

## **Novel Development of Crystallization Technique of Membrane Protein and Introduction of Drug development Value Chain**

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In the process of drug development of pharmaceutical companies, the technique of drug design based on the X-ray structure of the target protein (SBDD) is useful. Though halves of the target proteins are membrane proteins such as GPCR, the crystallization of them is quite difficult. The SBDD for membrane proteins is not so easy to date. To accelerate the process of SBDD, we constructed The SOSHO project [1] in Osaka University to develop a novel crystallization method by using the laser-irradiation and stirring methods. We have demonstrated that the reduction of crystallization term by the promotion of nucleation with the femtosecond laser-irradiation as well as the improvement of the crystal quality with stirring of the solution. Therefore, these methods are especially effective for the unstable samples including membrane proteins. On the other hand, The BioGrid Project [2] has developed software of necessary for the *in silico* screening of promising drugs and the simulation of biological responses to proteins.

We recently established a drug development value chain including technology such as genomic drug discovery, virtual screening, combinatorial chemistry, X-ray crystal analysis, molecular modeling and so on. Our recent progress of the projects will be reported.

[1] <http://www.so-sho.jp>

[2] <http://www.biogrid.jp/>