



Nano World Cancer Day 2016

Athens Barcelona Braga Dublin Frankfurt Gebze London Milan Paris Utrecht Vienna Zurich

**How is Nanomedicine concretely
changing cancer care for patients?**



February 2nd, 2016





The Nano World Cancer Day aims to...

- ✓ Raise **awareness** about nanomedicine and its reality for cancer treatments and diagnosis
- ✓ Highlight and federate national and regional **ressources** in nanomedicine
- ✓ Promote **dialogue** between all nanomedicine stakeholders

Growing interest and participation across the world!

#NWCD2016

www.nanoworldcancerday.eu



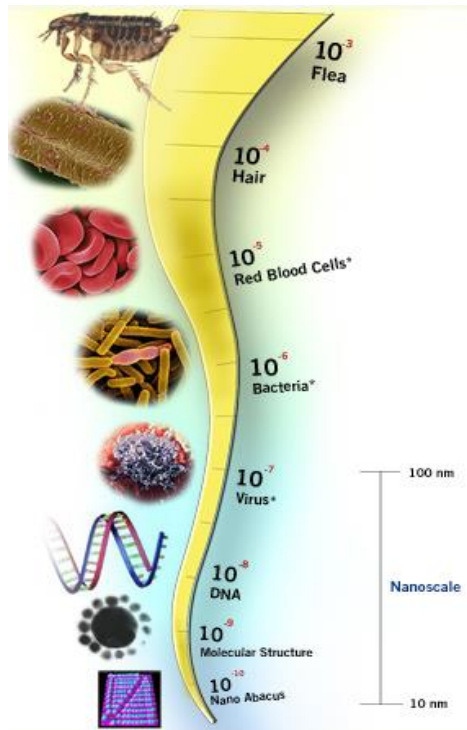
1- What is Nanomedicine?

2- What can Nanomedicine bring to cancer care?

3- What is the ETPN?

Nanomedicine: a definition

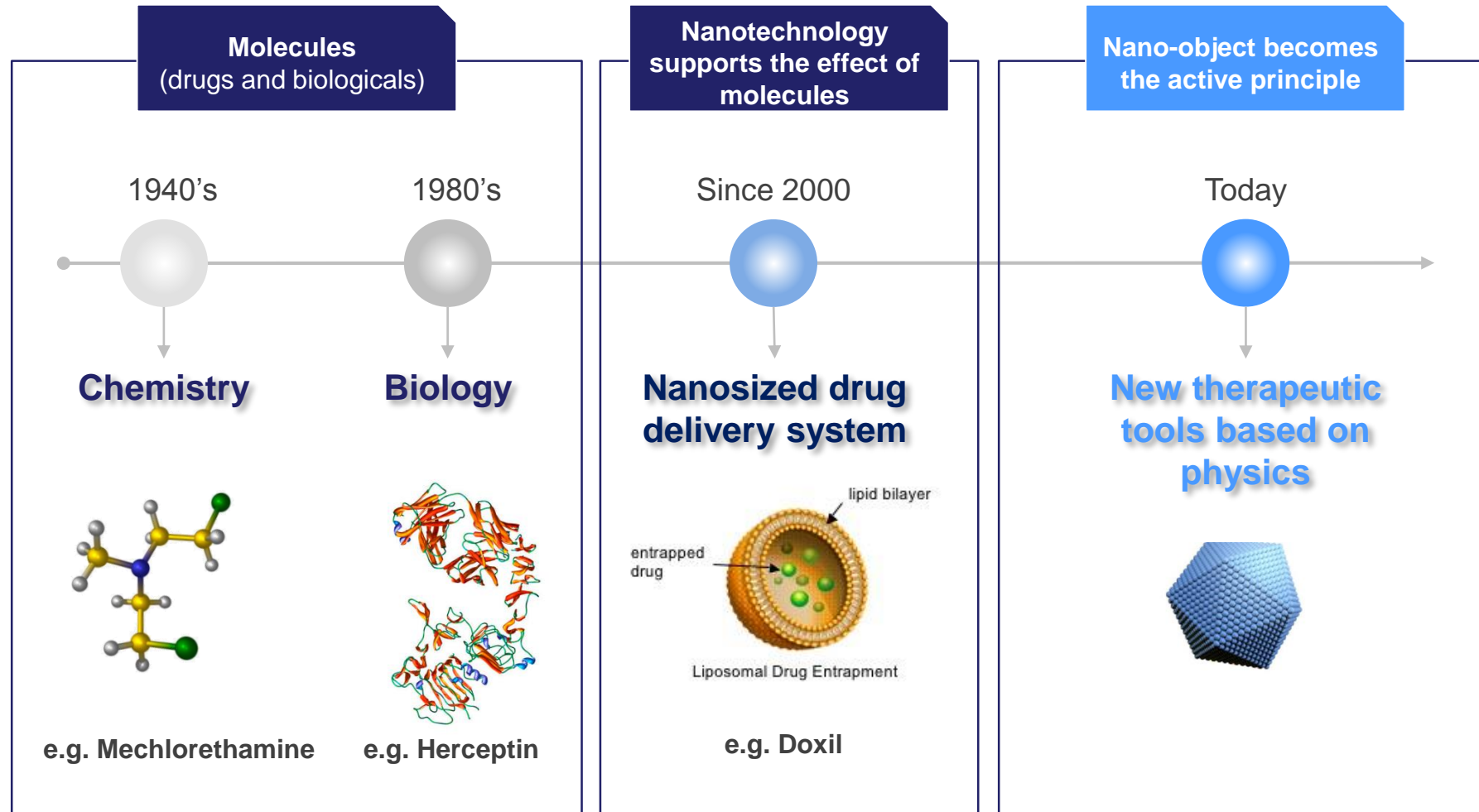
“Nanomedicine is the controlled application of nanotechnology to achieve breakthroughs in healthcare.”*



- ✓ Manufactured objects designed with tunable functions that can **interact at sub-cellular level**
- ✓ Thanks to the specific physical, chemical and biological **properties of materials at the nanometer scale**
- ✓ To improve **prevention, diagnosis, treatment and follow-up of diseases.**

* Definition of the *European Technology Platform on Nanomedicine*

Nanomedicine: new generations of therapeutics

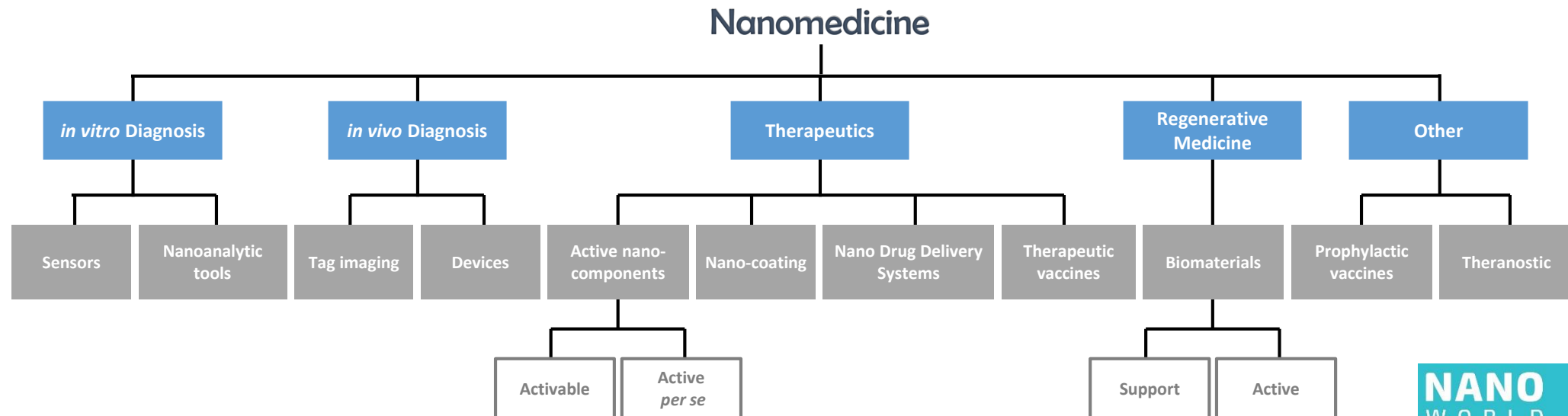


Biology

Physics

Nanomedicine has applications in all fields of medicine

New healthcare solutions to fight against :
Diabetes, Cardiovascular diseases, Neurodegenerative diseases,
Osteoarticular diseases, Infectious diseases... and **Cancer**.



Impacts of Nanomedicine

Economic

- Business:
 - ✓ **500+ SMEs in Nanomedicine in Europe**
 - ✓ 150+ in the US
 - ✓ Different Industries involved (pharma, biotech, chemistry, Med Tech. etc.)
- Market:
 - ✓ **100\$-130\$ billion** in 2016
 - ✓ **49 nanomedicine products** on the market
 - ✓ about **10% of total pharma sales**
- Pipeline:
 - ✓ **230+ nanomedicine currently tested in humans**
 - ✓ **70+ in oncology**

Societal

- Diagnostic tools and better treatments:
 - ✓ **More efficient** disease management options
 - ✓ With **less side-effects**
 - ✓ For a more cost-effective healthcare

Sources: ETPN, Bionest, LEEM



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Cancer: still a worldwide scourge

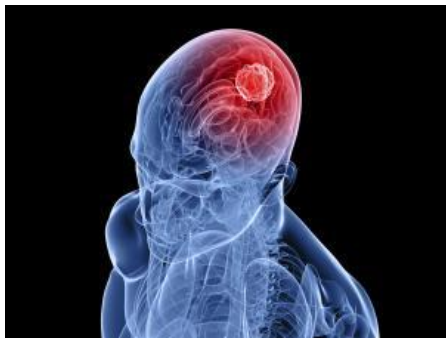
- Cancer is a leading cause of morbidity and mortality worldwide: **4 million new cases and 8.2 million cancer related deaths in 2012***.
- The number of new cases is expected to **rise by about 70% over the next 2 decades***.
- Unmet medical needs : despite great advances in treatment, cancer remains a **lethal disease in about half the cases diagnosed**.

* World Cancer Report 2014



Nanomedicine: a new paradigm in Cancer care

Diagnosis



Imaging

- **Earlier & more accurate diagnosis / monitoring**
 - Using nanoparticles improving the performances of ICT, RMI and fluorescence imaging techniques



Surgery

- **More precise surgery & scar-free surgery**
 - Using live imaging techniques with nanoparticles to better target tumor & metastases
 - Using nanotech. sealants

Treatment



Radiotherapy

- **More efficient and less toxic X-Rays**
 - Using nanoparticles to amplify and localize radiotherapy effects only inside tumor cells



Chemotherapy

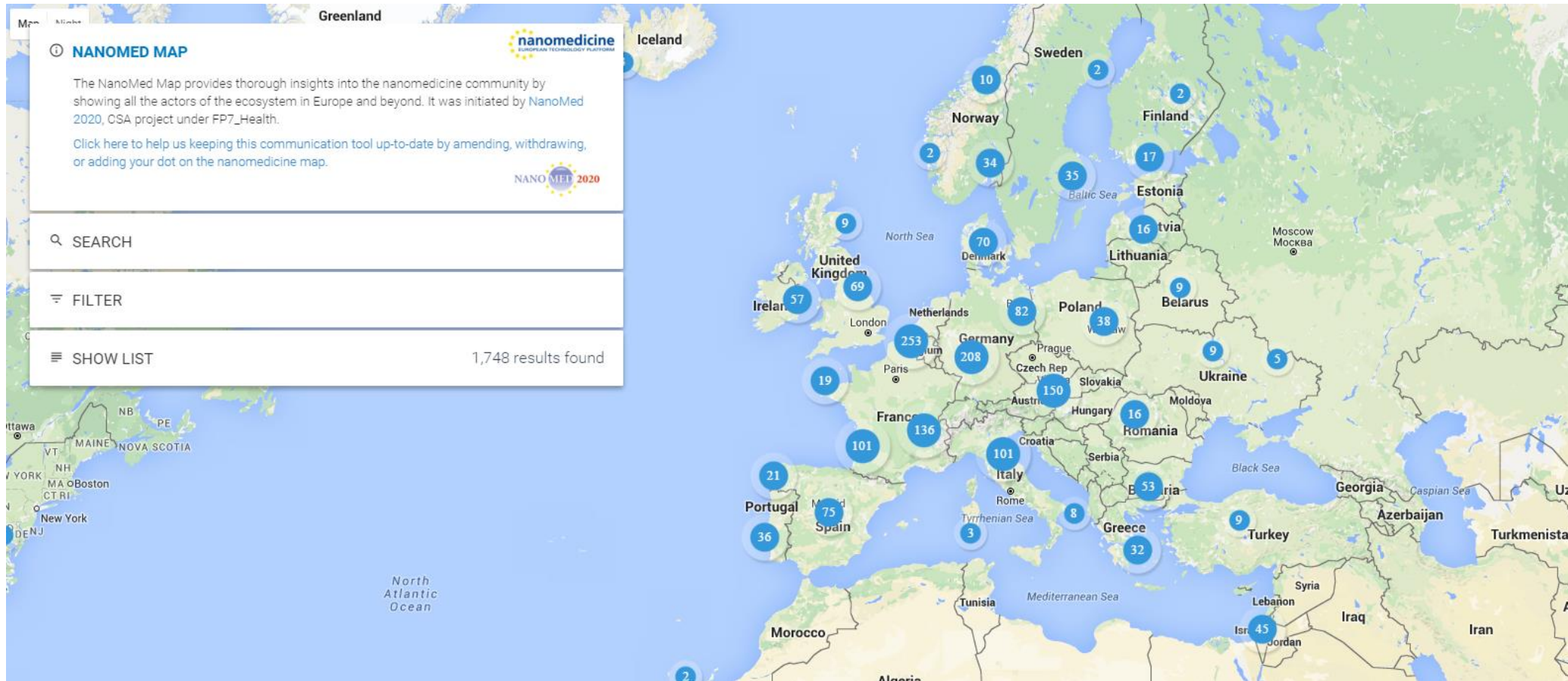
- **More efficient and less toxic drugs / biologicals**
 - Using nano-encapsulation of existing drugs and nano-enabled targeted delivery

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European NanoMed Map: 1500+ Nanomedicine actors in EU



www.etp-nanomedicine.eu/public/european-nanomedicine-map



What is the ETPN ?



« The European Technology Platform on Nanomedicine »

Mission : to shape and support the European ecosystem of Nanomedicine.

1 Define R&D priorities

2 Mobilize the stakeholders

3 Facilitate knowledge transfer

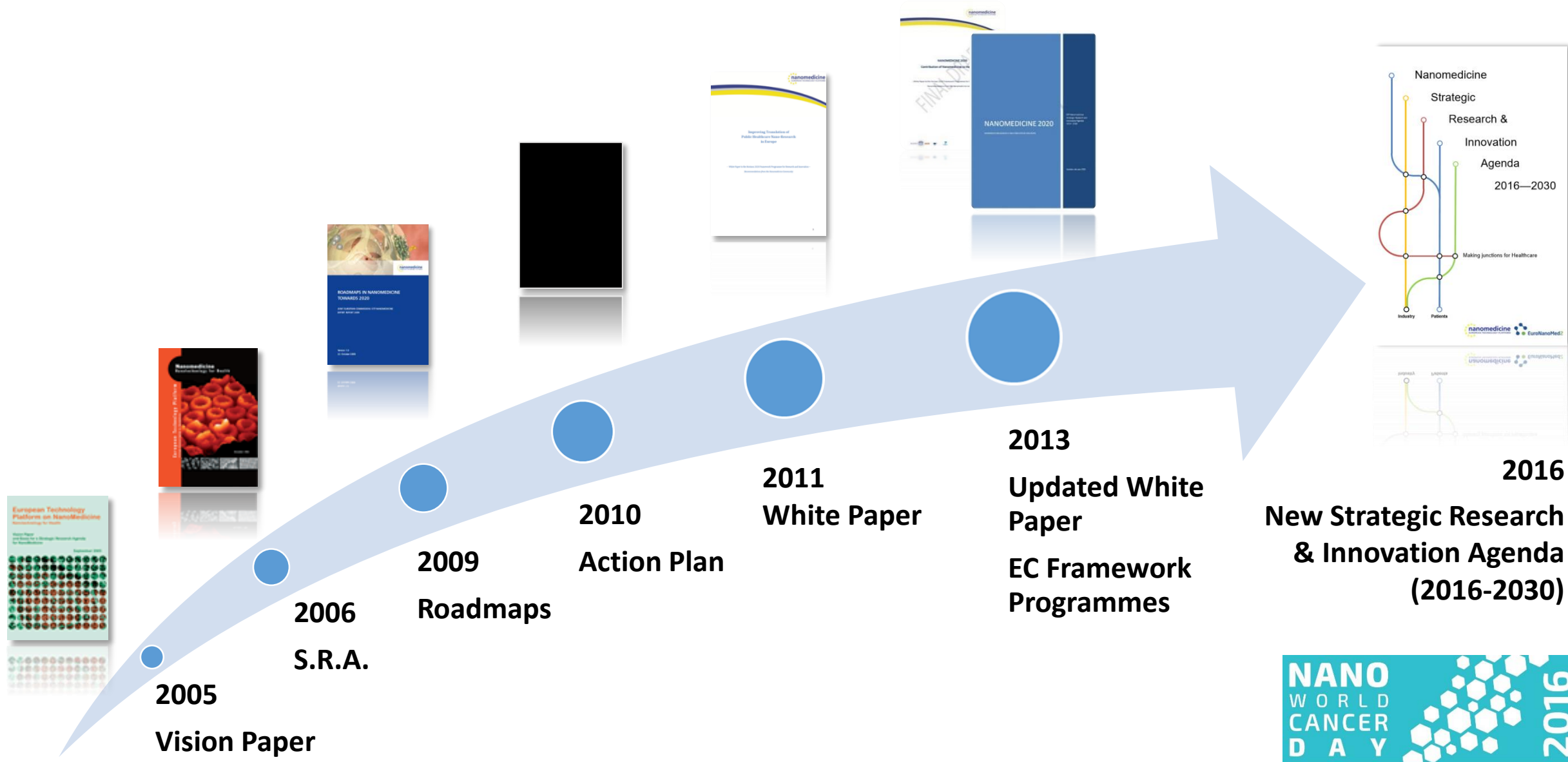


Headquarters of the ETPN Association at ESPCI, Paris

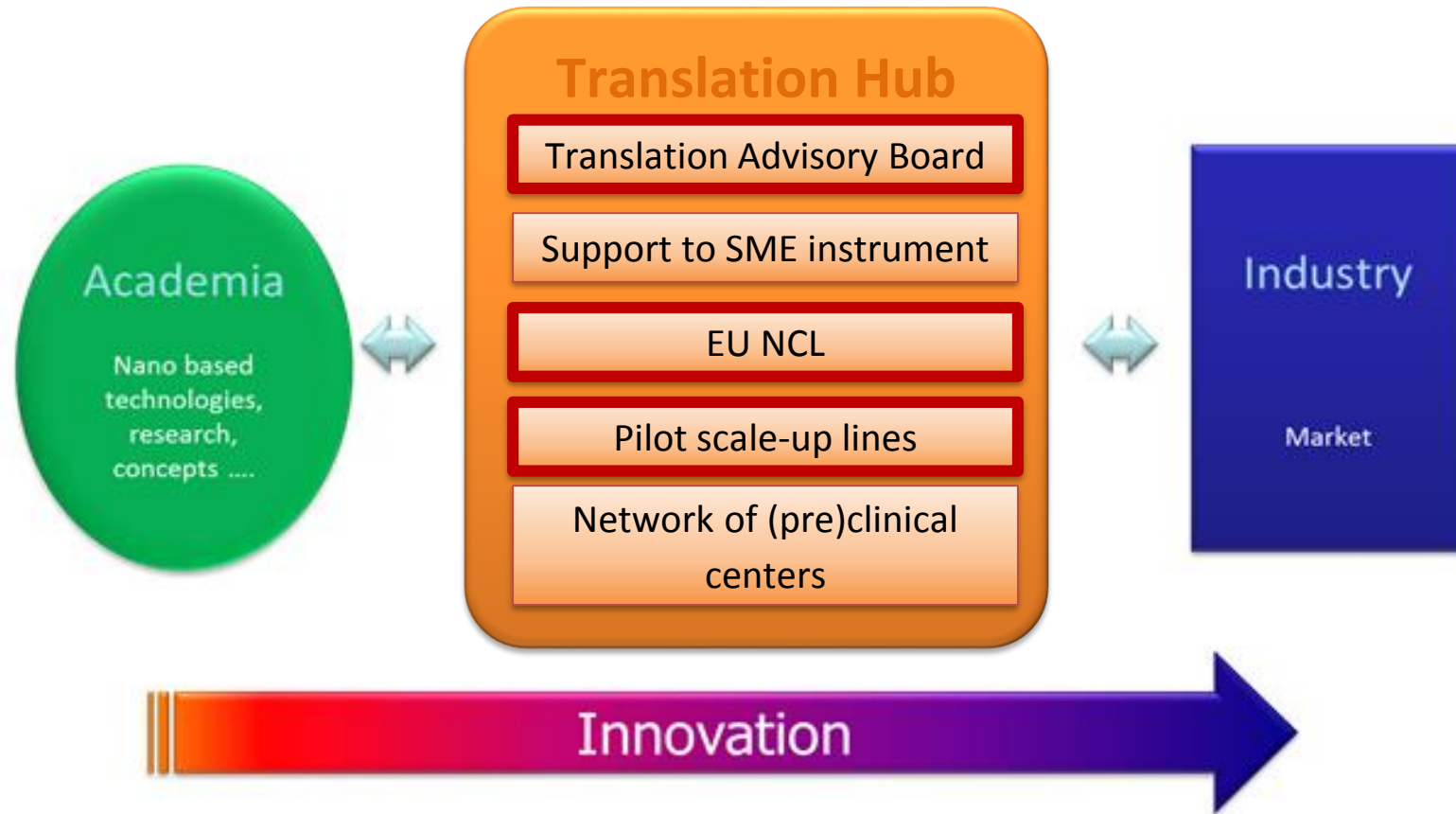
- **Created in 2005:** industry-led initiative with the **European Commission**
- **European association**, HQs in Paris, France
- **150+ Members** from 25 EU Member States:
 - ✓ SMEs
 - ✓ academia
 - ✓ clinicians
 - ✓ industry
 - ✓ funding agencies
 - ✓ institutions



ETPN is driving Nanomedicine in Europe



The Translation Hub: make patients benefit faster from the innovations of Nanomedicine.



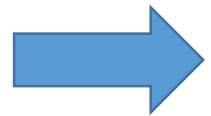
Central instrument of ETPN to support and accelerate the development of the best Nanomedicine projects

The Translation Hub: 3 concrete actions

- **The Translation advisory board** : free-of-charge mentorship for selected Nanomedicine projects by a group of top level industrial and clinical experts (started in 2015)
- **The EU- NCL** : free-of-charge service of full characterization for nanomedicine products by the best standards available, from physical (starts in 2016)
- **GMP Pilot lines** : up-scaling manufacturing of clinical batches of medical nanomaterials (started in 2015)

ETPN Action plan for 2016

- Continuing our strategic efforts to **highlight R&D&I priorities** in Nanomedicine
- Reinforcing the Translation Hub to **serve the entrepreneurs and SMEs** in Nanomedicine
- Liaising nanotechnologies for medicine with other **Key Enabling Technologies (KETs)**
- Opening ETPN to **international cooperation**



To drive nanomedical innovation in Europe



Thank you for your kind attention!

www.nanoworldcancerday.eu

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