

### **Polymorphism in Co-Crystals and Pharmaceutical Co-Crystals**

Mike Zaworotko, Vishweshwar Peddy, *Department of Chemistry  
University of South Florida*. E-mail: xtal@usf.edu.

Pharmaceuticals are perhaps the most valuable materials known to mankind and there are important intellectual property, regulatory and efficacy implications if one is able to discover new compositions of matter for active pharmaceutical ingredients (API's). Emphasis will be placed pharmaceutical co-crystals,[1] a long known but little unexplored alternative to the three accepted forms of API (polymorphs, solvates, salts).

The presentation will detail how one can exploit the principles of crystal engineering to design and generate novel pharmaceutical co-crystal phases that contain one or more API's. Examples to be presented will include well-known API's such as aspirin, ibuprofen, carbamazepine and piracetam. CSD surveys and structural and physical studies on new co-crystals will be presented in order to address the relative stability of pharmaceutical co-crystal phases with emphasis upon their reduced tendency to exhibit polymorphism.

[1] Almarsson Ö., Zaworotko M.J., *Chem. Commun.*, 2004, 1889-1896.

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