NMR Strategy for Membrane Proteins-ligands Interactions

Ichio Shimada[1,2]

1. Graduate School of Pharmaceutical Sciences, the University of Tokyo, Hongo, Bunkyo-ku, Tokyo 113-0033, Japan

2. Biological Information Research Center (BIRC), National Institute of Advanced Industrial Science and Technology (AIST), Aomi, Koto-ku, Tokyo 135-0064, Japan

Membrane proteins play crucial roles in many biological events, such as signal transduction processes, immune systems, and cellular recognition, and also are main target proteins in drug developments. Therefore, the identification of the interfaces of ligands-membaran proteins complexes provides deep insights into theses research areas.

However, the lack of the appropriate NMR strategy and measurements for larger proteins complex hampers the investigation of ligands-membrane proteins interactions. To address the issue, we proposed the NMR method, cross-saturation measurement[1], which utilizes the TROSY detection and deuteration to a high degree for proteins, for a more rigorous determination of the contact residues of large protein complexes than the conventional approaches, involving chemical shift perturbation and hydrogen-deuterium exchange experiments. Furthermore, we modified the method to overcome the limitations that the cross-saturation method is difficult to apply to protein complexes with a molecular weight over 150 K.[2]

In the present paper, we will show some examples of the application of the transferred cross saturation method to the membrane proteins system.[3,4]

References

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