Self-Assembled Monolayers as Nucleating Surfaces to Screen Rapidly for Polymorphs of Organic Crystals

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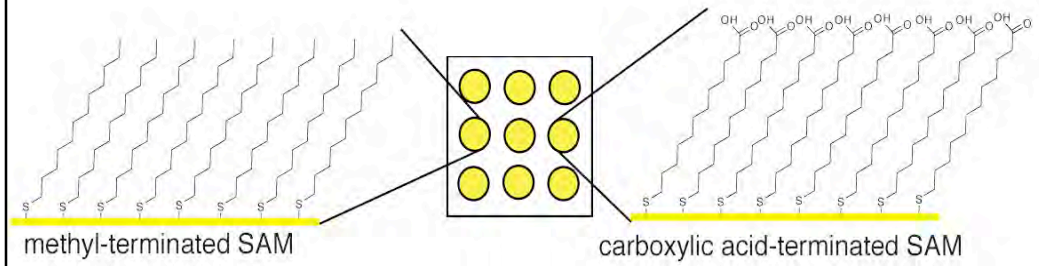
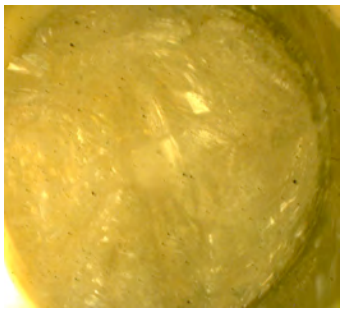
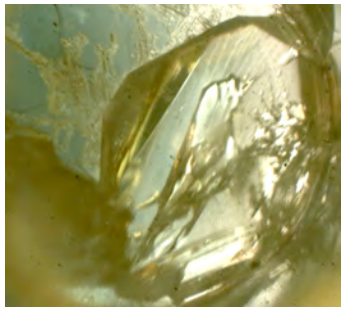
Aim: To assay many different SAMs as nucleating surfaces to screen for polymorphs of compounds important to the pharmaceutical industry.

Primary Result: We have identified a type of surface (methyl-terminated SAMs) that selectively nucleates the less stable, but preferable crystal form, of acetaminophen.



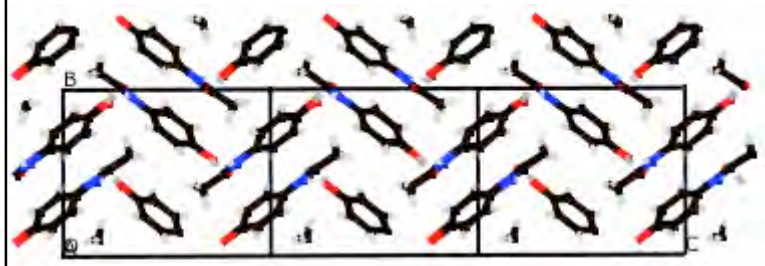


Orthorhombic Form
50% of the wells



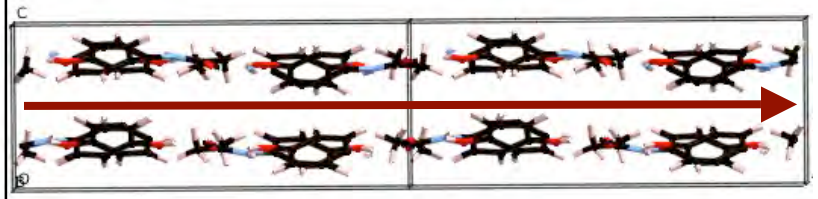
Monoclinic Form
100% of the wells

Significance:



Monoclinic Form of Acetaminophen

- Currently marketed form
- No glide planes, poor processibility



Orthorhombic Form of Acetaminophen

- Glide planes in crystal (red arrow) lead to better processibility.
- Not commercially available due to difficulty of growth.