Amorphous drug-whey protein mixtures
- The solution to your solubility problems

Value proposition/USP
Powder performance is often limited by the poor solubility of compounds, for example in the fields of pharmaceutical and food sciences. Natural biomolecules can help solving this issue when using them in an amorphous mixture. A certain type of proteins, i.e. whey proteins, have demonstrated exceptionally good properties in forming amorphous mixtures and are considered safe, non-toxic and inexpensive to use.

Business Opportunity/Objective/Commercial Perspectives
The proprietary amorphous technology can be used in any field where a higher solubility of a given compound is desired. The concept is completely new, makes use of currently available materials and can be combined with most existing manufacturing processes. The proteins used are often waste products from industrial production lines, which are available as commercial materials with high quality and purity.

Technology Description/Technology Summary
Materials can be crystalline or amorphous. The amorphous form is more soluble than the crystalline form of a compound but it is unstable and tends to quickly transform into the poorly soluble crystalline form. By creating an amorphous mixture, which is a combination of the compound with the proteins, a highly stable system is obtained with high solubility. Whey proteins have shown the best performance of all the proteins assessed.

Development Phase/Current state
Proof of concept has been performed with a set of different proteins and protein mixtures in combination with commercially relevant poorly soluble compounds. The amorphous drug-protein formulations have shown higher solubility, dissolution rate and stability, in vitro and in vivo, compared with existing amorphous technologies. Furthermore, for the preparation of these mixtures industrial scale up technologies are feasible.

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