

BDR SEMINAR in Yokohama

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Thursday, October 17, 2019

15:00-16:00, C210-212, Yokohama Central Research Building

Protein Design and Engineering Toward the Functional Biomaterials

Summary

Speeding up evolution to create desired enzyme! This year's Nobel Prize in Chemistry was awarded to "the directed evolution of enzymes" (one half to Prof. Frances H. Arnold). This method involves a tremendous amount of time and effort to repeat random mutation and selection to artificially accelerate the appearance of proteins that can occur in nature. Instead, if chemist can serve as a "designer" to modify and control protein functions and structures more freely, the era might come soon, when smart bionanorobots, which are programmed to perform multiple tasks for biomedical and biotechnology applications, play active roles in the field of medicine and biotechnology. In this presentation, I will discuss my work (also, sense of my future plan): 1. Novel design to create 2D protein assembly, 2. Analysis of unique structural changes of 2D protein assembly, and 3. Implementation of new design to control structure changes 4. Additional functions onto 2D protein assembly. The resultant understanding of structural dynamics at the nanoscale should greatly aid the fabrication of functional materials toward applications in biomedicine and biotechnology.



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