



**EVENT | 19.09.2019**  
**BRINGING INNOVATION TO  
THE HEALHTECH MARKET**  
A CROSS-SECTOR APPROACH

European Convention  
Center Luxembourg  
9:00 - 15:00



LUXEMBOURG  
HEALTHTECH  
CLUSTER

LUXEMBOURG  
ICT  
CLUSTER

LUXEMBOURG  
MATERIALS &  
MANUFACTURING  
CLUSTER

**mpg.**  
molecular plasma group

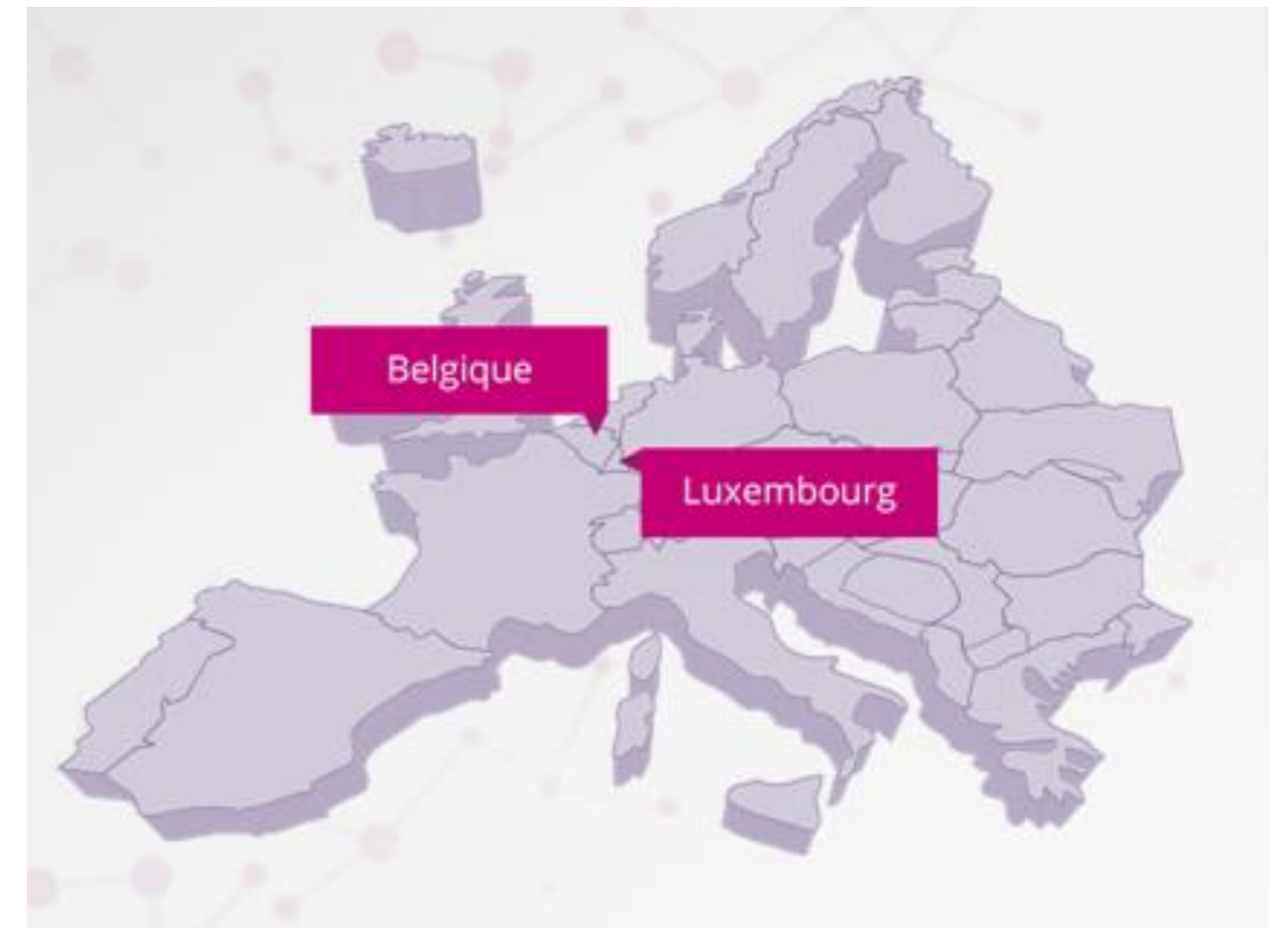
Enabling the development of  
new health care solutions  
through  
transformative surface  
functionalisation technology.



# Company profile

A successful combination of 2 spin-offs

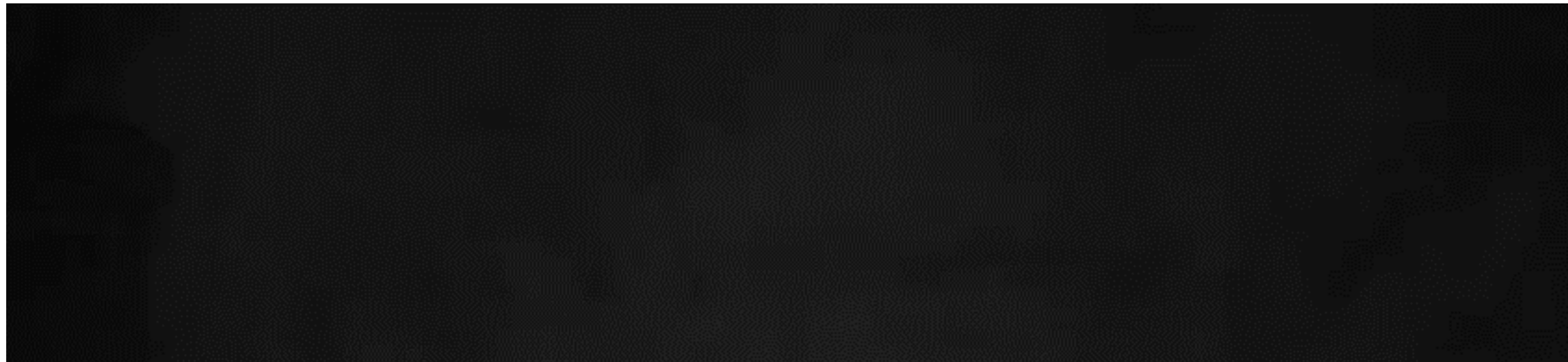
- Spin-off from 2 research institutes:  
**LIST** (Luxembourg) & **VITO** (Belgium)
- Incorporated in 2016
- HQ in Luxembourg with a subsidiary in Belgium
- Experienced team
- Full service provider: from application development to commercial solutions





# Molecular Plasma Technology

Bio-molecule immobilization video



<https://www.molecularplasmagroup.com/applications/>  
(biomolecule immobilisation video)





# Molecular Plasma Technology

## Key characteristics

- **Single-step**, dry, low energy, atmospheric, easily scalable process
- **Fast** process
- Single molecule – 100 nanometer molecular layer **grafted with covalent bonds** onto the activated surface
- **Durable** modification of the chemical composition of the surface
- Extremely **wide range** of precursor **molecules** (organic, biomolecules, inorganic, nanoparticles,...)
- On **any substrate**

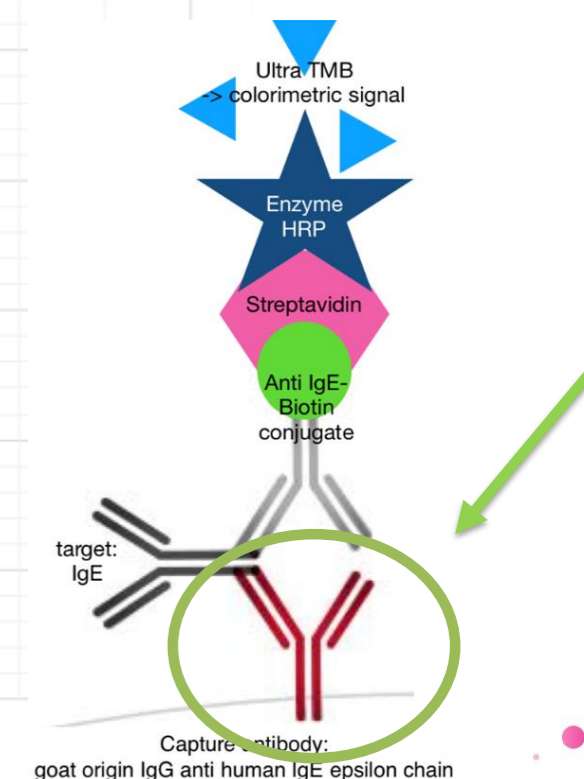
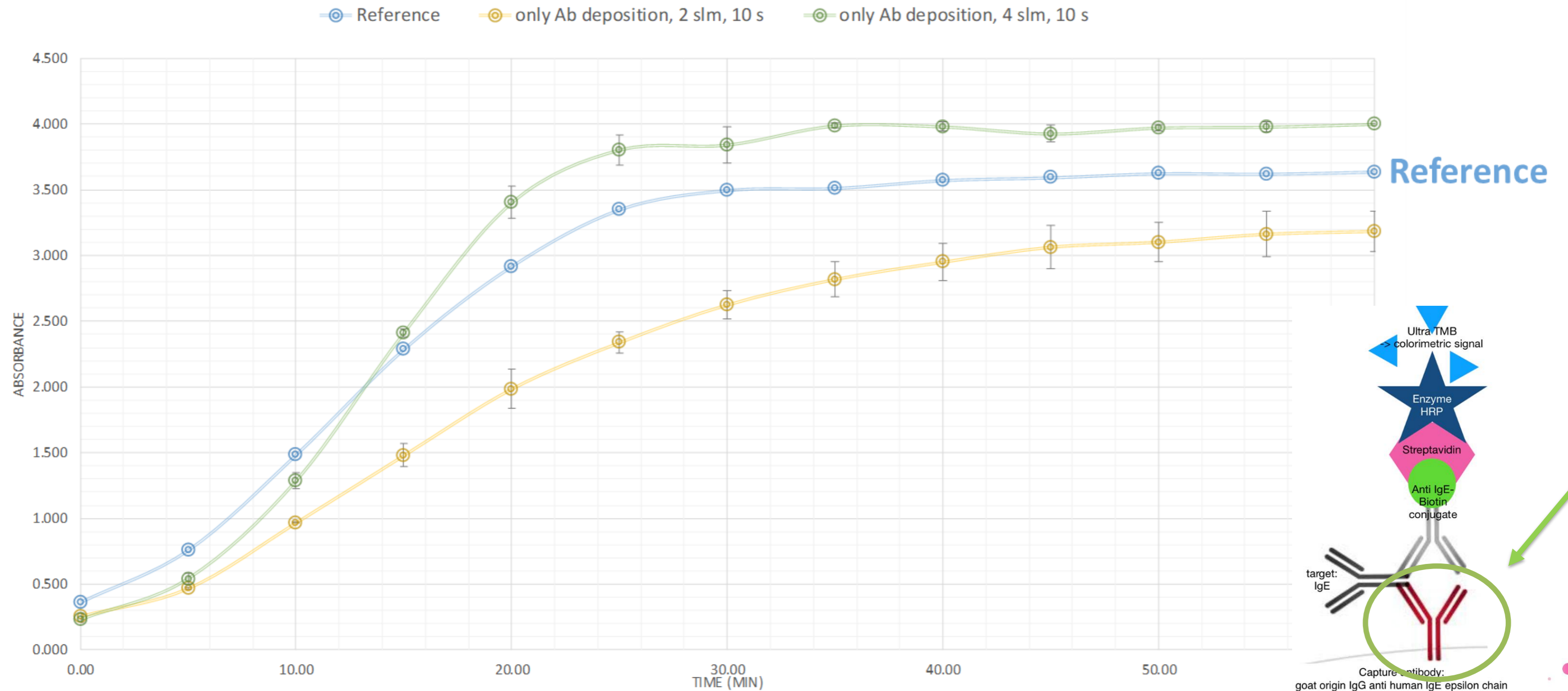


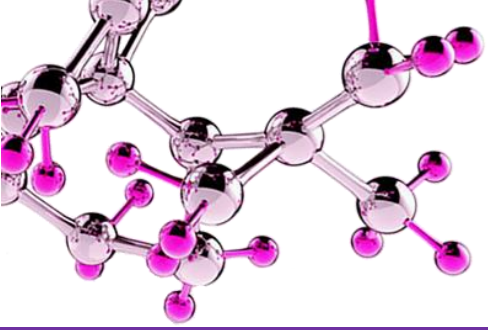


- ✓ Antibody functionality maintained after plasma deposition (NO denaturation)
- ✓ Comparable functionality level to reference
- ✓ Antibodies chemisorbed to the surface
- ✓ Specificity of target-antibody binding maintained
- ✓ No cross-interactions occurring

# Case Study

## Comparison of plasma deposition of IgG (2 rates) vs wet-chemical deposition



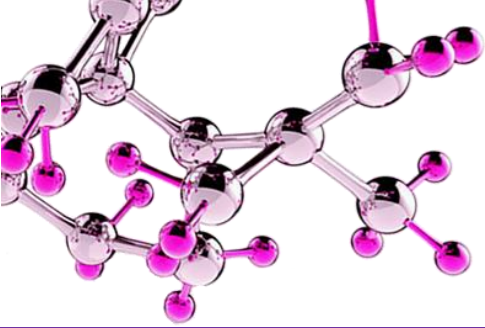


# Kick-starting with Fit4Start

A technology looking for a problem to solve

- Immobilization of biomolecules
- Deposition of a linker-layer (COOH, APTES, ...)
- Deposition of anti-microbial particles
- Reduction of non-specific binding (PEG, ammonium-based, phosphate-based, ...)
- Enhanced microfluidic control (speed & direction) by controlling the contact angle from very hydrophilic to super-hydrophobic (170 °)
- Adhesion improvement on difficult-to-bond materials: MolecularGRIP™  
(Teflon medical devices, COC microfluidic chips, ...)





# Fit4Start outcome

## Addressable market segments

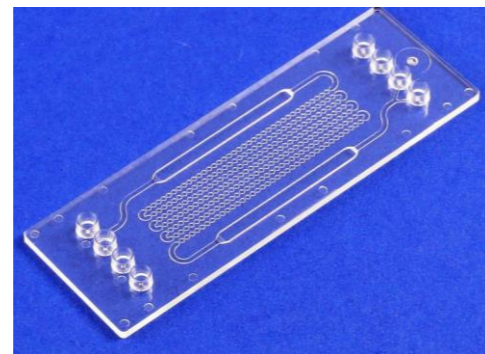
### Segment #1

'Out-of-body'  
medical  
consumables



### Segment #2

Micro-  
fluidics



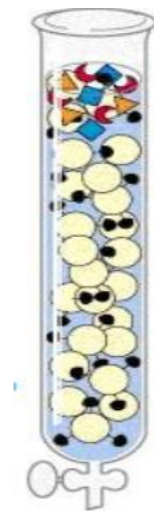
### Segment #3

Advanced  
dressings  
& patches



### Segment #4

Affinity  
Chromatography



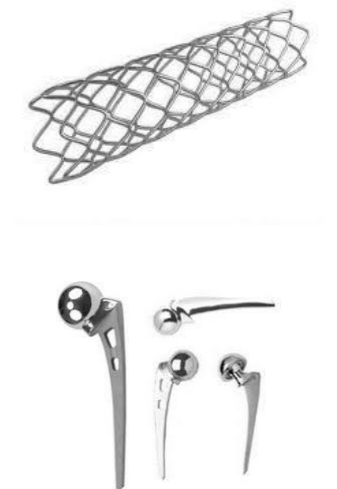
### Segment #5

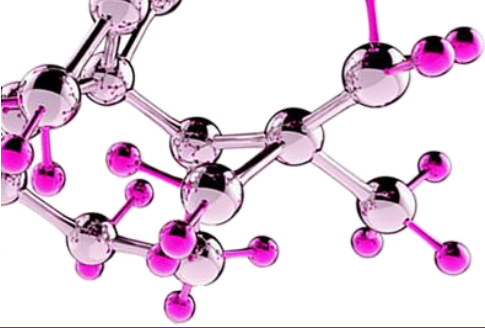
Life Science  
Technology



### Segment #6

Implants &  
'In-body'  
consumables





# Business Model

Product Strategy or Key Enabling Technology Platform Strategy?

Development services  
Customer funded solution development services  
=> industrialization of the solution

Manufacturing  
Pilot production  
Contract manufacturing



Our DNA  
Technology, IP, Knowhow  
& Equipment

JV's / Spin-off's  
Product or market specific

Partnerships  
Development agreements







# Conclusion & next steps

Apply the KISS principle & focus on our core competency

- Minimize regulatory complexity
- Become a technology supplier or service provider to medical device companies
- Prioritize markets with limited re-certification requirements when using our technology
- Prepare for ISO 13485 certification
- Develop strategic partnerships in various medical device areas



**LU**  **EMBOURG**

**LET'S MAKE IT HAPPEN**

Watch our technology videos on: [www.molecularplasmagroup.com](http://www.molecularplasmagroup.com)

