

W0356

A Strategy for Screening Initial Crystallization Conditions: Five-Years Later. G.T. DeTitta^{1,2}, R.J. Collins¹, S.M. Gulde¹, A.M. Lauricella¹, C.A. Mancuso¹, J.L. Smith¹, C.K. Veatch¹, J.R. Luft^{1,2}, ¹The Hauptman Woodward Medical Research Inst., ²Dept. of Structural Biology, SUNY at Buffalo, 73 High St., Buffalo, New York 14203.

A high throughput crystallization strategy using the microbatch-under-oil technique (Chayen, N.E., et al. JCG, 1992. 122(1-4): p. 176-180) in 1536 well Greiner microassay plates has been employed and refined since February 2000. As of January 2005, over seven million crystallization experiments have been set up on more than 4600 samples. The laboratory's infrastructure was designed to efficiently determine initial crystallization conditions for biological macromolecules. The goals were to minimize sample volume and time to set up the experiments while maximizing the diversity and number of crystallization conditions. When crystallization conditions for a single biological macromolecule are determined from a variety of chemical solutions, the crystals produced from those solutions often have different physical properties. This has proven beneficial for quality of X-ray diffraction, ease of cryo-preservation and the ability to soak small molecules into the biological macromolecule. Results will be presented that focus on the crystallization cocktails, number of crystallization lead conditions derived for the samples under investigation, recording schedule and an overall success rate for crystallization of the samples supplied to the laboratory.

Work supported in part by the John R. Oishei Foundation, the Cummings Foundation, NASA NAG8-1839, NIH RR016924, NIH P50 GM-62413 and NIH P50 GM-64655.