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The Effect of Terminal Truncation on the Folding Dynamics of Coiled-coil GCN4-p1 MICHELLE BUNAGAN, LIDIA CRISTIAN, WILLIAM DEGRADO, FENG GAI, University of Pennsylvania — Structural perturbation by terminal truncation has been used extensively in protein folding studies because it yields valuable information that could be used to dissect the folding mechanism of the protein of interest. Herein, we studied the folding dynamics of a truncated variant of a cross-linked GCN4-p1 coiled-coil using the technique of laser-induced temperature-jump (T-jump) in conjunction with infrared spectroscopy. While the full-length GCN4-p1 exhibits first-order kinetics in stopped-flow CD and fluorescence folding experiments, a recent T-jump study has shown that one or two folding intermediates may exist at the native side of the major folding barrier. However, the current truncated variant of GCN4-p1 not only shows first order folding kinetics, but also exhibits ultrafast folding behaviors, suggesting that there are no detectable intermediates populated on its folding pathway. Therefore, these results have interesting implications for the understanding of the folding mechanism of coiled-coil structures.

Michelle Bunagan
University of Pennsylvania

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