Milk Extracellular Vesicles (mEVs) for digestive health

The global digestive health market is projected to reach EUR 90 billion by 2023. Existing treatments often have limitations. Milk extracellular vesicles (mEVs) offer a natural solution to promote gut health, strengthen protective barriers and reduce inflammation. acib can help you be the first to market this exciting technology.

BACKGROUND

Extracellular vesicles (EVs) are nanosized transporters containing a diverse cargo from lipids, proteins to nucleic acids and other biomolecules. EVs can be used as carriers for therapeutics but are also therapeutics themselves. Milk extracellular vesicles (mEVs) derived from bovine and human breast milk can endure the harsh digestive conditions in our stomach and survive the digestive journey to reach the colon exerting their beneficial effects. Among those effects are the strengthening and restoring of mucosal, epithelial, and immune barrier integrity. This prevents toxins from reaching the bloodstream and the liver, alleviating intestinal dysfunction, inflammatory bowel disease, and liver inflammations. mEVs also stimulate the growth of beneficial microorganisms such as *bifidobacteria*, helping to restore a healthy microbiome. mEVs can also be used as a delivery system for medications. For a sustainable and cost-effective approach mEVs can be extracted out of whey of milk production processes and could be an interesting way to upcycle this “waste product”.

TECHNOLOGY

acib in collaboration with FH Campus Wien (FHCW) is on the way to become a production and knowledge hub for extracellular vesicles. A continuous ultracentrifuge, several FPLCs and equipment for freeze drying allows for scalable purification processes. It’s also possible to produce EVs in microbial or animal cell culture in bioreactors up to 50 liters in size. With our expertise on microbiome research, it’s possible to analyze changes due to mEVs and using atomic force microscopy, as well as cell-based assays allow for additional analytics of mEVs.

OFFER

EVs from milk have great potential to promote gut health. acib offers to develop an mEV purification process including scale-up to ensure a seamless transition to large industrial scale production and analyze mEVs to ensure their quality.
Intellectual property (IP) generated during the collaboration can be transferred to you, our investor/industrial partner. acib has 30+ years of experience and has worked successfully with over 250 industry partners. By collaborating with acib, you can be the first to enter the market with sustainable and gastrointestinal health promoting mEVs!

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DEVELOPMENT STATUS:
Our techniques are in the research phase, we have developed methods in size exclusion chromatography, cell-based assays and analytics of EVs like atomic force microscopy and have an established system for the pretreatment and purification of EVs from milk.

KEYWORDS:
Milk extracellular vesicles (mEVs)
Novel gut health technology
Next-generation prebiotics
Microbiome restoration
Whey upcycling
Scalable EV production
First-Mover Advantage

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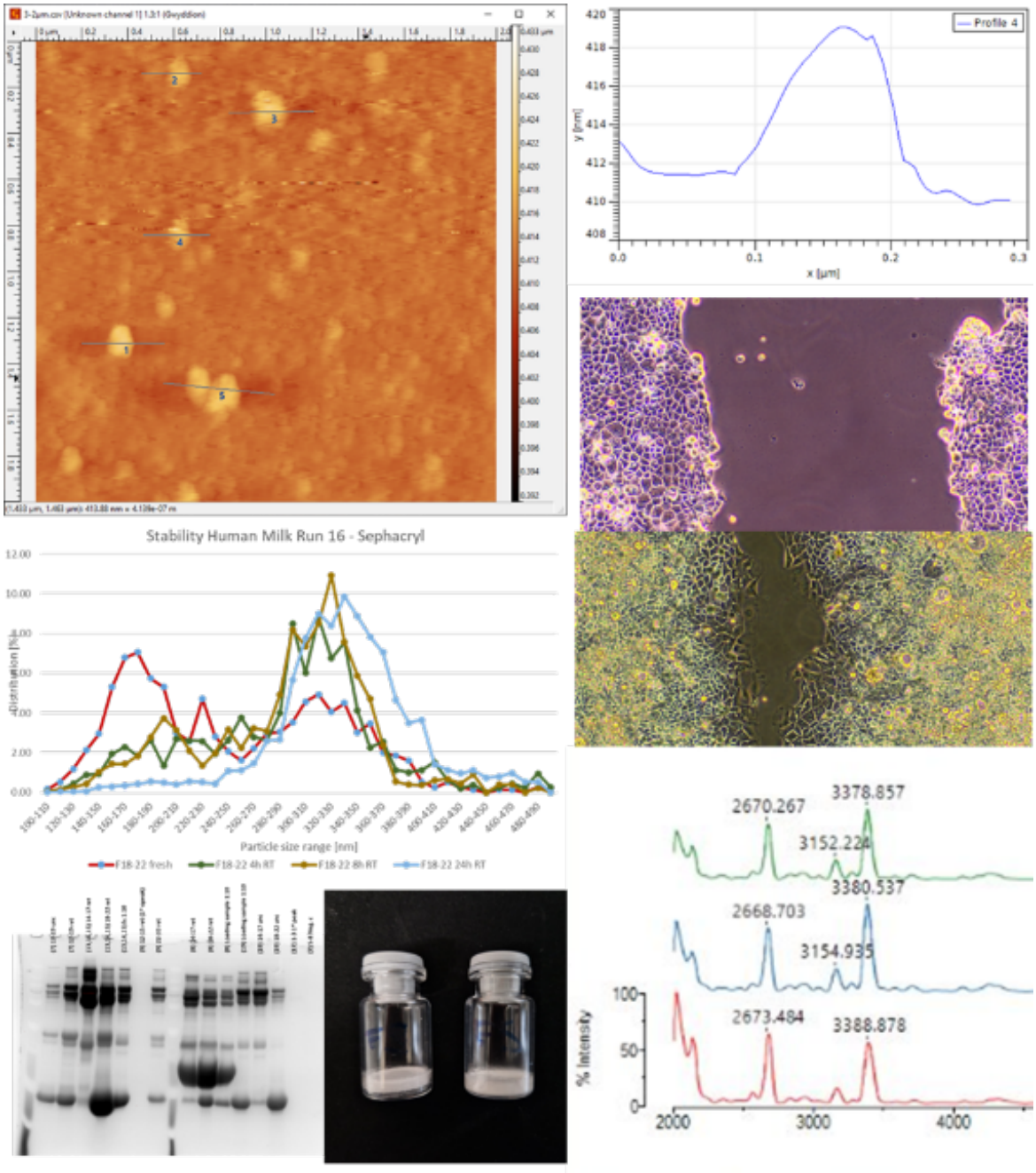

Figure 1 Examples for EV analytic and processing.