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Preliminary Protein Crystallization Using the Honeybee Crystallization Robot. Milya Davlieva, Hamid Khoja, Anne Stone, Joseph Longtin, Ulrich Strych, Sanka Tennakoon, Kurt Krause, Biology and Biochemistry, Univ. of Houston, 4800 Calhoun, Houston, TX 77204-5001 USA.

Modern crystallization robots aim at widening the bottleneck of determining preliminary crystallization conditions in macromolecular structure determination. These machines claim to automate and accelerate the proven sparse-matrix approach employed in many laboratories. Here we present our experiences with the Honeybee crystallization robot (Genomic Solutions), enabling the rapid evaluation of proteins in sitting drop plates. We screened a total of 16 diverse proteins for crystallization with the robot:

Hen lysozyme, equine myoglobin, bovine ribonuclease A (RNaseA), hemoglobin and catalase, *Serratia marcescens* nuclease, two bacterial alanine racemases, five, yet uncharacterized streptococcal proteins, and three *Trichomonas vaginalis* ferredoxins. Ten of these proteins crystallized in at least one of the 96 conditions of the Hampton Research HR2-130 screen. Two proteins crystallized only when set up conventionally by hand, and four proteins (hemoglobin, myoglobin, one ferredoxin, one streptococcal protein) did not crystallize at all. Shape and size of the crystals obtained with the Honeybee robot were comparable to what was obtained through conventionally prepared sitting drop crystals.