

W0310

Ninety-six (96) Crystallization Optimization Conditions in Less than 10 Minutes using a New Pre-filled Microplate. Tetreault, S., Houde, C. Nextal Biotechnologies Inc., Montreal, QC H3K 1G6, Canada.

Optimization of crystallization condition has always been a time consuming task to perform for crystallographers. Usual approach often consists in production of grids around an initial “hit” by modifying concentration of the precipitant or the protein, pH, temperature and others. In a second approach, searcher introduces new chemicals (additives) to the initial condition. Both methods involve preparation of several solutions and transfer from tubes to crystallization plates.

To that effect, a quick and effective tool to perform optimization of crystallization condition has been developed by Nextal Biotechnologies. A ready-to-use 96 well plate is pre-filled with 10 μ l of different chemicals solutions (at 2 concentrations and 2 pH) to which 90 μ l of the initial “hit” condition can be added. Ninety-six unique optimization conditions can now be set in few minutes. To verify the efficiency of this optimization strategy, proteins were screened for crystallization using classic solutions, and conditions giving crystalline forms (not usable for subsequent X-ray analysis) were selected. These conditions were then optimized using these new pre-filled plates and results were analyzed and compared to usual approach. In some cases, large crystals suitable for X-ray analysis were obtained in a single round of optimization. We present here promising results of this new optimization plate.