



### Plenary 3

## Structural Modularity in the Molecular Design of Targeted Vaccines and Nanomedicine

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Single molecule tomography and cryoEM volume reconstructions are implemented to analyze how the weak-force associations are transformed based on the interactions of the involved subunits. Technical advancement and heterogeneity sorting algorithms played the keys in the success of detailing the discrete states of protein conformations with characteristic assembly intermediates. Based on the success of sorting the structural heterogeneity, the feasibility of observing assembly intermediates can now provide the essential framework to observe the local modularities of subunit and to rationalize the overall presentation of the consequent macromolecules. The multivalence of these higher ordered assembly will be exemplified as platform technology for nanomedicine design, whereas the protein domains are to be the modular units in directing the pathway of self-organizations.