



Automaxion™

**“Is this the fastest way to
screen for co-crystals?”**

**APS
UK Pharm Sci conference**

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How?

Using very productive (but normally laborious) techniques

- Liquid Assisted Grinding (LAG)
- Solvent Drop Grinding (SAG)
- Dry Grinding

But milling in many vials, in parallel

• **Cocrystallization via planetary milling: Enhancing throughput of solid-state screening methods;** Stephen R. Bysouth, Joanna A. Bis, David Igo, *International Journal of Pharmaceutics* 411 (2011) 169–171

• See <http://dx.doi.org/10.1016/j.ijpharm.2011.03.037>

What is the milling system?



- *Patented* modification to planetary mill
- Manual or Automated
- Uses vial holders in place of grinding bowls in a Fritsch (or other) planetary mill.
- Holds multiple standard inexpensive glass vials*

*can be customised for vial size



Procedure

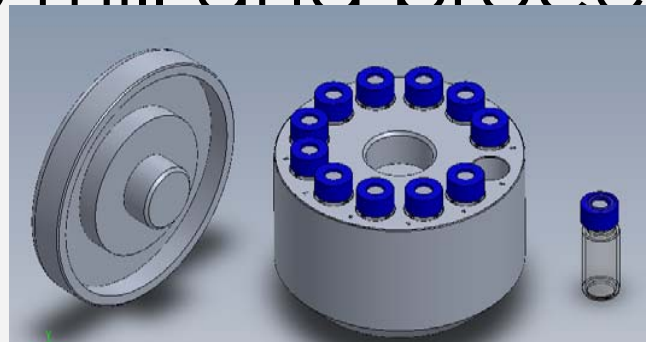
Dispense a few 10's mg of API into GC vials

Dispense equivalent, or multiple, moles of CCF into same vials

Add 2 stainless steel 3 mm beads to each

Add a few μL of solvent as needed

Load into mill and process



So, what is the throughput?

- Mills can hold 1, 2 or 4 adapters
 - ie 12, 24 or 48 samples
- Milling time is 1 to 3 hours



But what about all that dispensing?

Ways to avoid laborious dispensing



- Automaxion provides kits of CCF's
 - already dispensed to the same **molar weight**
 - to 10's mg weights
 - Already in GC vials
- 4 different standard kits of 12 vials
- A list of 148 chemicals to define your own kits

Simply add same weight of API to each vial, 2 beads and the solvent, and then process.



Ways to avoid laborious dispensing



- Automaxion is also working on devices to aid dispensing of the API
 - Either a means to dispense into multiple vials (imprecisely, volumetrically)
 - Or into individual vials under manual control (by weight)

But what about all that analysis?

Fast ways for you to analyse



- Perform Raman through the vial
- Send them to us! (OK, so this might be cheating):
 - Automaxion provides a *highly competitive* analytical service with the kits, through it's partners

Summary

- Dispense API into supplied kits
 - With aid, under development
- Add solvent as needed
- Process in mill
- Analyse by Raman or put samples into envelope
- No mill to clean so it's ready for more

Done.

- *No sample loss*
- *Reprocessing possible*
- ...

But that is not the end of it



- We are also working on a way to allow you to select CCF's in the kit by likelihood of forming a cococrystal with your API
 - Because avoiding an experiment increases throughput.
- So, is this the fastest way?



Thanks for listening



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