



## TOPAZ Screening Chips for Protein Crystallization



TOPAZ screening chips enable nanoliter scale experiments based on free interface diffusion.

TOPAZ® screening chips are the cornerstone of a complete system for protein crystallization by free interface diffusion (FID). Screening chips improve on the success rate of crystallization trials because of fundamental advantages:

- ◆ Only 1  $\mu$ l of sample per 96 conditions
- ◆ Automated FID based crystallization
- ◆ Highly parallel screening of samples

### Ultra Low Sample Requirements

Screening with TOPAZ chips maximizes the value of every protein preparation. The 1  $\mu$ l sample requirement represents a 10 to 1,000 fold sample reduction compared to conventional methods.

### FID Based Crystallization

Each experiment on a screening chip samples a large swath of crystallization phase space through a proven method that incorporates FID and controlled evaporation. The protein solution and reagents diffuse across a channel, and the mixture slowly evaporates because the channel wall is gas permeable. Experiments that produce crystals can be optimized and translated for use with traditional vapor diffusion to grow crystals suitable for X-ray diffraction.

### Highly Parallel Screening

Fluidigm currently offers the 4.96 chip for screening four samples in parallel. Each sample is screened against 96 reagents for a total of 384 parallel experiments.

### Integration with Standard Laboratory Equipment

Standard robotics can be easily configured to load TOPAZ screening chips because the footprint of the chips and the spacing of fluid inlets conform to SBS\* standards. This conformance ensures compatibility with both current TOPAZ and third-party instrumentation as Fluidigm introduces chips with new throughput capabilities.

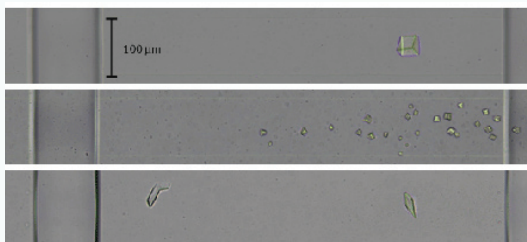


Image of crystals in TOPAZ screening chips.

## TOPAZ Screening Chips

PARAMETER	SPECIFICATIONS
Input Frame Dimensions	128mm x 85mm x 14mm (Conforms to SBS* Standards)
Chamber Volumes	0.75 nL (protein), 2.55 nL (reagent)
Conditions per Chip	384 (4.96)
Protein Consumption	1 µl per sample well
Reagent Consumption	10 µl per reagent well

\* Standards for microliter plates developed by The Society for Biomolecular Sciences on behalf of and for acceptance by the American National Standards Institute.

- ◆ **The TOPAZ System for Protein Crystallization**
  - ◆ **Diffraction Capable Chips**  
IFCs\* designed for *in-situ* diffraction of crystals.
  - ◆ **Screening Chips**  
High-performance IFCs for protein crystallization screening.
  - ◆ **IFC Controller**  
Software/hardware for automating experiment setup on TOPAZ IFCs.
  - ◆ **AutoInspeX® II Workstation**  
Software/hardware for automated experiment analysis on TOPAZ IFCs.
  - ◆ **TOPAZ Database Suite**  
Software for managing crystallization data and reporting.
  - ◆ **OptiMix™ Reagents**  
Reagents optimized for free interface diffusion on TOPAZ IFCs.
- \* Integrated Fluidic Circuits



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