

Biochemistry Conference 2018- Applications of KREX, a novel functional proteomics technology for autoantibody biomarker discovery- Tan Ti Myen, Sengenics, Singapore

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Abstract

KREX is a patented protein expression technology originally developed as collaboration between the University of Oxford and the University of Cambridge in the late 1990s. Fundamental advantages of KREX include: (1) High-throughput expression of correctly folded proteins using Biotin Carboxyl Carrier Protein (BCCP) as a folding marker and solubility enhancer; (2) 98% of proteins produced using KREX are soluble when expressed as BCCP fusions; and (3) No conventional purification is required. Individually purified BCCP-tagged proteins are immobilized onto purpose-designed surfaces such that they retain folded structure and function and behave in miniaturized, highly multiplexed quantitative assays as if they are in free solution. We have utilized protein microarrays consisting of full-length KREX produced proteins in various applications including autoantibody biomarker profiling, stratification of patients on the basis of irAEs, identification of novel drug targets, as well as drug safety and predictive toxicology. This presentation describes how these applications have successfully facilitated the identification, validation and discovery of new biomarkers in cancer, autoimmune and infectious diseases.

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