

PROTEIN HOMO-OLIGOMERIZATION: THE BIOLOGICAL SIGNIFICANCE AND MECHANISM FOR ITS OCCURRING

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Although many proteins exist as homooligomers in nature, the biological significance and mechanism for its occurring is far from clear. Model homooligomeric proteins examined in our lab include Hsp16.3, IbpB, truncated hemoglobin (trHbO), as well as RbsD. The following are our major discoveries: 1. the oligomeric state of various proteins can be effectively transformed in responding to changes of environmental conditions, leading to dramatic alterations in their biological activities. 2. A general mechanism for the disassembly and reassembly of such oligomeric proteins appears to be such that the disassembly process occurs in a stepwise manner, while the reassembly occurs in a non-stepwise manner.

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