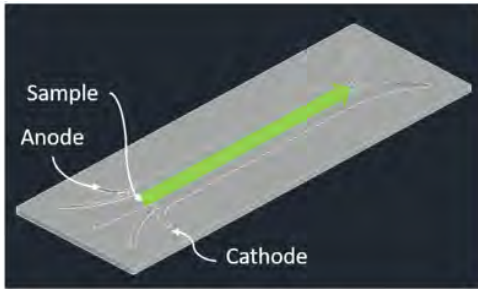


Micro Free Flow Electrophoresis Chip



No electrical field



With electrical field

KEY ACHIEVEMENTS

MicroFFE Chip prototype able to sustain prolonged, complete and steady continuous separation of chemicals as well as proteins for several days

KEY COMPETITIVE ADVANTAGES

- Simplified process development
 - One technology
 - No membrane or media choice
 - No scaling-up
- Easier processing of difficult / sensible products
- Over simplified quality management
 - No material aging
 - No intermediate storage
- OPEX reduced cost

UPCOMING CHALLENGE

- Industrialization of the prototype in a ready to use product to be implemented in the customers' purification/filtration processes
- Pumping systems to be adapted for the numbering-up of the system

The free flow electrophoresis (FFE) is more gentle than chromatography resins and should therefore offer an opportunity to purify/separate more sensitive materials. Moreover it is continuous and samples can be pumped theoretically indefinitely so reducing large raw materials use. However, existing FFE devices suffer major drawbacks such as dispersive effects due to Joule heating do hinder the separation in terms of resolution, or such as electrolysis bubbles impairing heavily the fluidic stability.

An **innovative microFFE chip** mainly composed of a fluidic circuit designed in a film clamped between two plates of glass has been developed to get rid of these different drawbacks and is able to purify/separate chemicals as well as proteins with excellent resolution and long term stability of the flow, enabling continuous process. This new microFFE solution is therefore a **great opportunity to fulfil the unmet need for purification/separation of sensitive material such as cells, liposomes, exosomes etc.** The “matrix free” aspect of this system is also a highly valuable **cost effective** advantage (reduced OPEX) compared to other separation/purification solutions. Moreover, the possibility of chips numbering-up avoids scale-up issues of the solution, making it perfectly **suitable for large scale production capacities**. Finally, this microFFE solution enables the purification and concentration of the compound of interest in a single step, leading to **simplification of the downstream bioproduction processes**.

PARTNERSHIP SOUGHT

License agreements

INTELLECTUAL PROPERTY

- EU Patent application : EP3698130 (publication WO2019077134 (A1))
- CA Patent Application : CA3078747 (A1)
- US Patent Application : US2020/0240951 (A1)