

W0597

Collection of Diffraction Data from Crystals grown in TOPAZ[®] Crystallization Chips. John Tainer³, Andrew P. May¹, James M. Holton², Ken Frankel², Hany Nassef¹, ¹Fluidigm Corporation, South San Francisco, CA 94080, ²Advanced Light Source, Lawrence Berkeley National Laboratory, Berkeley, California 94720, ³The Skaggs Inst. for Chemical Biology, The Scripps Research Inst., La Jolla, CA 92037.

Fluidigm[®] Corporation has developed and commercialized the TOPAZ[®] system for protein crystallization. Crystallization in TOPAZ chips is effected through microfluidic free-interface diffusion (FID). Current commercially available TOPAZ microfluidic chips provide the means to screen for crystallization conditions in sub-nanoliter volumes. As part of the ongoing development of the TOPAZ system, Fluidigm has also developed chips that allow users to grow crystals of sufficient size for diffraction data collection. Data can be collected from crystals extracted from the chips, and also directly from sections of the chip without extraction. Mounting devices compatible with standard cryovials have been developed to allow sections from the chip to be cryo-cooled directly in liquid nitrogen or in a cryostream. X-ray diffraction data can be collected directly from the cooled crystals. Data from diffraction experiments, collected in collaboration with researchers at the ALS, will be presented from crystals located within the chips and will be compared with data collected from equivalent crystals extracted from the chip.