

Publication

An efficient nanolitre-volume multi-channel device for highly viscous materials used in membrane protein crystallization

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The crystal structures of various important membrane proteins could not have been solved without lipidic cubic phase (LCP) crystallization, and yet, compared to traditional in surfo crystallization, LCP crystallization is not widely used because its extreme viscosity makes the cubic phase difficult to handle. Robots that can dispense LCPs are very specialized and therefore very expensive. Here, an accurate multi-channel device is described. It dispenses LCPs onto glass plates down to volumes of 20 nl accuracy and has an accuracy of 10% when dispensing 200 nl - the lower bound of LCP volumes dispensed for crystallization trials. Because of its multi-channel tips, operation speed goes up by a factor of four compared to simpler devices. It can be operated by hand, but its design also allows it to be built into a basic dispensing robot. Thus, the device lowers the threshold for LCP crystallization of membrane proteins/peptides.

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