Is Pleased to Announce a Seminar
Presented by

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Friday, February 3, 2017
at 3:45 p.m.
Astellas Conference Room
SLSRC 3410/3430

"Engineered Hemoproteins Toward an Artificial Metalloenzyme and Light Harvesting System"

Dr. Oohora obtained his B.S. degree in engineering and his M.S. degree in applied chemistry from Osaka University. He stayed at Osaka University for his Ph.D. degree (2011) in applied chemistry under the supervision of Professor Takashi Hayashi. He was then recruited as an Assistant Professor, and is now also a PRESTO researcher with the Japan Science and Technology Agency. He has received research awards including the Inoue Research Award for Young Scientists and the 2015 Chancellor's Incentive Award from Osaka University.

Abstract: Metalloproteins are attractive biomolecules, because a metal ion or metal-dependent cofactor in a protein matrix has the great potential to provide catalytic, redox, sensing, and/or small molecule storage properties. Our group has focused on the modification of hemoproteins to understand the molecular mechanisms of metalloproteins and prepare new biomaterials. In particular, hemoproteins demonstrate various functions using an iron porphyrin as the common cofactor in the protein matrix. Furthermore, the corresponding apoprotein after the removal of native heme provides a unique scaffold or cavity, which acts as a binding site for various metal complexes and an effective outer coordination sphere. From this point of view, we now focus on two topics based on chemical modification of proteins and porphyrinoid synthesis: (i) Reconstitution of hemoproteins by artificial cofactors to enhance their catalytic activity. Our recent results demonstrate the construction of an artificial peroxidase catalyzing the hydroxylation of inert C–H bonds. (ii) Construction of a hemoprotein assembly with photosensitizers to generate novel light harvesting systems.

Refreshments will be served at 3:30 p.m.