

Nanotechnology in the Czech Republic- Case - Nanopharma and Nanoprogres

by

Liliana Berezkinová, Chairman of the Board

Why nanotechnology?

20 years of scientific tradition.

Excellent textile- and material engineering-oriented universities

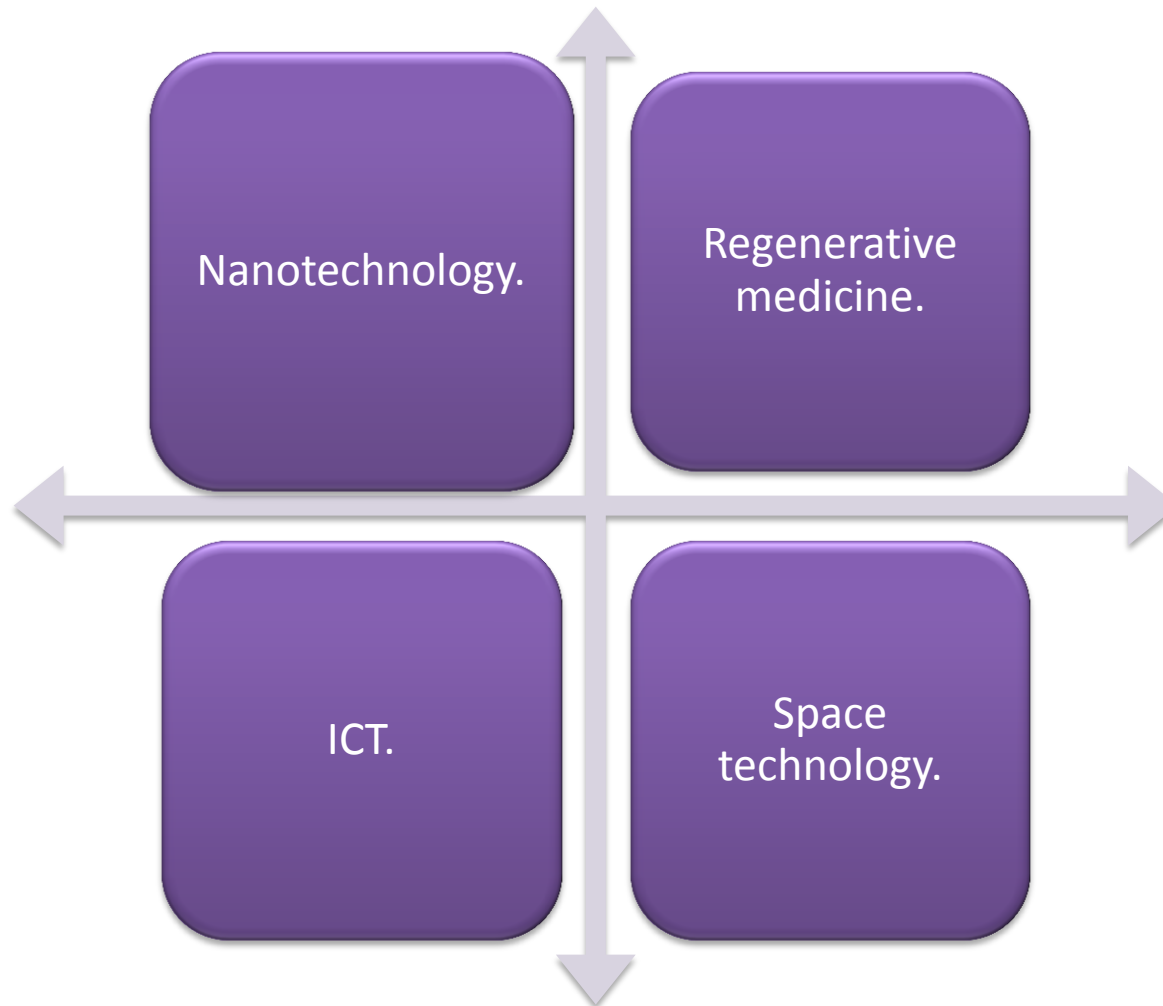
Versatility of the technology allowing lower material consumption and new material properties.

Multiple application areas – medicine, automotive industry, energy, filtrations, packaging, etc.

Institutional support.

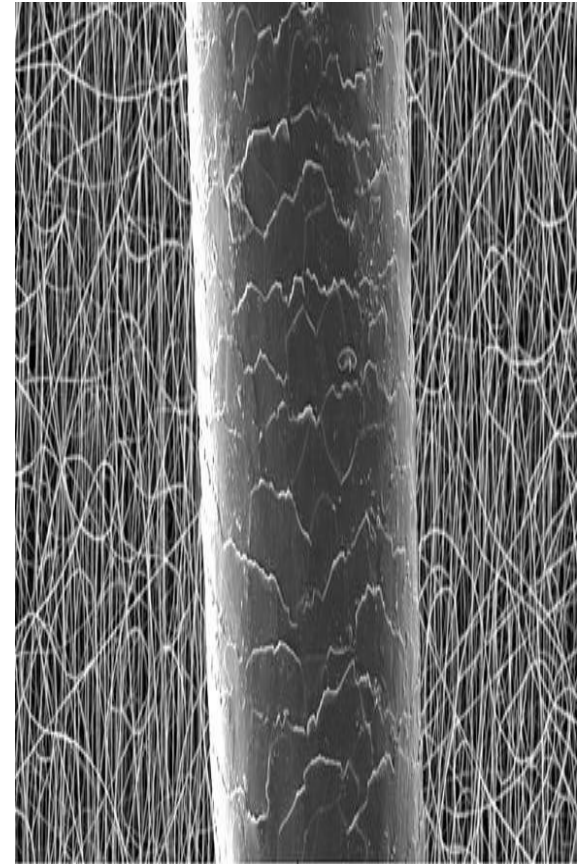
Invention precedents.





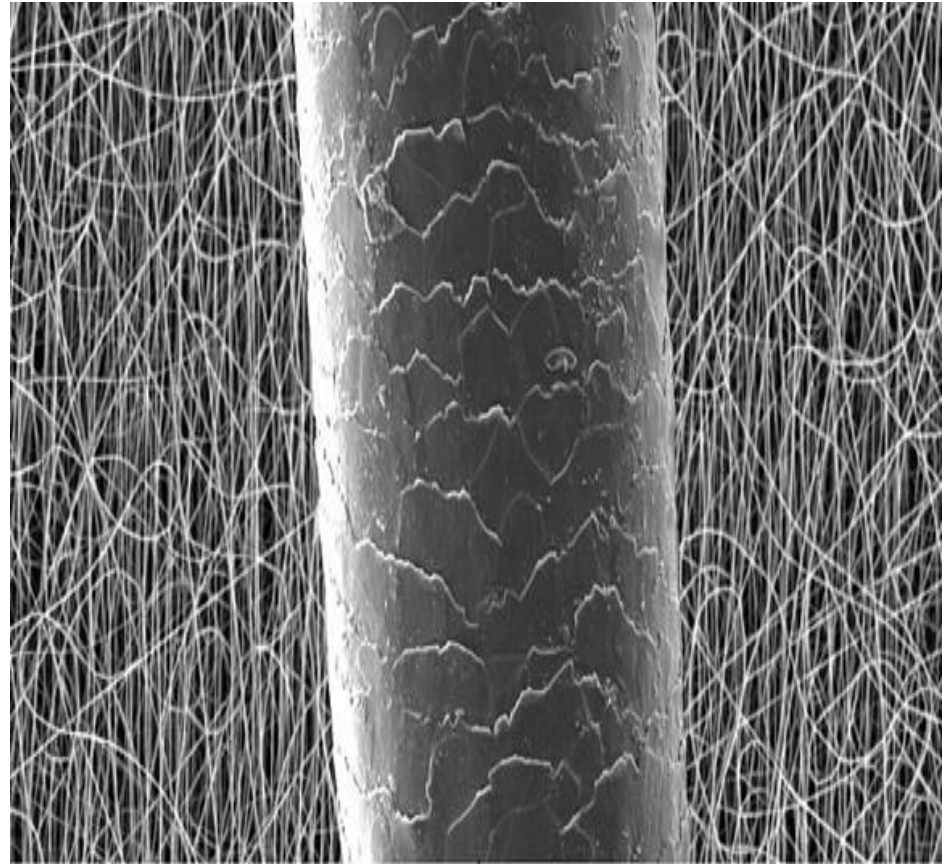
Current situation

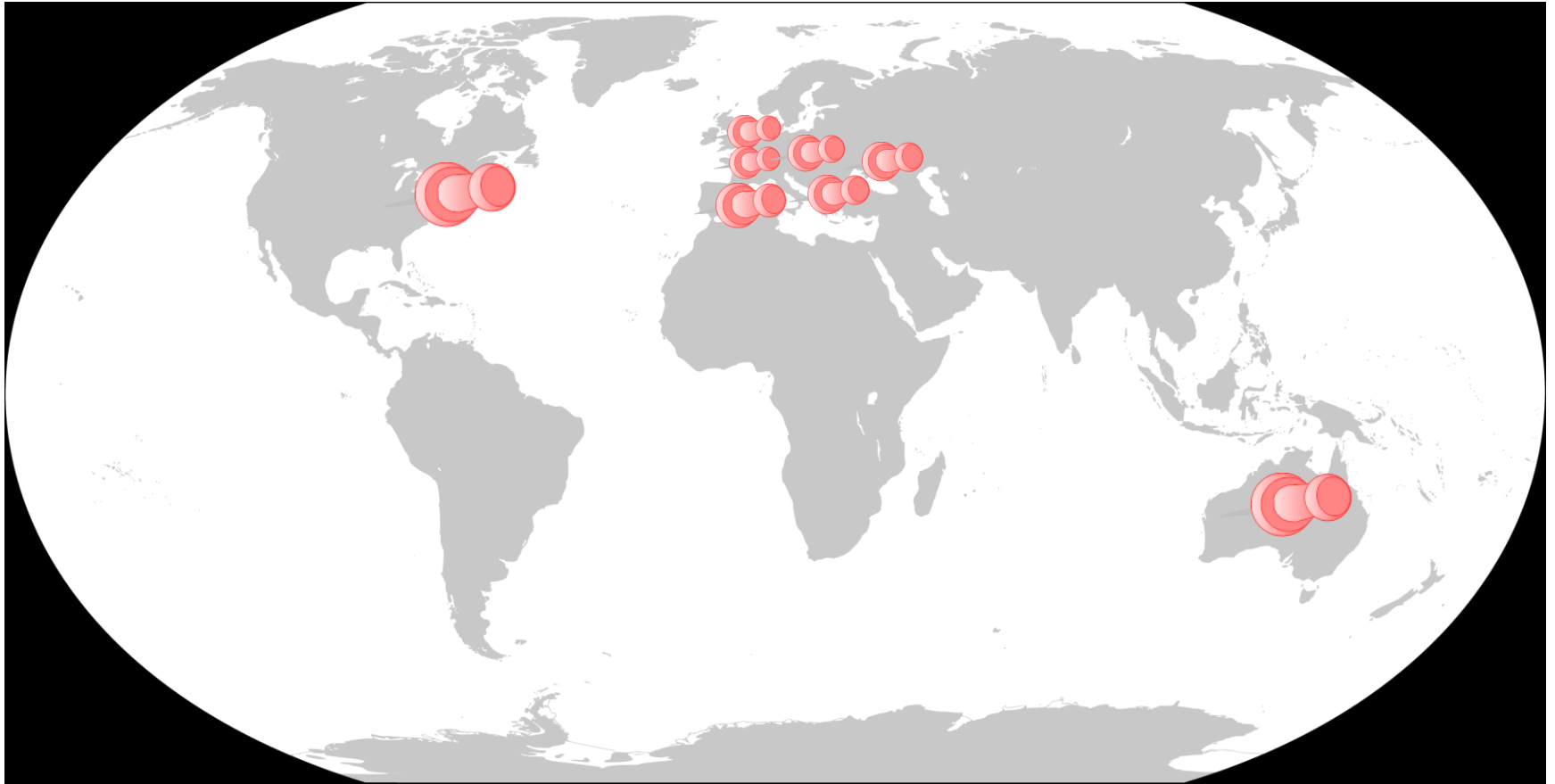
- Strong support of applied research.
- SME initiatives.
- Institutional support in promotion and raising of international awareness.
- Organization of nanotechnology business missions.



BASIC FACTS

| | |
|-------------------------|---|
| Established: | 2008 |
| Status: | SME |
| Location: | Czech Republic (Liberec, Prague, Pardubice) |
| Number of employees: | 10 |
| Technology: | Traditional and coaxial electrospinning. |





BASIC FACTS

Different properties to nanoparticles:

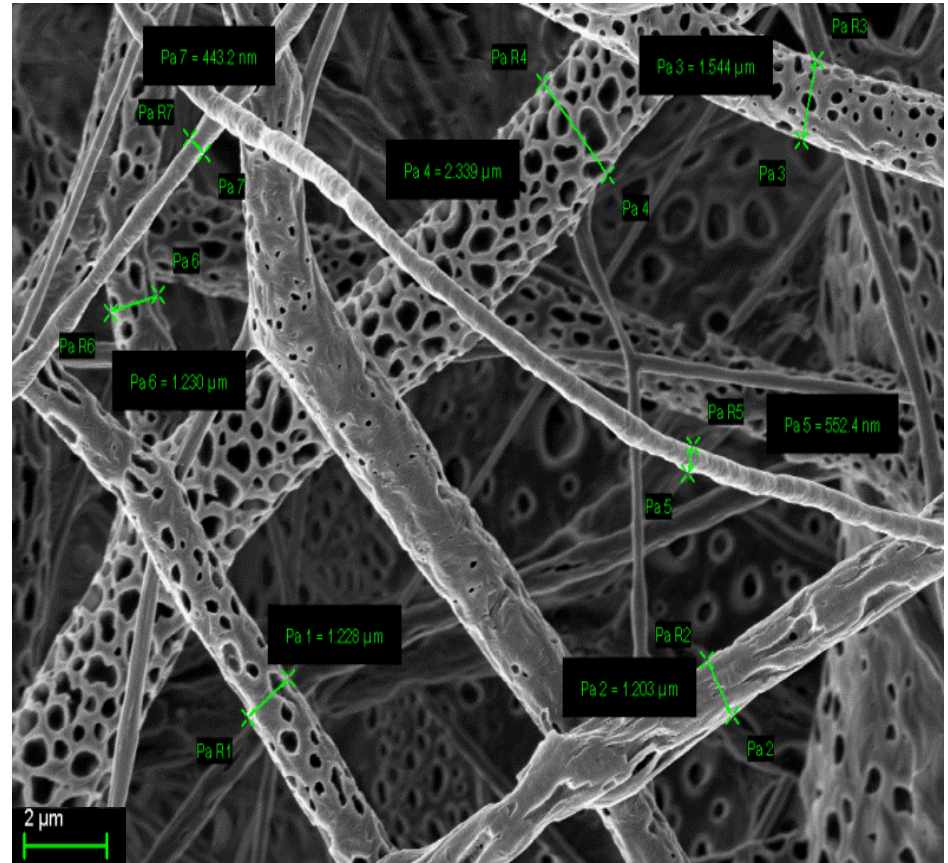
Migration/aggregation potential
Payload of active ingredient

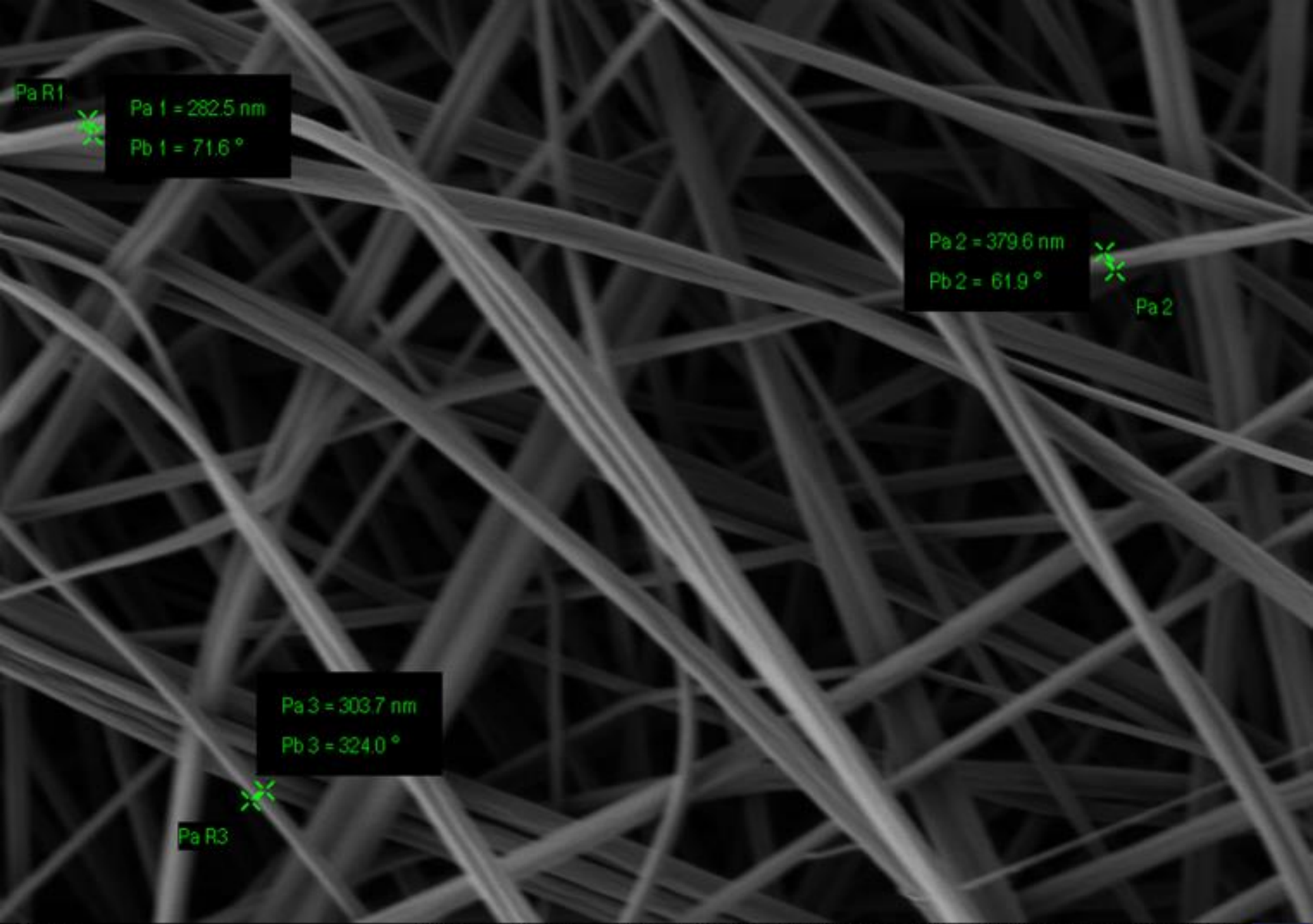
Biocompatible.

Biodegradable / Non-degradable.

Extremely low weight.

High permeability (wound covers)





Pa R1

Pa 1 = 282.5 nm

Pb 1 = 71.6 °

Pa 2 = 379.6 nm

Pb 2 = 61.9 °

Pa 2

Pa 3 = 303.7 nm

Pb 3 = 324.0 °

Pa R3

2 μ m

Mag = 5.00 K X

EHT = 2.50 kV

Scan Speed = 10

Laboratory of Analytical Methods

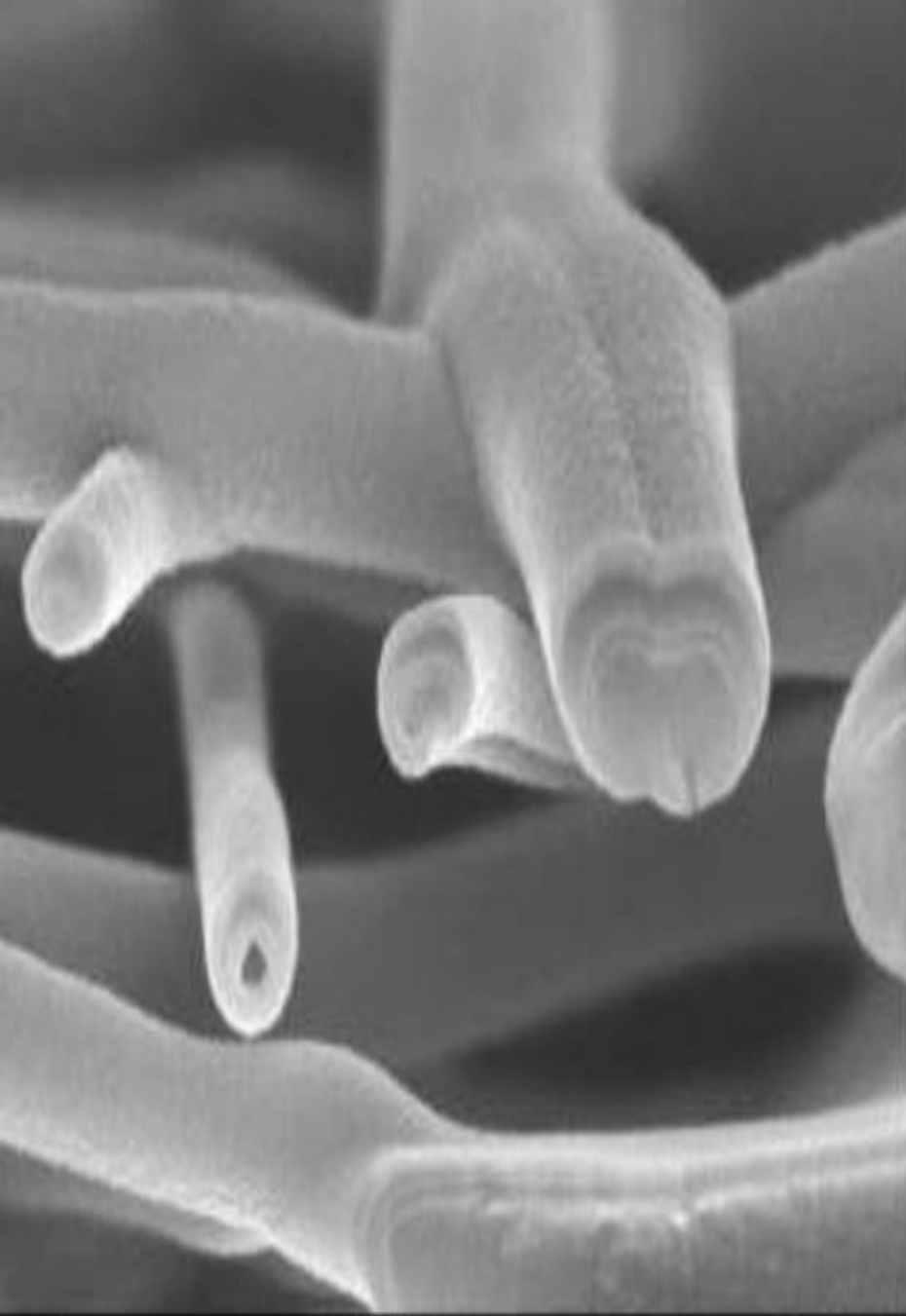
WD = 3.9 mm

Signal A = SE2

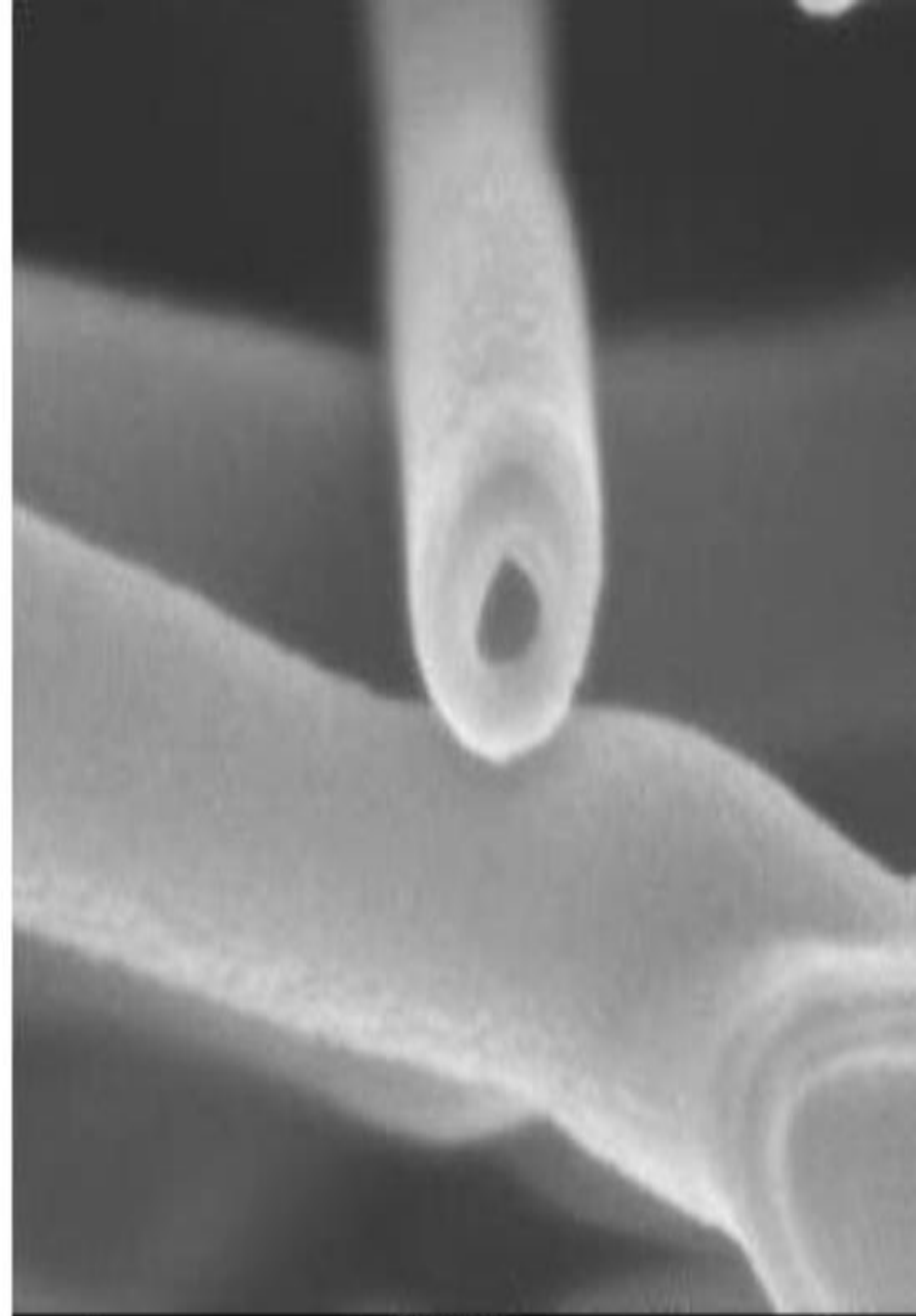
Date : 12 Mar 2013

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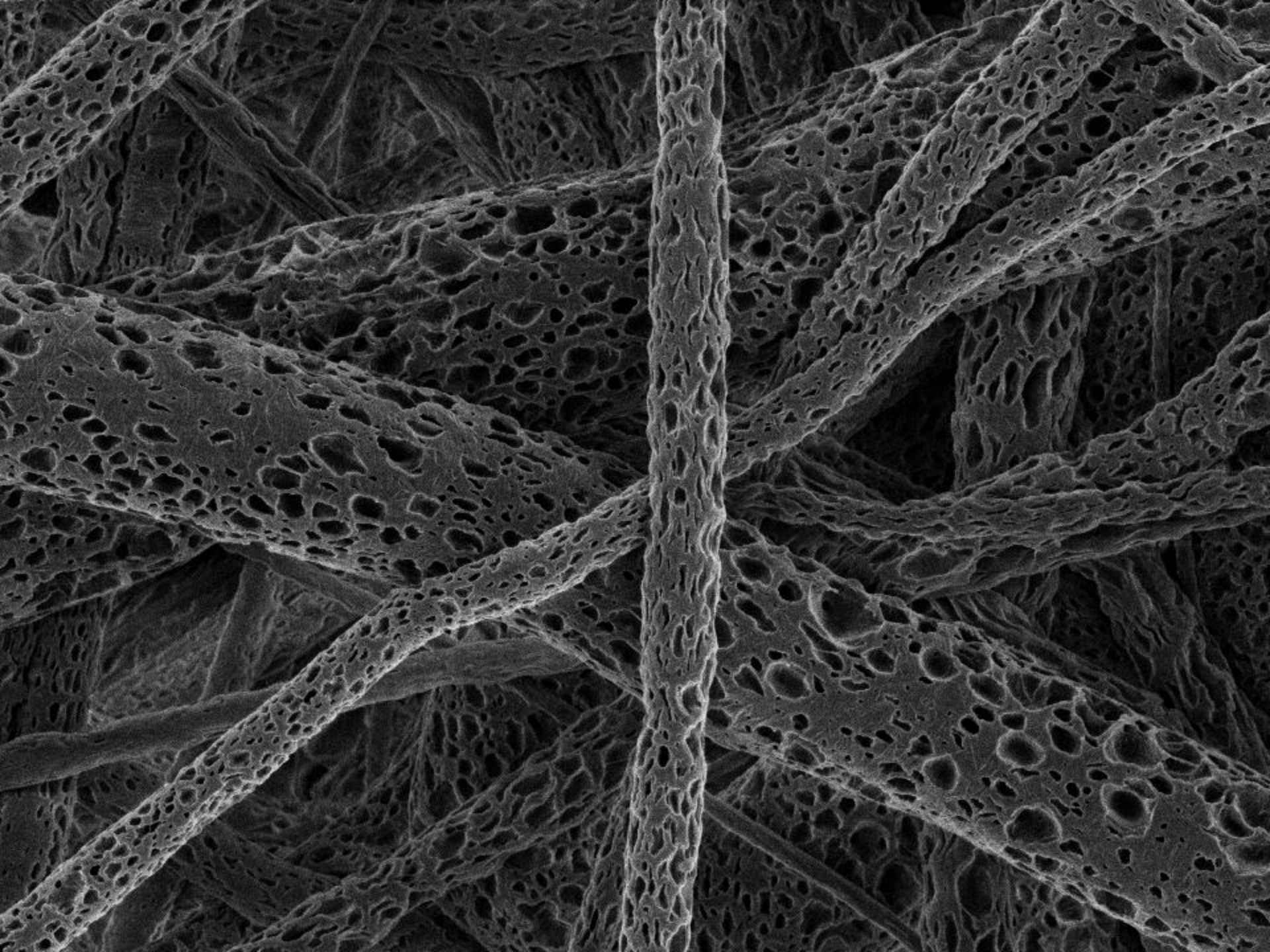




500 nm

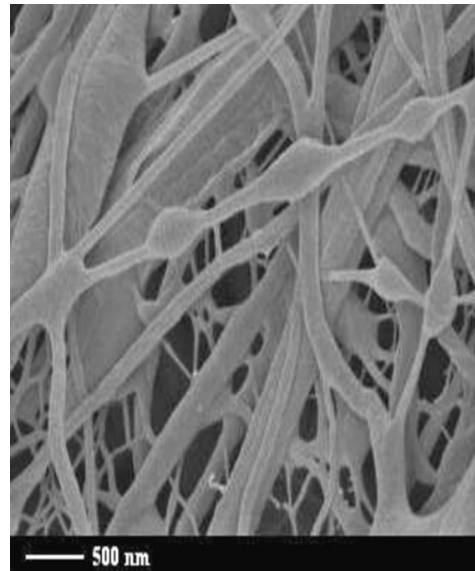


200 nm



Bi-component drug carrier.

1. Encapsulation of bioactive molecules into nanospheres.
2. Immobilization of nanospheres within the nanofibers.
3. Controlled release.



Contract research and consulting.

Pain therapy.

Topical
treatment

Tissue engineering.

Food
industry.

Drug
delivery.

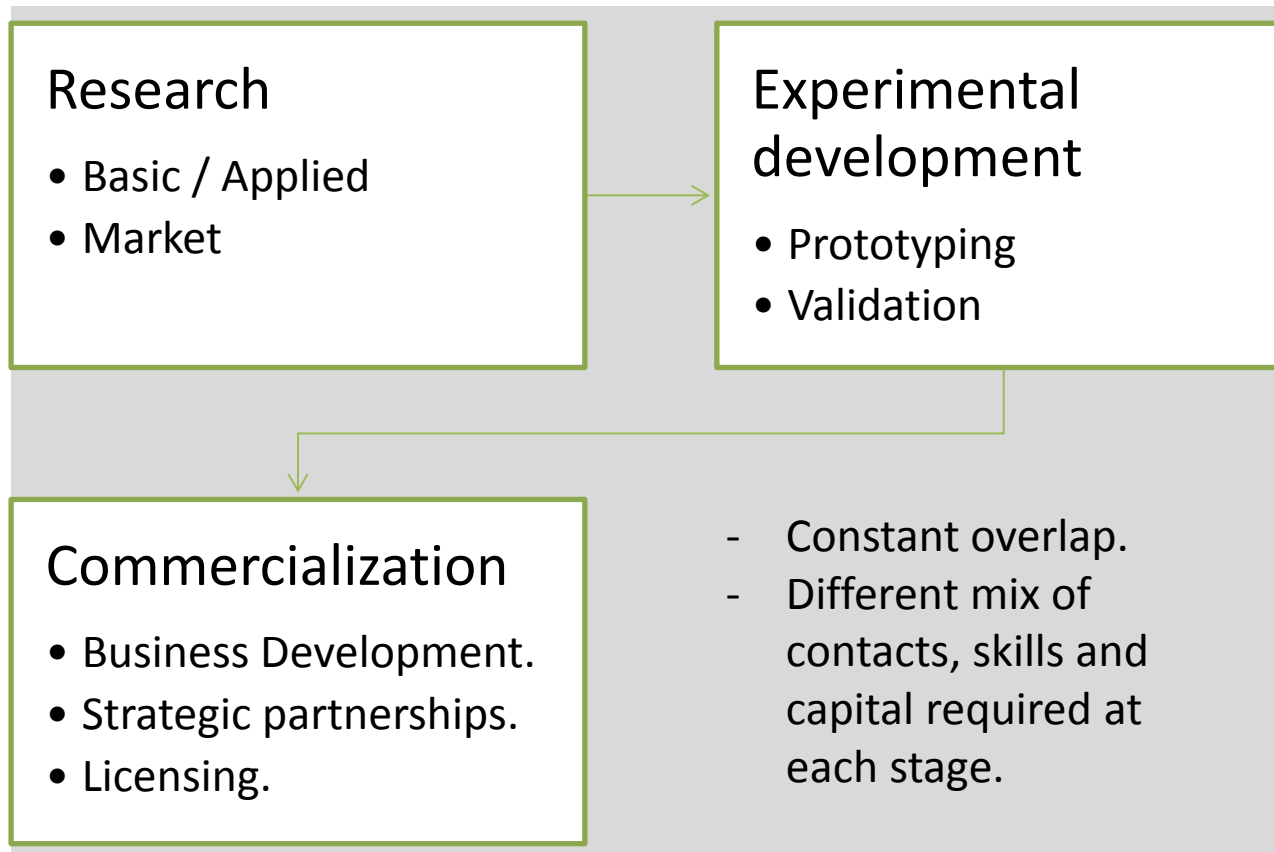
Surgical
tools.

Protective
clothing.

Packaging

Phyto-
ceutical.

Innovation process:



nanoprogres

The Czech-based nanotechnology cluster.

- The leading Czech-based nanotechnology cluster.
- 19 members (90% SMEs)
- Applied research only.
- Smart innovation vehicle.

SinBio

- Group of innovative SMEs in the field of regenerative medicine...
- Cell therapy, cell production, nanomaterials, clinical trials...

 **EponaCell**
stem cells for animal health

CellMaGel

 **Biolnova**, s.r.o.



6 collaborative projects of
applied research



Industry input for research
projects.



SME _
PHARMA

SME _
MACHINERY

SME _
CHEMICALS

SME _
PACKAGING

SME _
BIOTECH

+ 15 MORE



Advantages of clustering for SMEs

Increased innovation capacity.

Shared risk.

Shared cost.

Informal linkages and interaction.

Discovery of new niches.

Peer pressure.

Specialization.

Concentration of multidisciplinary skills and expertise.

Thank you for you attention!

www.nanopharma.cz

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