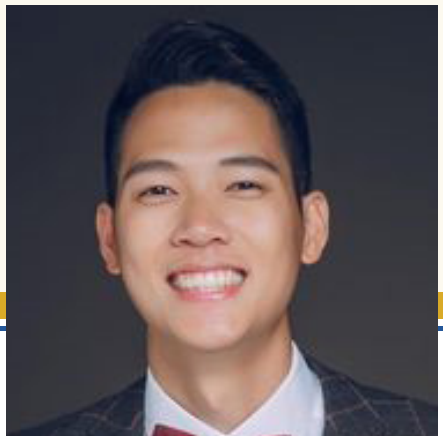

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The endoplasmic reticulum (ER) is a critical organelle for maintaining protein quality control in cells; misfolded proteins are targeted for degradation through the ER-associate degradation (ERAD) pathway. Dr. Kevin Wu will study the ER-membrane bound E3 ubiquitin ligase Doa10 in Dr. Eunyong Park's lab at the University of California, Berkeley. Doa10 is conserved from yeast to humans and identifies and targets many misfolded proteins for degradation. However, it is unclear how Doa10 recognizes a wide range of client proteins. Dr. Wu will use biochemical and structural approaches to reveal how Doa10 recognizes and processes a range of substrates, and how Doa10 cooperates with other quality control factors to maintain protein homeostasis. Protein misfolding and aggregation are associated with aging and diseases such as neurodegeneration. Thus, Wu's studies may have implications for developing future therapies to improve protein homeostasis in human disease.

As a graduate student in Dr. James Bardwell's lab at the University of Michigan, Wu investigated chaperone-mediated protein folding. There, he discovered that weak binding between ATP-independent chaperones enable the refolding of client proteins, whereas stronger binding hinders refolding. Dr. Wu's background in protein refolding set him up for exploring how Doa10 E3 ubiquitin ligase recognizes unfolded protein targets.

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