

Abstract Submitted
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Protein Crystal Nucleation and Growth SATHISH AKELLA, SETH FRADEN, Brandeis University, BRANDEIS UNIVERSITY TEAM — We have developed a microfluidic emulsion based technique to determine the homogeneous and heterogeneous nucleation rates of protein crystallization under conditions of high supersaturation. We utilize the fact that the nucleation rate is constant if no crystal nucleus is formed and count the number of protein droplets with no crystals with time, which decays exponentially with decay constant inversely proportional to nucleation rate and drop volume. We report results of experiments on nucleation and growth rates of lysozyme crystallization. The emulsions are placed on a temperature gradient stage allowing simultaneous measurement of rates as a function of temperature. We routinely scan 30,000 drops in each experiment.

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