

MS12-P6 Multicomponent mixtures for ligand solubilization and cryoprotection

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Ligand solubilization can prove problematic when crystallizing protein-ligand complexes. We have investigated the use of mixed compounds both for soaking of ligands into crystals and in crystallization complexes. The mixed solubilizing compounds achieves complete solubilization of a large variety of hydrophobic ligands resulting in the first crystal structure of a protein in complex with curcumin (Ciccone, Tepshi, Nencetti, & Stura, 2015). The set of mixed solubilizers, that include DMSO, 1,4-dioxane, 2,3-butanediol, 1,2-propanediol, glycerol, ethylene glycol and diethylene glycol, are also effective as a cryoprotectant when formulated together with a precipitant and buffer in the same ratio as previously reported (Vera & Stura, 2014). We have compared the resolution to which crystals diffract using these compounds with those previously formulated with equivalent results (Ciccone, Vera, Tepshi, & Stura, 2015). The main differences in the new development is the introduction of dioxane for ligand solubilization and butanediol for cryoprotection. The latter may be responsible for increased crystal stability in the soaking solutions. In the presentation we will report on ongoing tests on new compound for ligand solubilization, for use as an additive in crystallization and for cryoprotection. The compound appear to be highly effective and has been evidenced in the electron density of crystals grown or soaked in solutions containing it. Initial tests with the mixed and ligands for heavy atom derivatization are ongoing as well as the development of new detergents for protein crystallization. Preliminary results with the new detergents suggests that they can be used to obtain polymorphs (Vera et al., 2013) never obtained before.

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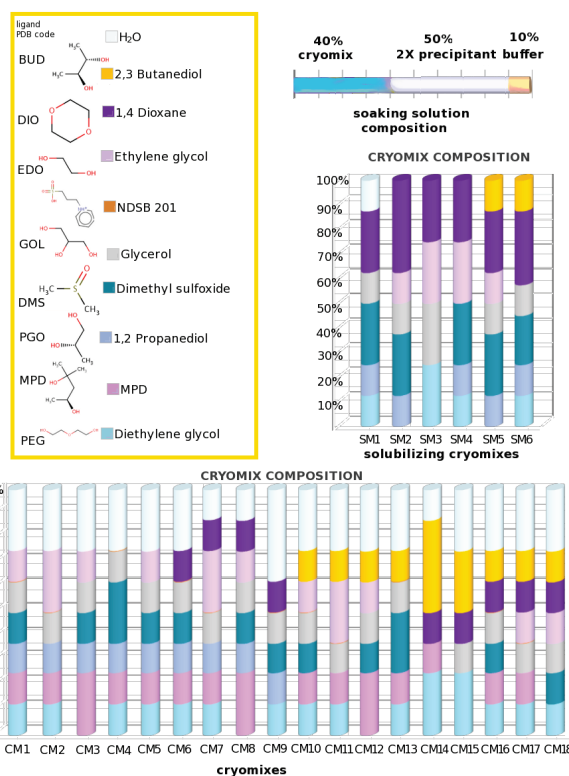


Figure 1.

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