



# UNIVERSITY OF HELSINKI

ANALYTICAL, PROCESSING AND  
FUNDING CAPABILITIES

[anne.juppo@helsinki.fi](mailto:anne.juppo@helsinki.fi)



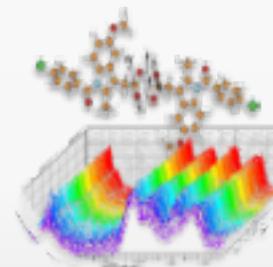
# ANALYTICAL CAPABILITIES

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



## 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

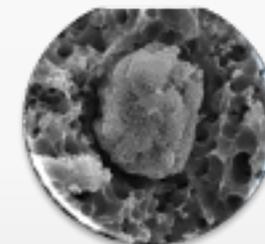


## Data management

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

PSSRC

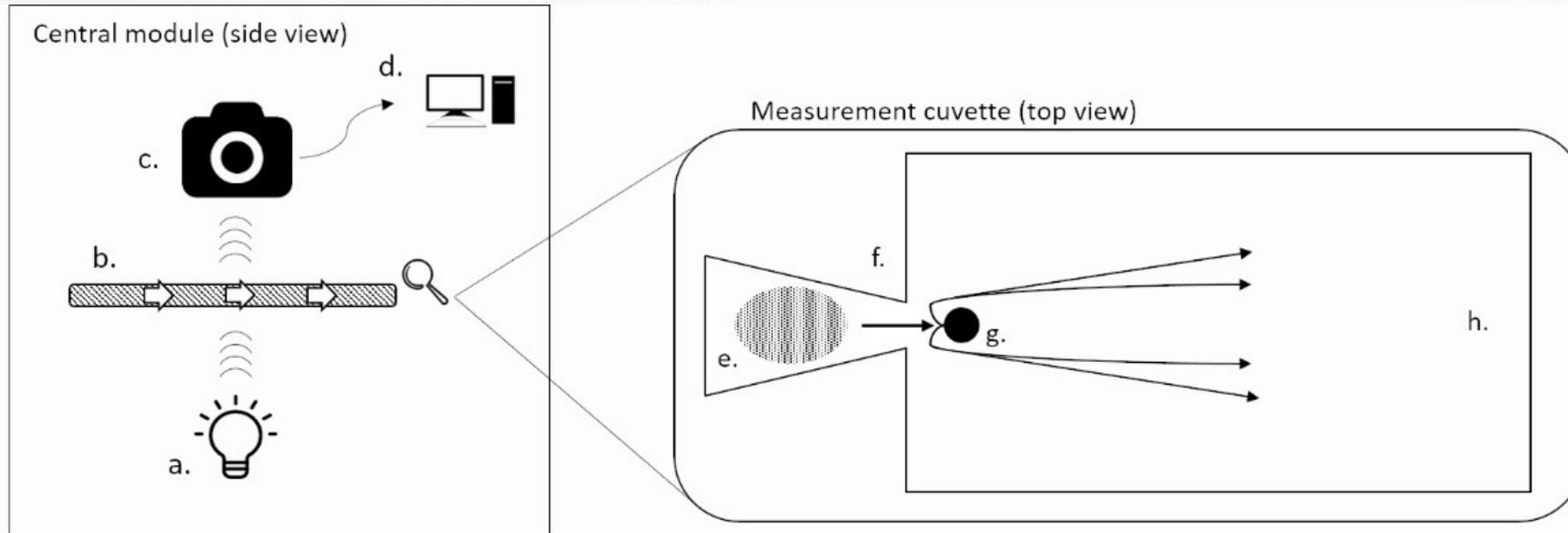
Pharmaceutical Solid State Research Cluster

HELSINGIN YLIOPISTO  
HELSINGFORS UNIVERSITET  
UNIVERSITY OF HELSINKI

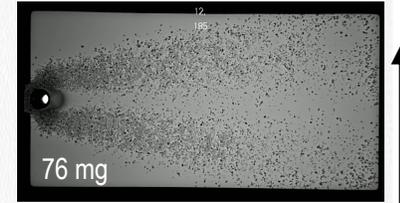


# NOVEL FLOWABILITY TEST (BLANCO ET AL. 2019)

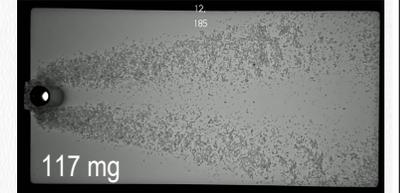
- Sample amount approx. 100 mg
- Image analysis based system



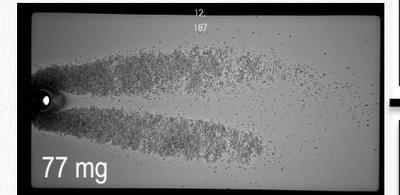
Avicel  
PH-200



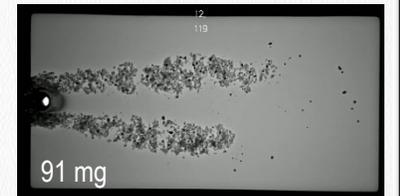
Lactose  
80M



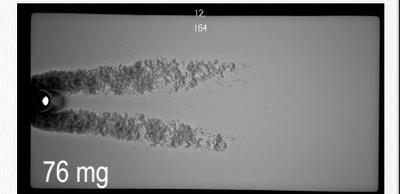
Avicel  
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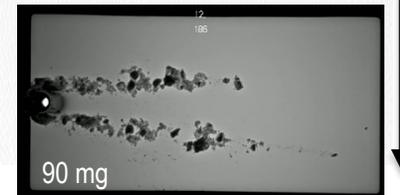
Caffeine



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:

Prof. Anne Juppo

[Anne.juppo@helsinki.fi](mailto:Anne.juppo@helsinki.fi)

Dr. Mia Sivén

[Mia.siven@helsinki.fi](mailto:Mia.siven@helsinki.fi)