



UNIVERSITY OF HELSINKI

ANALYTICAL, PROCESSING AND
FUNDING CAPABILITIES

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ANALYTICAL CAPABILITIES

- Research team of Professor Clare Strachan
- University lecturer Jukka Saarinen
- Post Doc Isidro Badillo (1st June 2021-)
- Post Doc Rashmi Mishra (autumn 2021)

PSSRC

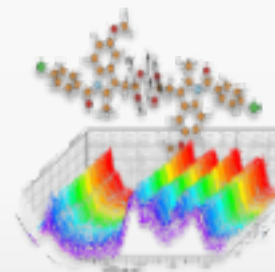
Pharmaceutical Solid State Research Cluster

HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI



Label-free spectroscopic techniques

- Vibrational spectroscopy
- Raman (incl. process CW, **time-gated, terahertz**)
 - Mid-infrared, near-infrared,
 - Vibrational imaging
 - Raman (incl. TERS)
 - Multimodal nonlinear imaging (including CARS, SFG, TPEF)
 - FLIM



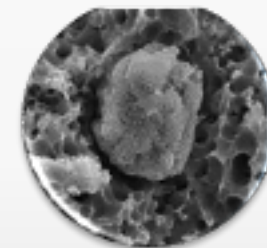
Data management

Design of experiments

Multivariate data analysis

- Qualitative and quantitative

Quantum chemical spectral prediction



Complementary techniques

Microscopy

- Light, SEM, TEM, confocal fluorescence, FLIM

Thermal analysis (DSC, TGA)

X-ray powder diffraction

Mass spectrometry

NMR spectroscopy

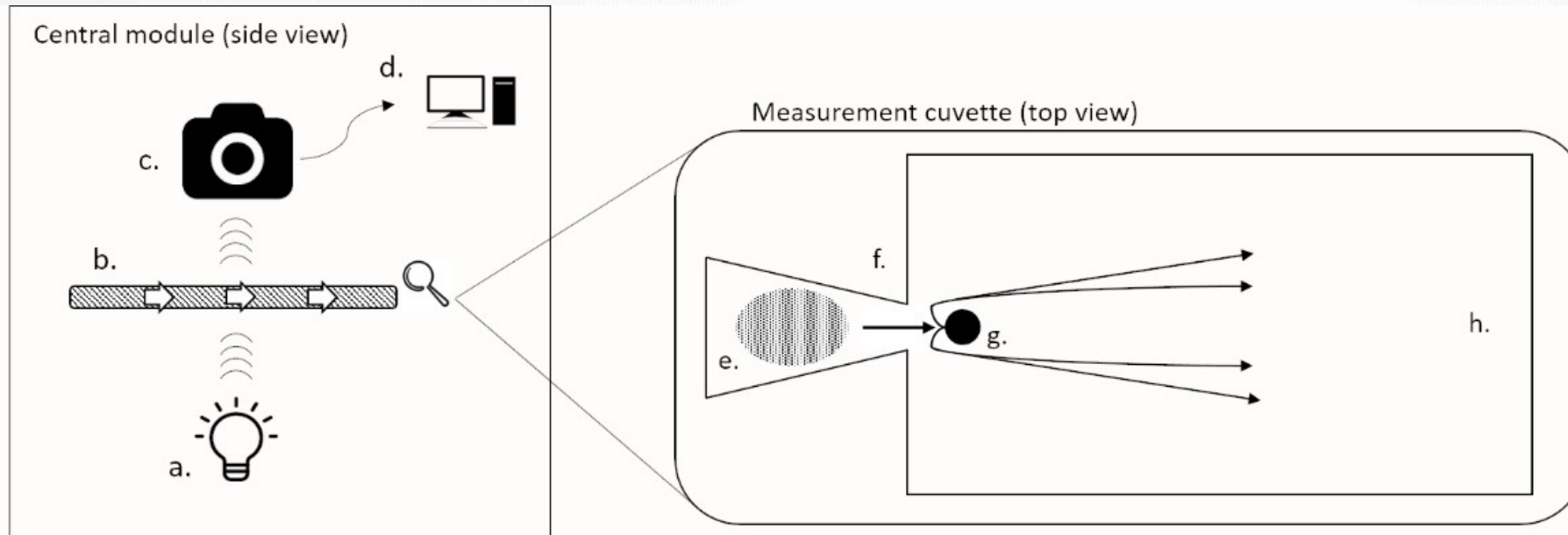
Particle sizing....

Dissolution testing

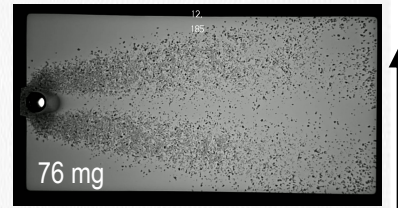


NOVEL FLOWABILITY TEST (BLANCO ET AL. 2019)

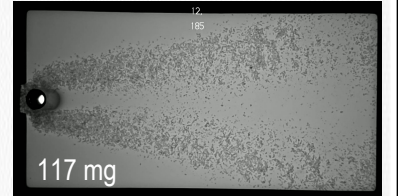
- Sample amount approx. 100 mg
- Image analysis based system



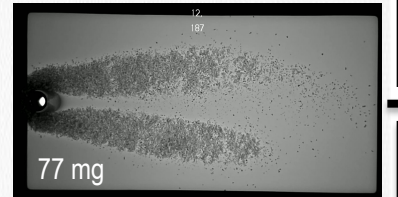
Avicel
PH-200



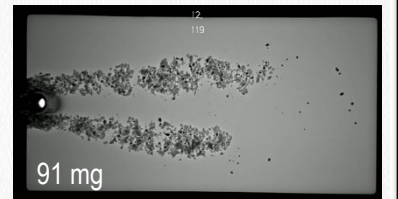
Lactose
80M



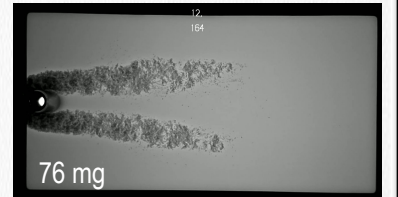
Avicel
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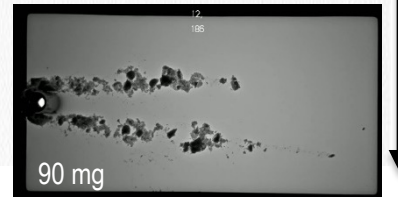
Caffeine



Vivapur
101



Starch



NON COHESIVE

COHESIVE

PROCESSING CAPABILITIES

- Standard processing techniques
- **1. Hot-melt extrusion**
 - A miniature bench-top twin-screw hot-melt extruder will be acquired with AINAPharma funding.
- **2. Spray-drying**
 - Büchi Mini Spray Dryer B-191, Büchi Labortechnik, Switzerland
 - Also for organic solvents
- **3. Nanomilling**
- **4. Freeze drying**





FUNDING OPPORTUNITIES

- In Finland, research funding
 - Finnish cultural foundation
 - Academy of Finland (PoDoCo)
 - Business Finland
 - other national smaller foundations
 - Finnish Pharmaceutical Society
- Exchange from Finland abroad
 - Nordic countries: Nordforsk
 - Finnish Pharmaceutical Society
 - Academy of Finland (PoDoCo)
 - Academy of Finland (Post Doc)
 - Other national smaller foundations

- To Finland
 - EDUFI Fellowships

PSSRC contact in Helsinki 2021:

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