

S01-1 **New approaches for designing active pharmaceutical ingredient form**

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Drug molecular modality is diversified in pharmaceutical industry, such as, antibodies, peptides, nucleic acids. However small molecules are convenient for patients because these molecules can be used to oral administration. Generally, crystalline form is selected as active pharmaceutical ingredient (API) form from the point of high physicochemical stability. Additionally, it is possible to isolation and purification on the synthesis process by crystallization. Crystalline salts and cocrystal are frequently studied to improve the physicochemical properties. Although counter ions and cofomers might be selected by delta-pka, form synthons, and the mixing enthalpy between compounds, expected crystals may not be obtained. The reason is that the three dimensional interactions and packing are not considered. In this presentation, we will report the cases of selection and design for API form based on the crystal structure. Moreover, we will show you salt cocrystals composed of three components. These cases are new approaches for API form design because it is difficult to find them from conventional studies which is based on the interaction between two molecules.