

# **Click Reactions and Protein Nanoparticles: Building Functional Structures with Chemistry and Molecular Biology**

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Many processes in cells and higher organisms require the presentation of molecular fragments over large areas or in complex combinations. Virus-like particles are robust and easily accessible nanoscale scaffolds that are well suited for such tasks of molecular presentation. Methods for the chemical and genetic modification of protein nanoparticles will be described, along with selective click reactions used for the attachment and detachment of cargo molecules and the construction of companion materials. The application of the resulting structures to immunology and vaccine development will be described.