Purification and Characterization of a New [NiFeSe] Hydrogenase

Kyoshiro Nonaka
Ogo group, Material Transformations Division
Kyushu University

In nature, H_2 is mainly produced by hydrogenases under ambient conditions. Hydrogenases are classified into three types based on the metal composition of the active site: [NiFe], [FeFe], and [Fe] hydrogenases. [NiFe] hydrogenases include a subgroup called as [NiFeSe] hydrogenases having selenium in the active site. Although [NiFeSe] hydrogenases are attractive because of high H_2 production activity, there is little knowledge about them by a difficulty of purification. In this work, a new [NiFeSe] hydrogenase was purified from a microorganism called as *Desulfovibrio vulgaris* Miyazaki F. Biochemical properties of the new [NiFeSe] hydrogenase will be discussed in relation to protein structure (**Fig. 1**).

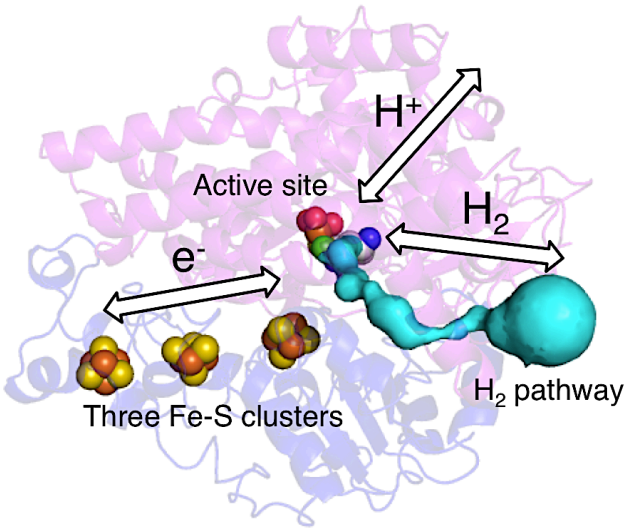

Figure 1. An illustration of hydrogenase.