EU-US industrial cooperations

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Who and Where we are?

Hungary

<u>Departments</u>

- Materials- and Production Engineering
- Health and Environment
- Energy and Safety:
- ITC and Logistics:
- Nanotechnology

Bay-Logi

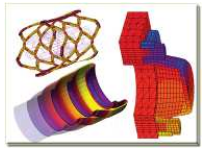
Materials Portfolio

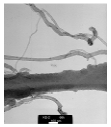
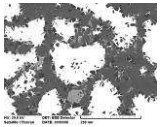
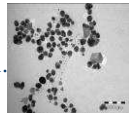
AREAS OF ACTIVITY

- Development of new materials and technologies,
- Application development of new materials
- Material production and test equipment
- Analysis of safety running conditions of structures and equipment
- Lifetime estimation
- Polymer technology simulations, measurement and methodology development of materials testing,
- High temperature technologies (Al, steel, brazing, soldering, welding, suspensions, composites, emulsions),
- Inorganic nano-particles, electrochemistry, corrosion, surface chemistry, coatings.
- Nanometrological measurement and methodology development, equipment development and structural modelling.
- Drug development, nanotoxicology, immunotoxicology.

INNOVATIONS & INFRASTUCTURE

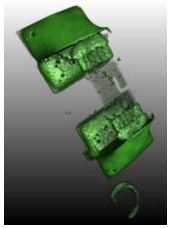




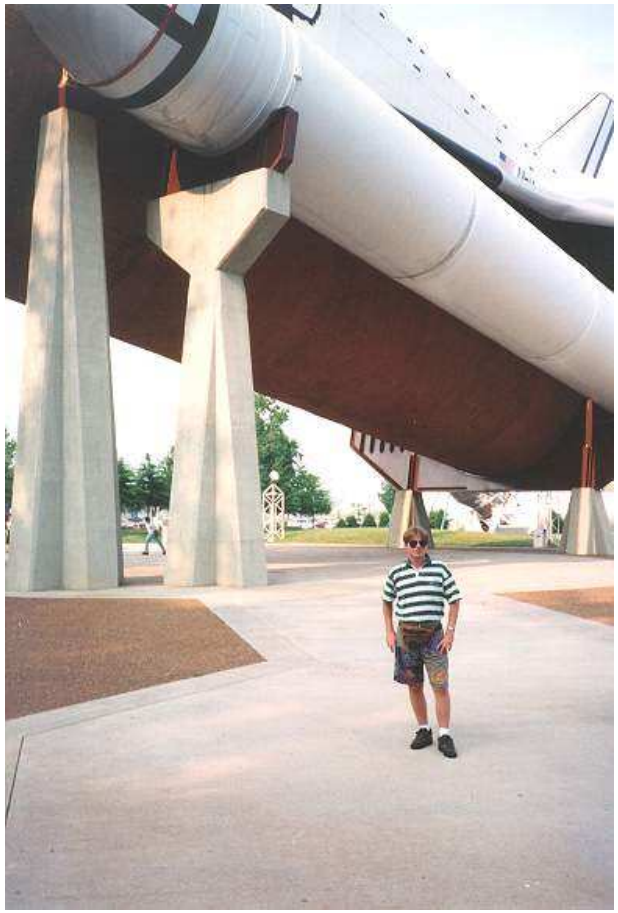


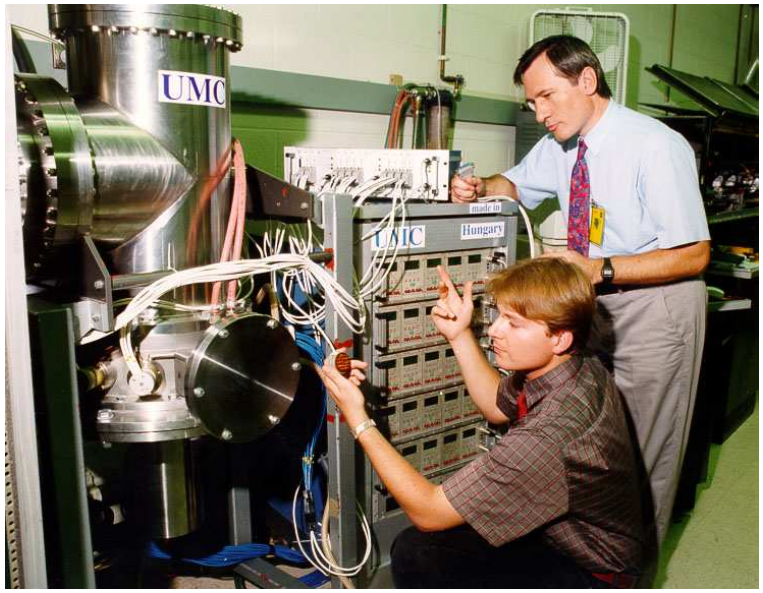



1. Metal foams
2. Recycling of LCD screens
3. Moldflow simulation
4. Mechanical tests
5. Life cycle analysis

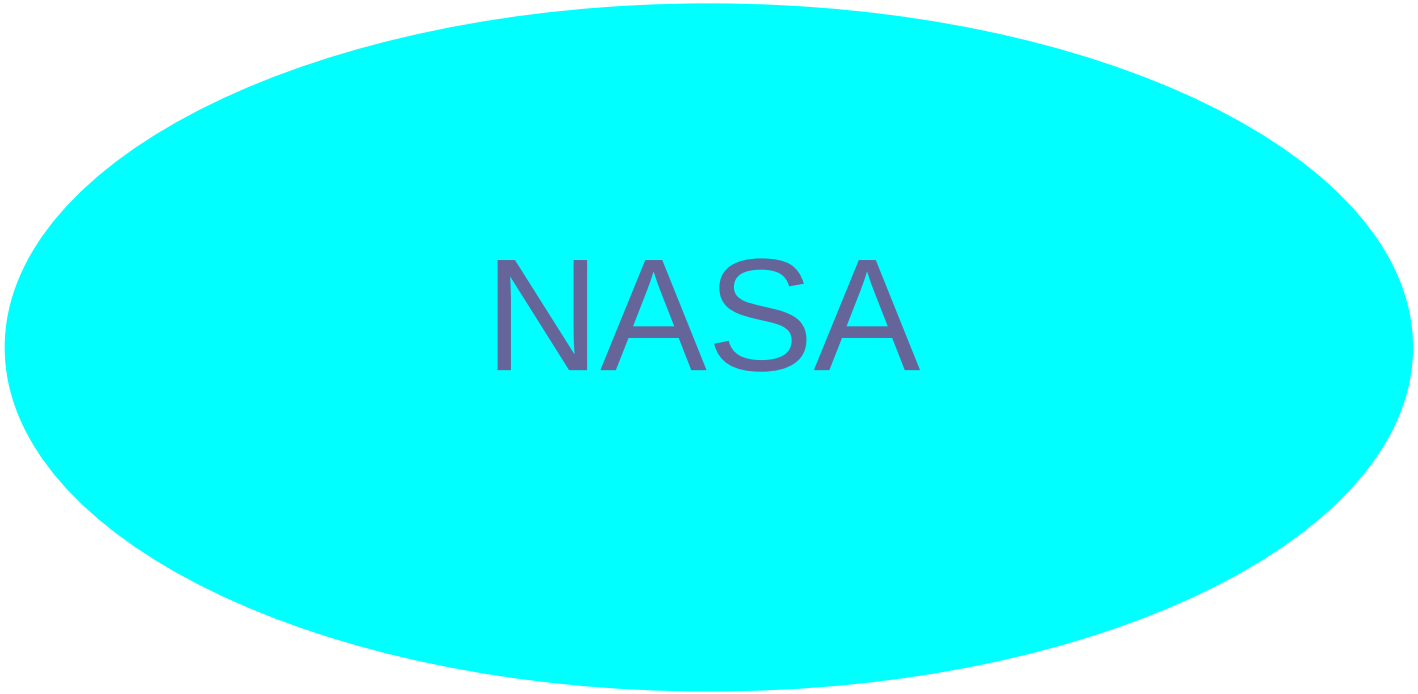
1. Nanotube synthesis in liquid metals
2. Metallic emulsions
3. Nanoparticles production by ultrasound
4. Nanostructured Ti, 5. Nanodrugs-Doxil
6. AFM, HRSEM, TEM

NASA single crytal growth





Dr. Péter barátommal, most elektromérnököm


NASA

ESA

Spaceman

1994 NASA

2006 ESA

Alcoa and Navy

Metal foams and applications

Excellent energy and sound absorbing materias, light but strong structural materials, bone replacing biomaterials.

automotive

Ligh weight „metal-foamed" carosserie for cars

architecture

Sound absorption panels, fire resistent cover plates in tunnels and walls

bio

Implant materials

armour

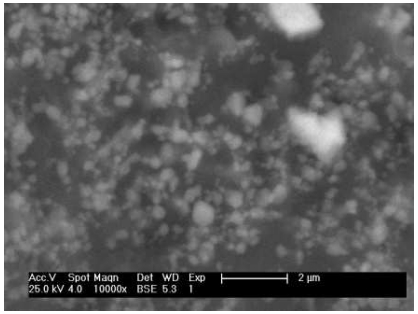
Armour

New foamable alloy

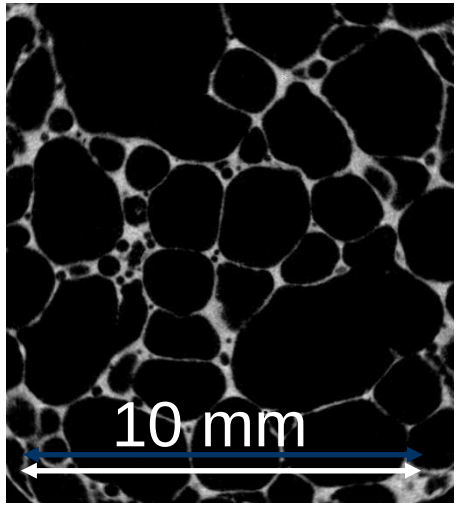
Our technology create: METAL FOAMS

Liquid aluminum + SALT = foamable metal

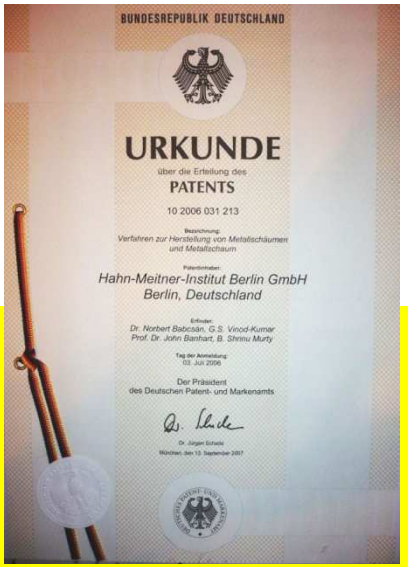
Foamable metal + gas = metal foam



Nanoparticles responsible for stabilize our metal foams



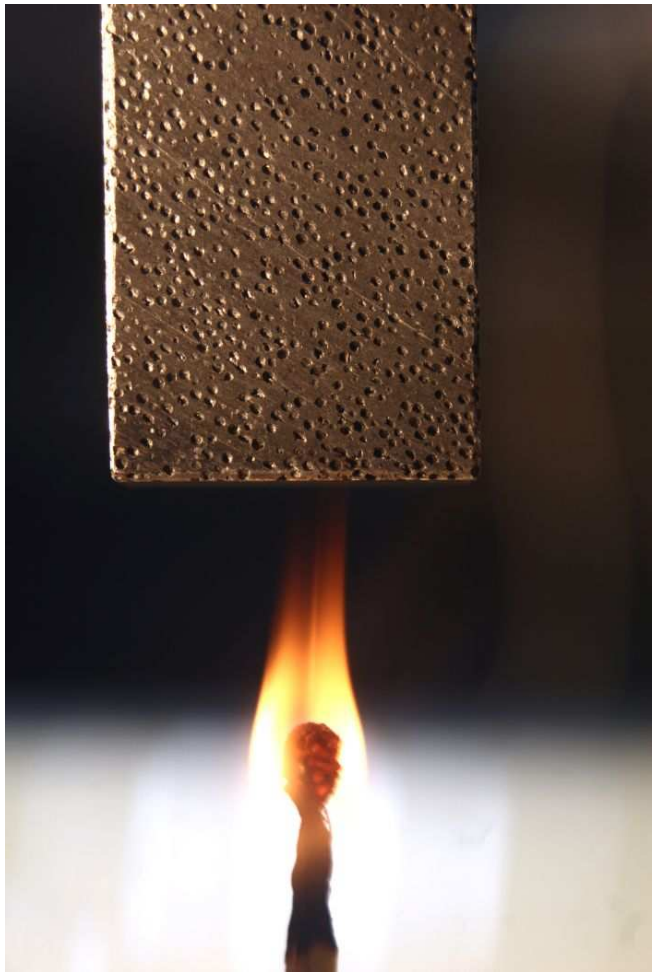
Using SALT is a novelty. The salt creates NANOPARTICLES in aluminium.

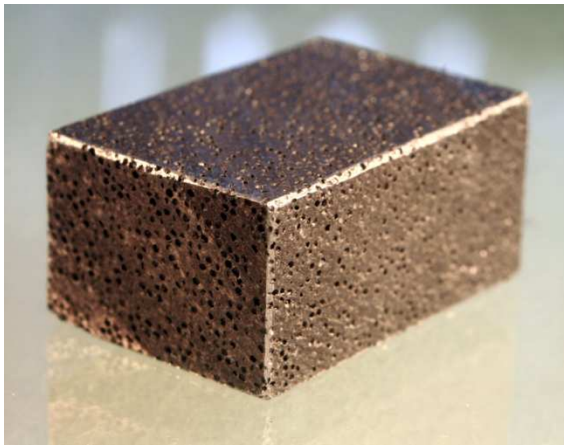


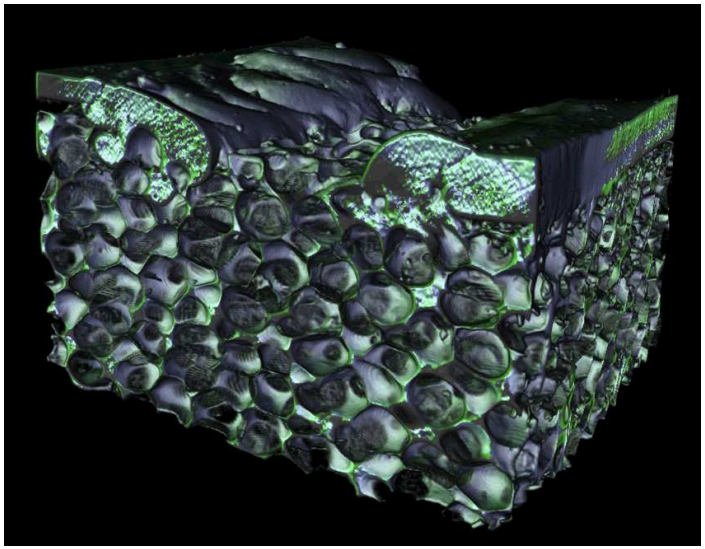
***Nanofoam:* German Patent and PCT.**
DE 10 2006 031 213, WO 2008/003290 A2
Filed to the German Patent Office: on 03.07.2006.
International application was filed: on 27.06.2007.
German patent was granted: on 06.09.2007.
PCT was granted: on 10.01.2008. European Patent Application started.
Owner: Helmholtz Institute for Materials and Energy, Berlin, Germany
Owner for Hungary: Dr. Norbert Babcsán

Large scale production of aluminium foam

Fire proof and weldable Al foam



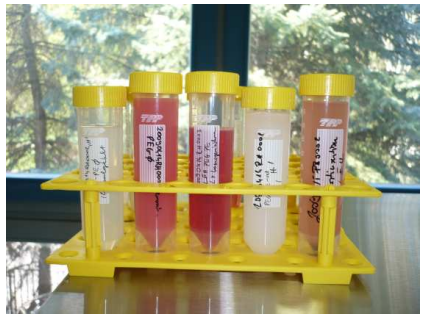


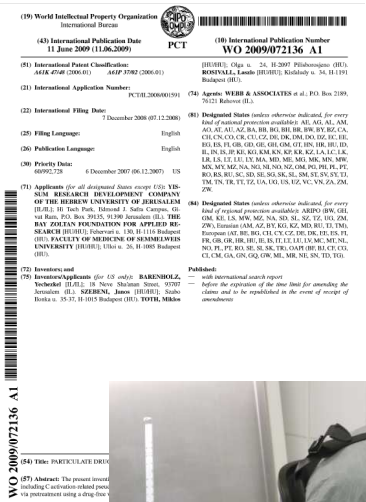


Due to the self developed foamable alloys and the foaming method **our foams** became **castable, well machinable**, weldable, fire and water proof.

Nanomedicine

Liposomes

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International Bureau
PCT
(43) International Publication Date
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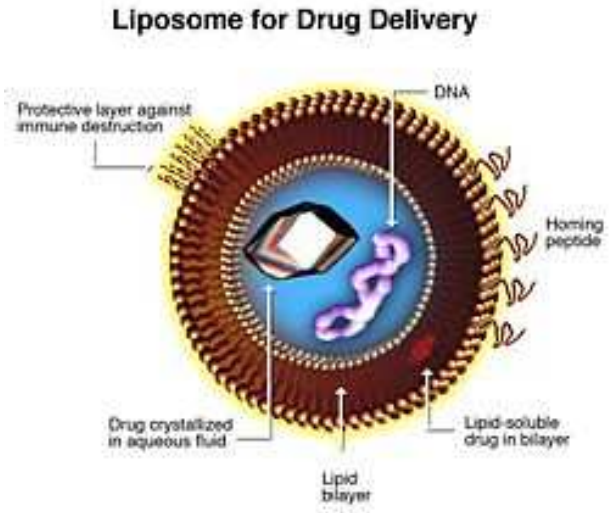
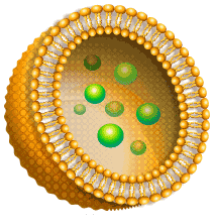
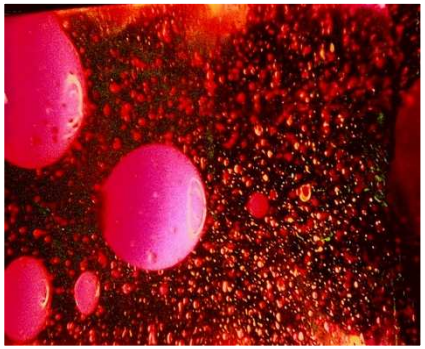
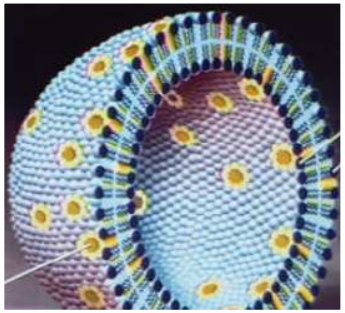
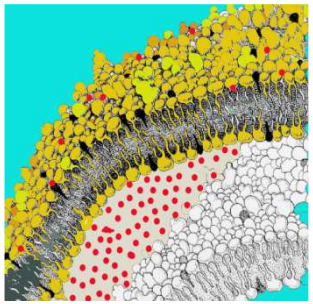
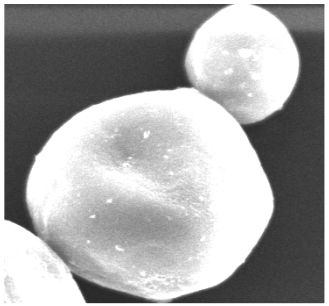

Liposome for Drug Delivery
Protective layer against immune destruction
DNA
Homing peptide
Drug crystallized in aqueous fluid
Lipid-soluble drug in bilayer
Lipid bilayer

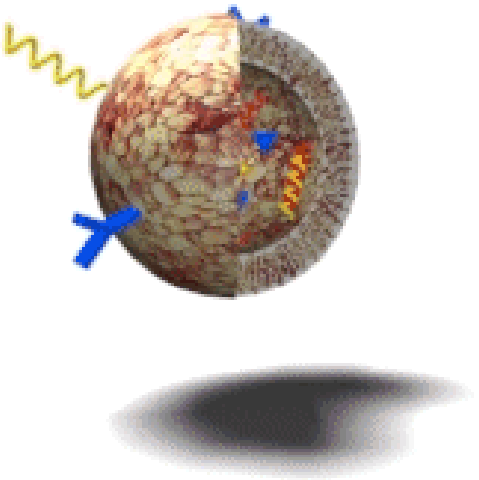

Liposome









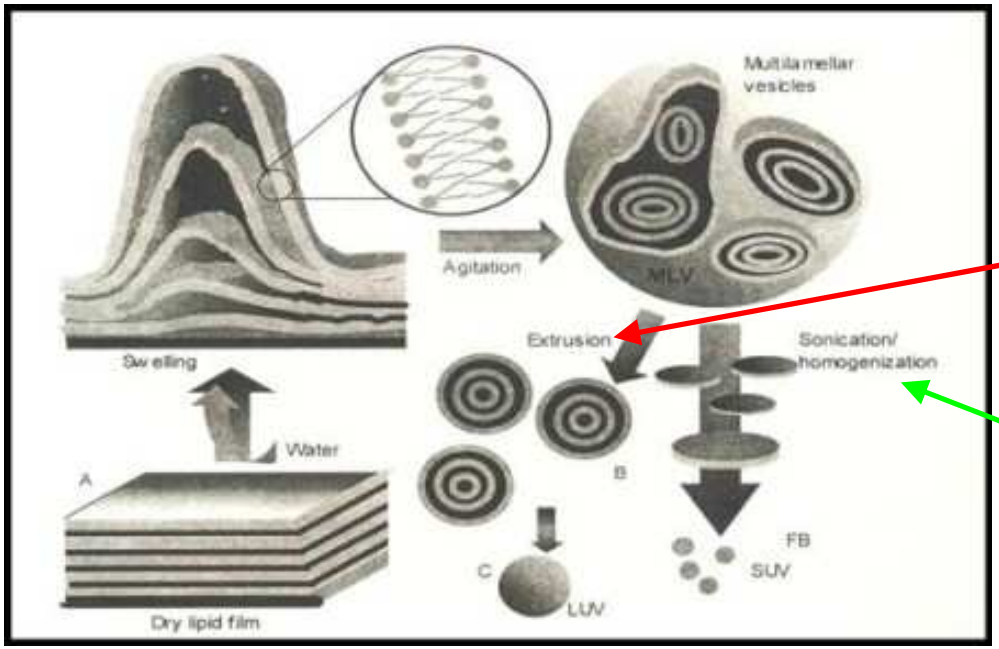


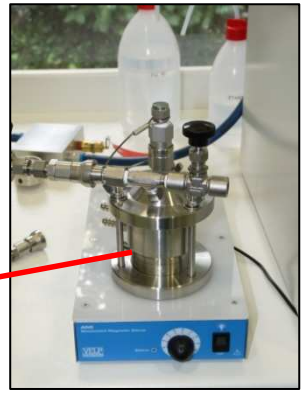
1. Hemoglobin-Based Oxygen Carriers (HBOCs)

Dry lipid film


Swelling, agitation
(Hand-shaking method)

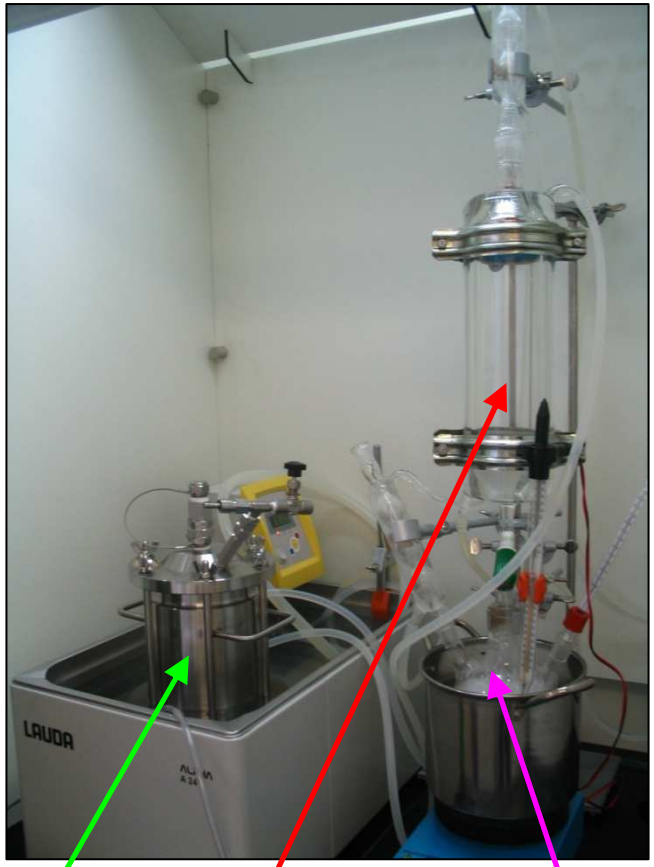

MLV hemosome




Lipex Extruder 10 mL


Emulsiflex C3

2. Experimental Manufacturing Process



Glass materials

800 mL Lipex Extruder

MLV

Emulsiflex C3

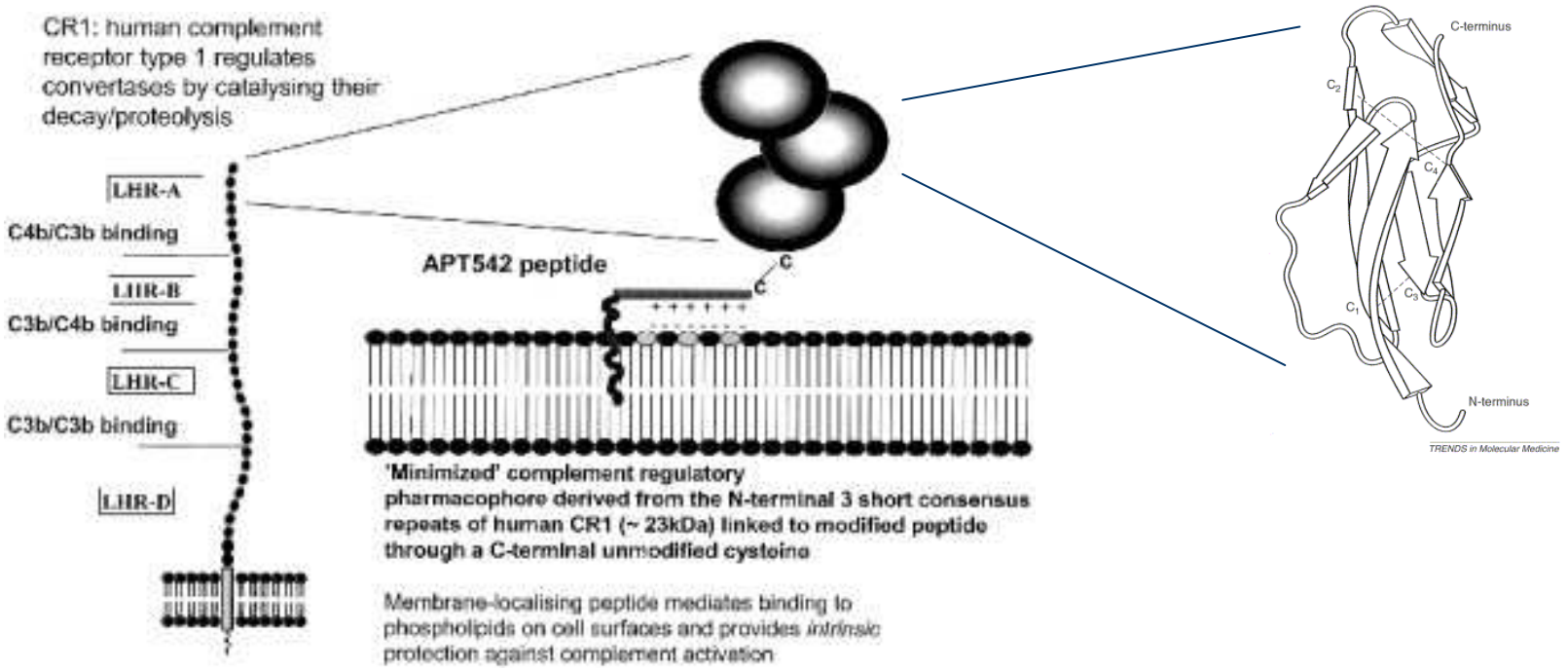
2. Experimental Manufacturing Process

Diafiltration:

Sartoflow® Slice 200 Benchtop crossflow filtration system

Remote Loading (Ispotály Holding Ltd.):

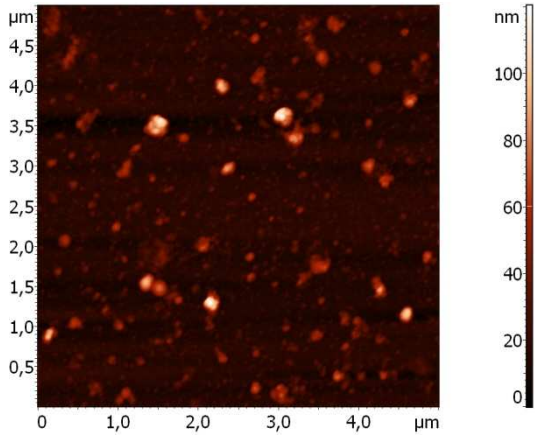
3. Synthesis of a membrane bound compl. inhibitor



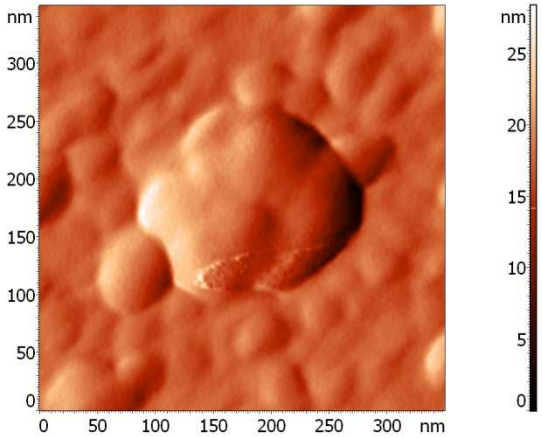
- 3 SCR domain, 198 aa → heterologous expression in *E. coli*ban
- myristoylated and positively charged peptide → chemical synthesis

4. Atomic Force Microscopy (AFM) Virology

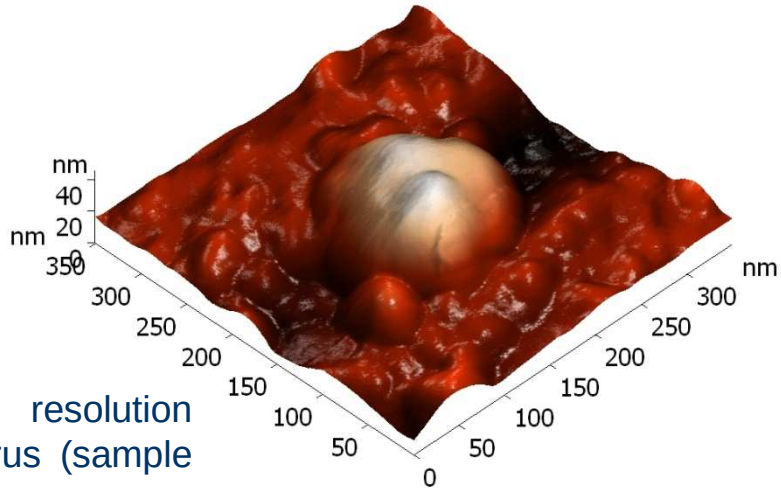
Examination of dried HIV samples by NTEGRA Prima AFM (Bay-Nano)



NTEGRA Prima AFM image from a dried 3 µl HIV sample



NTEGRA Prima AFM high resolution image from a discrete HIV virus (sample was 3 µl)



NTEGRA Prima AFM high resolution image from a discrete HIV virus (sample was 3 µl)

More info

www.bay-logi.hu

Thank you for your attention!