

Special Issue on
Designer Proteins as Tools of Molecular and Cell Biology

CALL FOR PAPERS

Designer proteins, with their tailor-made functions in catalysis or molecular recognition, have revolutionized our way of investigating cell biology. Antibodies constitute the first wave of designer proteins; their engineered binding specificities are widely used to reveal the subcellular localization of a target protein and its interactome in the cell. Green fluorescence protein and its many variants constitute the second wave of designer proteins. Their fusions with cellular proteins have captured the dynamics of the cellular processes in real time. Currently, designer proteins can accomplish diverse tasks. They can sense the change of pH or metal ion concentrations in the cell. They can report the posttranslational modification of a protein by induced fluorescent signals. They can photocrosslink with their partners to covalently trap transient protein-protein interactions. The development of designer proteins provides tremendous opportunities for the discovery of new biological mechanisms in the cell.

Designer proteins are generated by protein engineering based on directed evolution and rational or *de novo* design. Recent developments in the incorporation of genetically encoded unnatural amino acids into proteins have added new armors to the designer proteins.

This special issue aims to plot new frontiers in engineering designer proteins and using them as tools to study cell biology. The editorial panel welcomes the submission of original research articles and review articles to report new methods of protein engineering, new functions of designer proteins, and the new biological insights they generate.

Potential topics include but are not limited to the following:

- ▶ Constructing DNA or protein libraries
- ▶ Screening or selecting protein libraries with high-throughput platforms
- ▶ Engineering enzymes with desired catalytic activities
- ▶ Generating bioorthogonal pairs to probe cell signaling pathways
- ▶ Imaging dynamic cellular processes with designer proteins
- ▶ Site-specific protein labeling
- ▶ Mapping protein-protein interactions by crosslinking
- ▶ Sensing of metal ions or pH changes with designer proteins
- ▶ Reporting catalytic turnover in the cell with designer proteins

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/bmri/molecular.biology/dptm/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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