

The extracellular vesicle foundry: evFOUNDRY

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www.evfoundry.eu

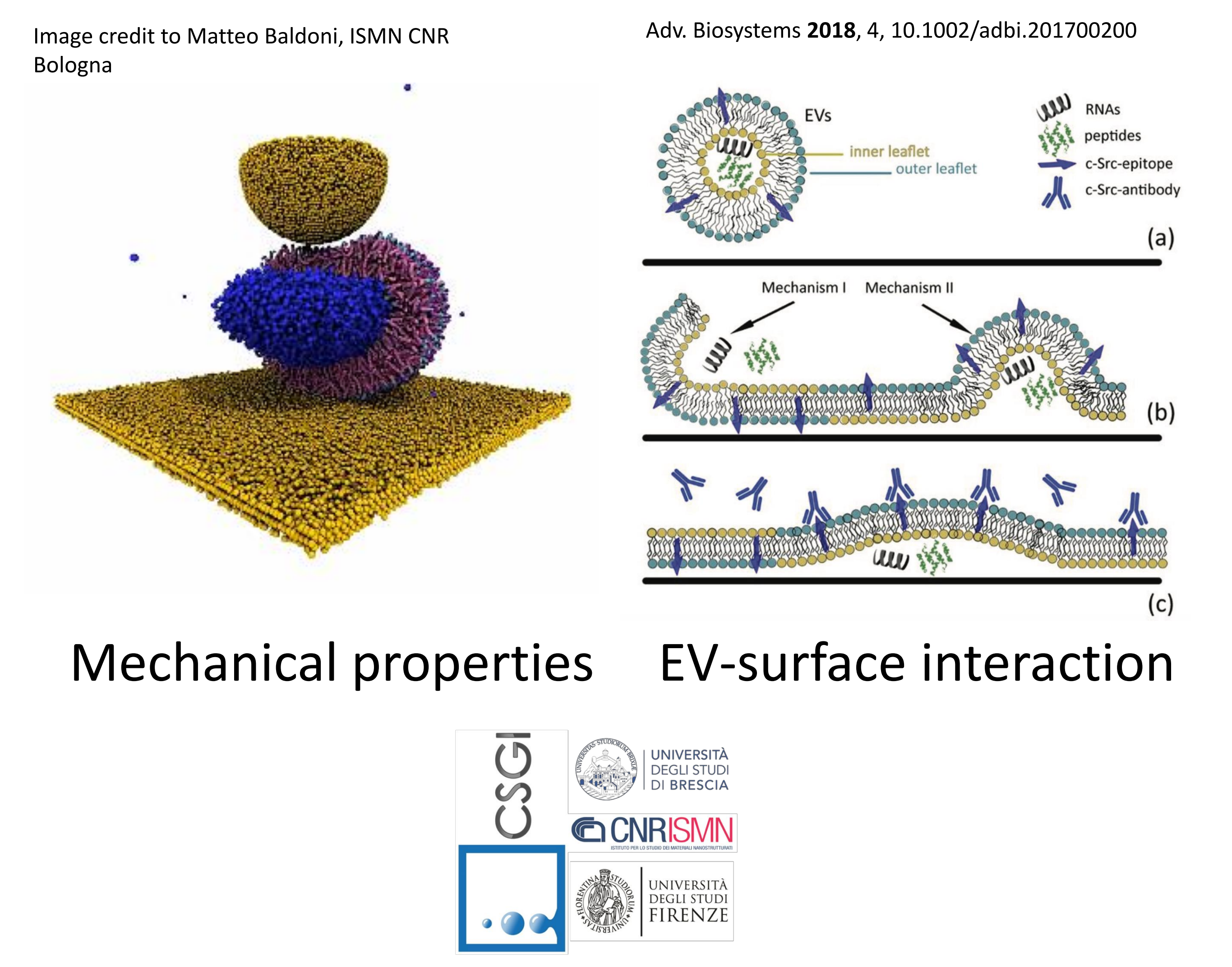
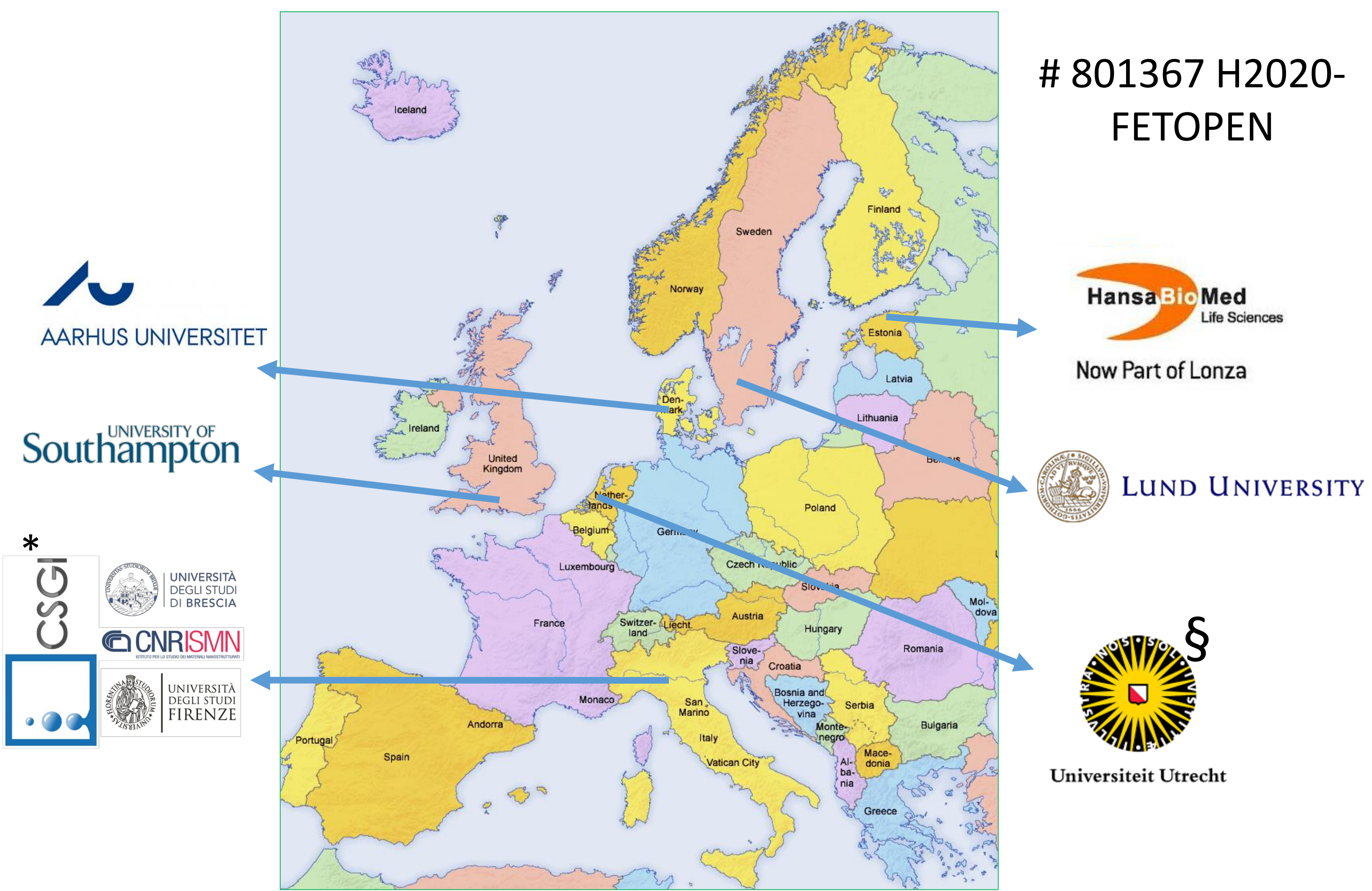
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evFOUNDRY targets the unmet knowledge and technology able to streamline production of therapeutic EVs from sustainable sources, drawing the baseline for future EV bioprocessing, which is necessary for effective EV medical translation and opens to new biogenic nanotechnology.



evFOUNDRY: FET-Open project in the framework of the European Research and Innovation programme H2020

To study EV colloidal properties and how EVs interact with surfaces



Starting date: 1st September 2018 Duration: 36 months

Outstanding questions

- Massive and standardized modification/production of high-grade EV formulations needed
- Beyond EVs? e.g. EVs as biogenic building blocks for hybrid biosystems?

evFOUNDRY Objectives

1. to determine the compositional, structural and colloidal properties of EVs that control their interaction with surfaces;
2. To engineer nanostructured surfaces integrated in microfluidic devices for separation of EV populations that are homogeneous in size and/or membrane properties from sustainable scalable sources
3. to design an integrated modular-system for the reproducible separation and analysis of these EVs under continuous flow;
4. to implement a lab-scale prototype for the continuous production of quality-compliant immune modulatory EVs.

Implementation

Sustainable scalable sources of EVs with immune modulatory properties



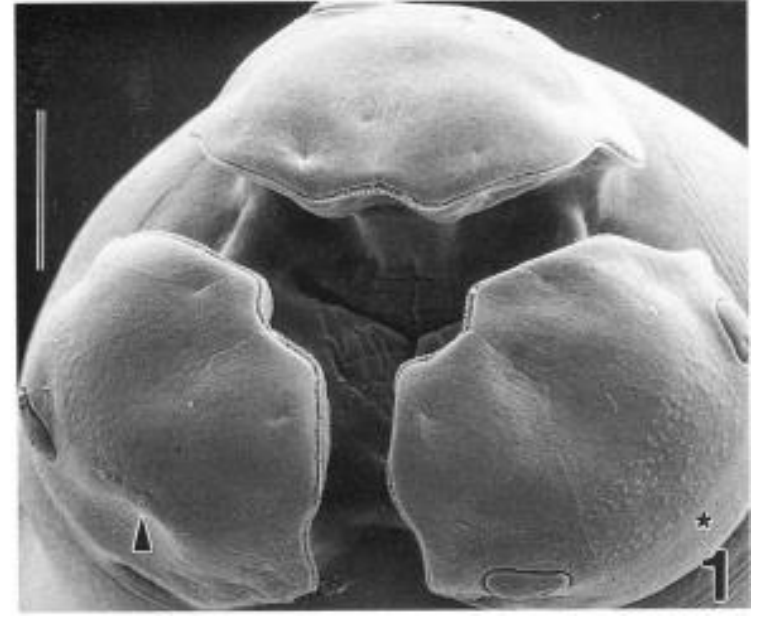
Bovine Milk



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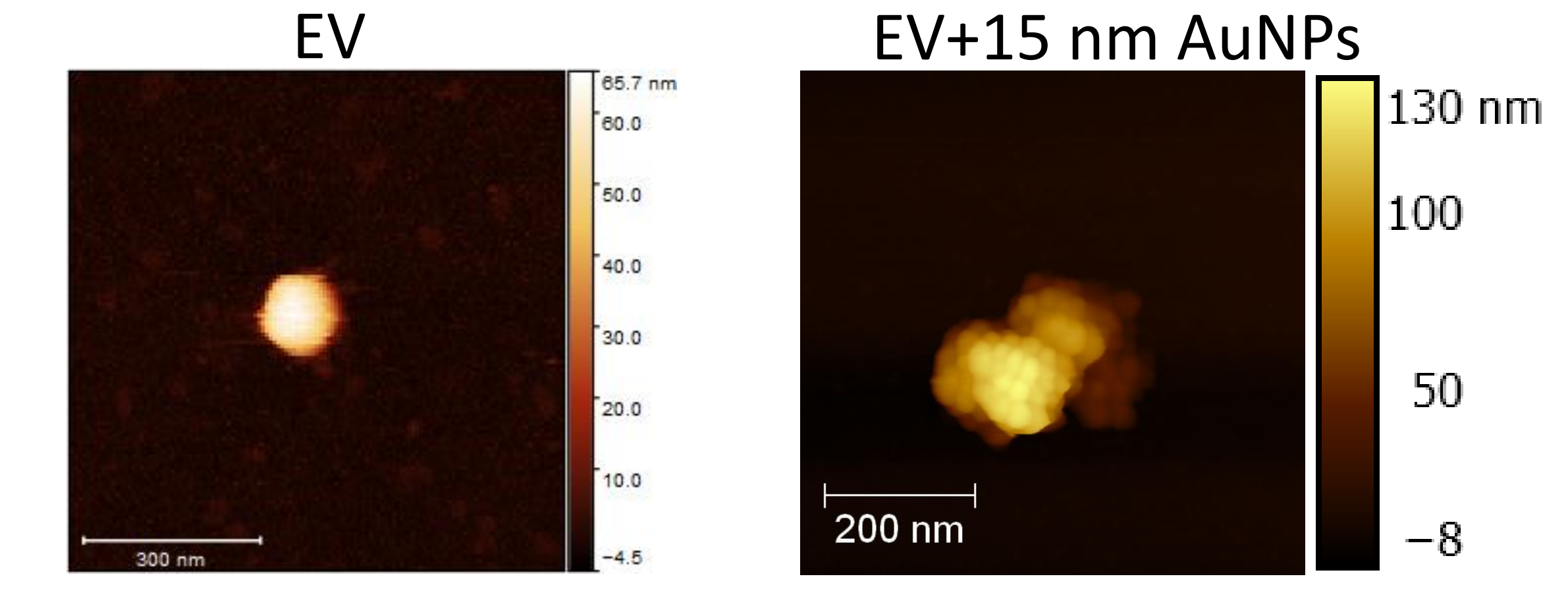
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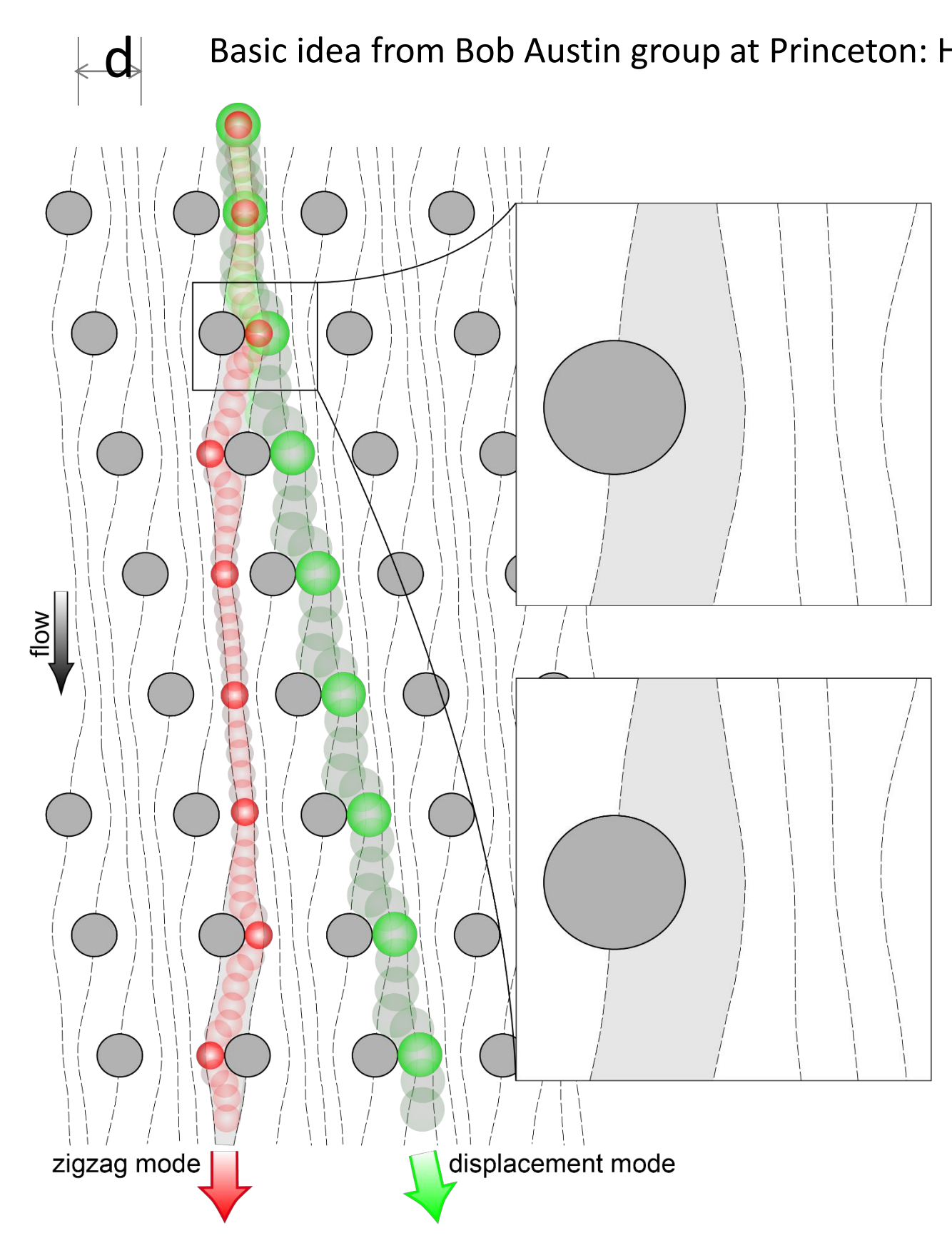
Now Part of Lonza



EV-nanoparticle interaction

To build an integrated device for continuous production of high-grade EVs

Deterministic lateral displacement (DLD) + multi-characterization



- Standardized
- Automatized
- Fast
- Cost-effective
- High purity
- High reproducibility

Perspective

- EV bioprocessing:
- Extensive clinical studies
 - Regulatory initiatives
 - Nanotechnology
 - Life-Science applications

