

## **W0164**

**Effect of Precipitation Point Proximity on Robotic Crystallization Efficiency.** Shahzad Majeed, Tongqing Zhou, Barbara Capecchi, Lei Chen, Chih-chin Huang, Gilad Ofek, Peter D. Kwong, Vaccine Research Center, NIAID/NIH, 40 Convent Dr., Bethesda MD 20892.

Robotic crystallization systems are often employed in “single-shot” mode, with protein subjected to a fixed set of crystallization conditions. However, the probability of protein crystallization is generally highest close to its precipitation point, which is more efficiently determined by iterative experimental optimization. We use robotic systems to screen a number of different proteins, including hen-egg white lysozyme, bovine serum albumin, and a number of HIV-envelope related proteins. A Matrix Maker was used to create a 576-expansion of the Hampton Crystal Screen (Hampton Research), the Wizard I screen (Emerald Biosystems) and the Precipitant Synergy screen (Emerald Biosystems). Every condition in each screen was expanded to 3-4 different precipitant concentrations. Sitting drops at 1:1 ratios were set up using a Cartesian robot and visually observed for the precipitation point range. This process of sitting droplet setup, observation, and 576-grid expansion was repeated iteratively to determine the actual precipitation point. We present data on the effect of precipitation point proximity on crystal formation, how this differs for different proteins, and how this may affect robotic crystallization efficiency.