and we had to rely totally on available beam time.

Despite having regular access to synchrotron beam lines, we felt it was important to have a powerful in-house system. This new system was initially intended to screen small or poorly diffracting crystals and guide us to select and rank our samples to maximize our efficiency at the synchrotron. Fortunately, we got the chance to thoroughly test the D8 VENTURE system on our challenging

targets. From the results seen we were convinced that the METALJET high intensity source would fulfil our requirements. Despite our initial reservations about opting for a novel technology, we decided to become the first installation of the D8 VENTURE with METALJET single crystal diffraction system in Europe.

Today, six months after the system installation, the performance of the METALJET system impresses us daily and the system is exceeding our expectations. Besides featuring the very bright source, the D8 VENTURE hardware and PROTEUM2 software are straight forward to use. This is, also with respect to training time, an advantage in our multi-user environment. In addition to screening, we have now collected a number of full data sets using 50 to 100 μm sized crystals. In most cases the resolution limits for these relatively small crystals were close to what we obtained at the synchrotron. We have now reassessed our strategy for a number of projects and aim to place more emphasis on collecting full datasets in-house.

In summary, the D8 VENTURE with METALJET has become a more important asset in our structure determination pipeline than anticipated, at the time we decided for it. Being able to screen and collect data in-house helps us to make key decisions much faster and elaborate strategies for our ongoing structure determination projects.

D8 VENTURE with METALJET

- Exceeding expectations