

Nano World Cancer Day 2017

Nanomedicine: smart solutions to beat cancer

February 2nd, 2017

Fifteen simultaneous press conferences in Europe and beyond

Austria, Belgium, France, Germany, Iceland, Ireland, Israel, Italy, the Netherlands, Poland, Portugal, Spain, Switzerland, Turkey and UK

Organizer

Name
E-mail & phone number

Logo

#NWCD2017

www.nanoworldcancerday.eu

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NANO WORLD CANCER DAY 2017

“Nanomedicine: smart solutions to beat cancer”

Attending the Nano World Cancer Day press conferences, which are organized in the framework of the World Cancer Day, is a unique chance to discover the major improvements that Nanomedicine is bringing to the field of cancer care, from earlier and more accurate diagnosis to more efficient and less toxic treatments.

On the same day, the best Nanomedicine experts from 15 countries from Europe and beyond will deliver short speeches illustrating the latest breakthroughs in Nanomedicine and concrete improvements brought to patients fighting against cancer. These invited speakers are clinicians, researchers, entrepreneurs, institutions, etc.

Nanomedicine has already begun to change oncology and has the potential to revolutionize it in the coming years, thereby opening new and highly significant opportunities for the benefits of patients.

For the full international program, please visit our website www.nanoworldcancerday.eu.

2017's SPEAKERS in Country

Name of the speaker 1

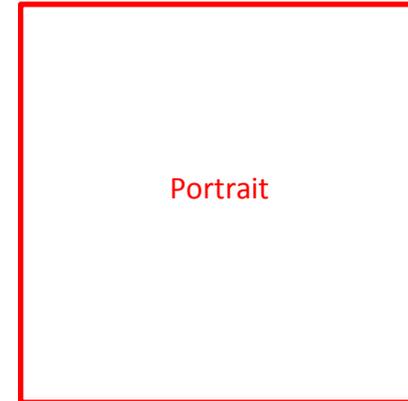
Title of the speaker

Job if relevant

Title or topic of the presentation

Short bio + key facts

Abstract (if needed)



Duplicate for each please

About you (local organizer)

Short presentation

Your website's link



FOCUS ON NANOMEDICINE AND CANCER

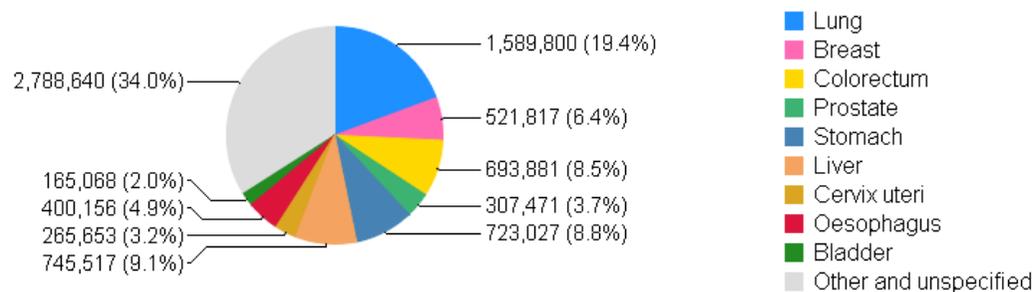
1. Cancer today: key facts and figures
2. What is Nanomedicine?
3. Nanomedicine and cancer

1. Cancer today: key facts and figures

The global cancer epidemic - Today and prospective

Cancer is a major cause of morbidity and mortality in the World, and its incidence has been steadily increasing since 1980. Cancer kills more people on a global scale than AIDS, malaria and tuberculosis combined and accounted **for 14 million new cases and 8.2 million related deaths in 2012**¹². In the Western World, cancer represents the second leading cause of death after cardio-vascular diseases. Moreover, the impact of cancer in the developing world is growing at an alarming rate. More than 70% of all cancer deaths already occur in low and middle income countries and these regions are projected to account for two thirds of all cases of cancer worldwide by 2050.

Mortality per type of cancer/year



Source: [Globocan 2012](#)

¹ Globocan 2012- Population Fact sheet. Available from: http://globocan.iarc.fr/Pages/fact_sheets_population.aspx

² World Cancer report 2014

There are significant regional differences in cancer prevalence, but the biggest cancer killers worldwide are lung cancer (1.6 million deaths in 2012), liver cancer (745,000 deaths in 2012), stomach cancer (723,000 deaths in 2012), colorectal cancer (693,000 deaths in 2012), and breast cancer (522,000 deaths in 2012)¹.

The number of cancer cases and related deaths worldwide is **estimated to double over the next 20 to 40 years**.

In addition to the unfortunate impact on loss of life, the economic impact of cancer is huge. Currently it is estimated that the disease costs of cancer across the world was approximately **\$290 billion in 2010 - \$154 billion of which were medical costs**³.

³ WEF report available at: http://www.world-heart-federation.org/fileadmin/user_upload/documents/Advocacy/Resources/Articles_Series_Reports/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf (9 November 2011)

2. What is Nanomedicine?

Small is smart

The nanometer scale, 10^{-9} m: imagine, one millimeter divided into a million parts!

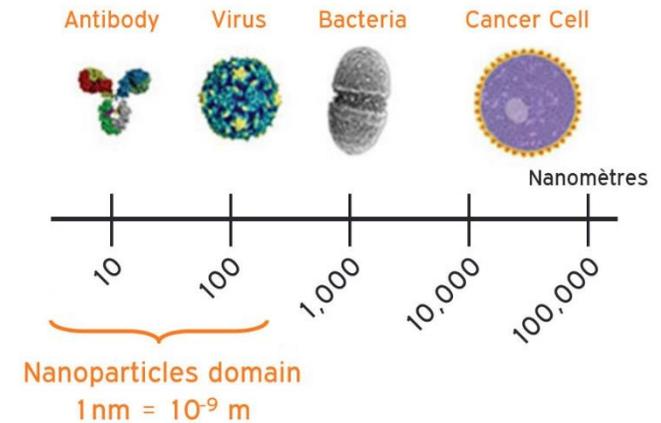
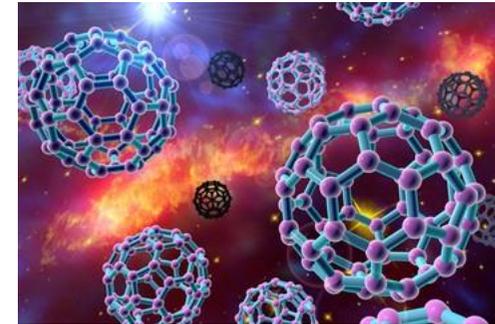
Nanomedicine is the controlled **application of nanotechnology** to achieve **breakthrough innovations in healthcare**.

Physical properties of materials change at the nanometer scale. Nanomedicine exploits these specific properties to change healthcare treatment paradigm.

Nanomedicine allows the design of smart manufactured objects showing a high surface / volume ratio, with tunable size and structure to penetrate and target specific tissues in the body, and tunable functions (heating, cutting, etc.) to impact the biological process that lead to diseases.

Nanomedicine technologies

The first generation of Nanomedicine products can improve the efficiency and safety of chemicals and biological based treatments. Nano-carriers encapsulate drugs to make them reach with higher accuracy their target the tumor, thus simultaneously improving treatment efficiency and reducing drug related toxicity.



In parallel, the second generation of Nanomedicine, do not involve drugs anymore. Since then, these new nanoparticles are by themselves, the active principle bringing a therapeutic effect to the target, notably through physical effects.

Nanoparticles are also used as innovative contrast agents to improve the performances of imaging techniques as Magnetic Resonance Imaging (MRI), Computed Tomography (CT) scan and fluorescence imaging.

These very innovative agents enable an earlier and more efficient diagnostic.

Christopher Guiffre, Chief Business Officer at nanotherapeutic developer Cerulean Pharma⁴ predicted that: “Five years from now every pharma will have a nano program”, Christopher Guiffre, Chief Business Officer at nanotherapeutic developer Cerulean Pharma⁵.

We share his view...

3. Nanomedicine and Cancer

Nanomedicine has already the potential to achieve breakthrough innovations to diagnose and treat cancer, 20 nanoproducts in oncology are already on the market worldwide and 30 are under development⁶. In Europe, major actors are progressing very well as Ciber BBN (Spain), Guerbet & Radboud University (France/Netherlands), Nanobiotix (France), Nycomed (Switzerland), Medigen/SynCoreBiotechnologies (Germany), University College of London (UK), etc.

According to Laurent Levy, ETPN vice-chairman and CEO of the Nanomedicine SME Nanobiotix: “A great wave of innovation is coming with a disruptive potential. De-risking projects and developing data becomes essential, and even more key is bringing these programs to a stage where pharma can understand them”.

⁴ <http://www.partnering360.com/insight/showroom/id/428>

⁵ <http://www.partnering360.com/insight/showroom/id/428>

⁶ ENATRANS- Study about worldwide Nanoproducts pipeline

The Nanomedicine experts speaking at the Nano World Cancer Day will share with you the latest and the most disruptive innovations in Nanomedicine. Numerous Nanomedicine products are already available on the market to treat cancer, and much more are under clinical development.

Nanomedicine and diagnosis in oncology

Early detection of cancer cells is a major opportunity for an accurate diagnosis and efficient treatment. It drastically improves the chance of survival and recovery of patients.

Nanoparticles can also be used to enhance the signal and better detect cancer biomarkers. These are molecules indicative of the presence of cancer in the body, whether produced by the tumor itself or by the body as a specific response to the presence of the tumor.



Nanomedicine: new paradigm, new treatments for cancer patients

Despite a better prognosis for several tumor locations thanks to major therapeutic improvements over the past several decades, cancer is still a fatal disease in approximately 50% of the diagnosed cases.

Surgery, radiotherapy and chemotherapy are currently the most common treatment options to fight against cancer. Depending on each individual patient's profile of disease, these major therapies are commonly used either alone or in combination.

Some Nanomedicine products and technologies already improve these therapeutic approaches and news products in development have the potential to do much more for patients in the coming years.



Surgery

Live imaging techniques combined with nanoparticles can help the surgeon to localize and resect more precisely tumor tissues and metastases, thus increasing the efficacy and safety of cancer surgery.

Nanomedicine tools for surgery could also impact cancer patient's quality of life, notably by limiting the impact of scars and recovery.



Radiotherapy

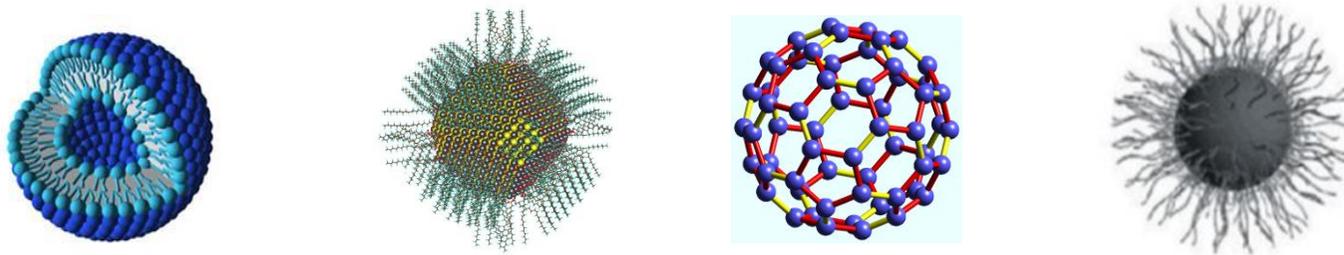
Radiotherapy is a local treatment widely used in most oncology indications: about 60% of cancer patients receive radiotherapy at some point of their treatment.

The second generation of nanoparticles can be a game changer in radiotherapy. How?

Radiotherapy aims at killing cancer cells by delivering energy through X-ray radiations. It has been proved that nanoparticles once injected into tumor cells, increase the dose of energy delivered and then improve potentially drastically the efficiency of radiotherapy.

Chemotherapy

The first generation of Nanomedicine products can improve chemotherapy by smart drug-delivery. Thus, the encapsulation of a drug into nanoparticles carriers helps to deliver the active molecules directly where it is relevant in the body. Doing so, enhances the efficacy of the treatment by maximizing the drug uptake into cancer cells and lessens the toxicity and side effects.



Different nano drug delivery systems for encapsulating chemotherapy drugs

Combinations

Beyond surgery, radiotherapy and chemotherapy, other treatments can be used in combination as immunotherapy or hormonal therapy.

Nanomedicine figures at a glance

In 2012, the Nanomedicine market was valued at \$78.54 billion⁷ and is planned to reach \$177.6 billion by 2019⁴, \$344 billion by 2024⁸ and \$1 300 billion by 2025⁹.

- **In 2013, 230 Nanomedicine products were identified** on the market or under clinical development for different therapeutics areas including cancer, diabetes, cardiovascular, neurodegenerative, orthoarticular, infectious diseases, etc.¹⁰
- **Focus on oncology:**
 - Oncology is the leading application area of Nanomedicine products⁷
 - In 2013, 78 products were identified under clinical development or into the market (including first generation of Nanomedicine products like Abraxane, Doxil, DaunoXome, Evacet, Lipo-Dox, MyCare Assays, NanoTherm).⁷

⁷ <http://www.transparencymarketresearch.com/pressrelease/Nanomedicine-market.htm>

⁸ <https://www.grandviewresearch.com/press-release/global-Nanomedicine-market>

⁹ <http://www.businesswire.com/news/home/20160804005610/en/Global-Nanomedicine-Market-Analysis-Trends-Report-2016>

¹⁰ www.etp-Nanomedicine.eu/public/press-documents/publications/public-documents/bionest-partners-2014-Nanomedicine-study-leem/Rapport%20final%20version%20definitive.pdf



ETPN: An European Organization to make Europe the leader of Nanomedicine

- 1. What is ETPN?**
- 2. ETPN promotes Nanomedicine internationally**
- 3. A “Translation Hub” to accelerate the development of Nanomedicine**
- 4. Examples of the latest actions addressed to academic researchers and SMEs**

1. What is ETPN?

The ETP Nanomedicine (ETPN) is a European initiative led by industry since 2005 and set up together with the European Commission, to address the application of nanotechnology in healthcare.

The ETPN mission is to **shape and support the European ecosystem of Nanomedicine**. The ETPN defines strategic R&D priorities, promotes Nanomedicine (see paragraph 2) and stimulates knowledge transfer to accelerate the translation of the best innovative projects to the market, for the global benefit of patients and European citizens.

The ETPN believes that involving industry will accelerate the development of promising ideas, and provide the effective and safe healthcare products that patients demand.

The ETPN is officially recognized as an “ETP”, which is a key element in the European innovation ecosystem and a main bridge between the community and the European Commission **to design and implement Research Work Programs**.

In 2015, the ETPN located its Secretariat in central Paris, in the campus of the ESPCI (Ecole Supérieure de Physique et Chimie Industrielle de la Ville de Paris).

The **association gathers today more than 120 members in 25 different European countries, covering all stakeholders of Nanomedicine**: academia, SMEs, industry, healthcare providers, public agencies, representatives from national platforms, public institutions and the European Commission, etc.

The strategic research priorities of the ETP Nanomedicine represent the core fields of interest and activities of the members of the technology platform: Regenerative Medicine and Biomaterials, Nanotherapeutics (including drug delivery), Nano medical devices and Imaging.

2. ETPN promotes Nanomedicine internationally

The ETPN steadily highlights the resources of the European Nanomedicine community as well as the more innovative concepts, teams, and entrepreneurs in Nanomedicine. Doing so, it aims at raising awareness about the Nanomedicine revolutions. Here are two concrete examples of ETPN actions to promote Nanomedicine internationally, on top of the NWCD:

- The NanoMed Map¹¹ introduces on a single interactive chart all the Nanomedicine ecosystem's actors in Europe. This map is available on the ETPN website and displays 2100 worldwide actors in the field of Nanomedicine. Overall, more than 500 industrial players and SMEs having a direct link or activity with the field have been identified.
- The Nanomedicine Award¹² honors the best international Nanomedicine innovation projects. It recognizes and promotes the best Nanomedicine-based solutions having the potential to bring new diagnostic and therapeutic approaches to address unmet medical needs. Every year, exceptional international projects applied and most of them proposed cancer treatment solutions.

3. A “Translation Hub” to accelerate translation

ETPN published in 2013 a White Paper: “Nanomedicine Contribution to Horizon 2020” a series of concrete and strategic recommendations¹³.

The pivotal feature of the White Paper is the **Nanomedicine Translation Hub**, currently operating for more than one year, which goal is to **accelerate the development and the translation of the best Nanomedicine projects** and make Europe the leader in Nanomedicine thanks to a global set of concrete tools:

¹¹ <http://www.etpn-nanomedicine.eu/public/nanomedmap/>

¹² <http://nanomedicine-award.com>

¹³ ETPN White Paper available at: www.etpn-nanomedicine.eu/etpn-white-paper-2013

- MENTORING > The Nanomedicine **Translation Advisory Board (TAB)**¹⁴: a group of first in class experts provide free-of-charge concrete and invaluable advice, support and mentoring to very strongly selected innovative and ambitious Nanomedicine projects (from academia and SMEs).
- CHARACTERIZATION > The European **Nano-Characterization Laboratory (EU-NCL)**¹⁵ performing free-of-charge pre-clinical, physical, chemical and biological characterization of nanomaterials to accelerate and facilitate regulatory approval of Nanomedicine products.
- MANUFACTURING > Specific **European Pilot lines** for good manufacturing processes (GMPs) of batches for clinical trials, addressing the current developmental and production gap between academic and industrial settings, and facilitating scale-up for clinical trials of nanomaterials, from gram to kilogram.

4. Examples of the latest actions addressed to academic researchers and SMEs

- ✓ **VISION:** ETPN has published in 2016 the updated Strategic Research and Innovation Agenda (2016-2030) (SRIA)¹⁶, in collaboration with an ERA-NET on Nanomedicine (Euro Nanomed), to support the European Nanomedicine research community by providing a concrete framework as:
 - Presenting the priorities for research, including detailed **recommendations for R&D topics on selected diseases**
 - Focusing on **the importance of translation of research results** to move faster from the lab proof or concept to a product for patients
 - Drawing the long-term vision of the Nanomedicine innovations developed for healthcare, in a cross-technology for healthcare perspective
- ✓ **NETWORKING:** Just in 2016, ETPN has organized an international conference and 4 scientific webinars, co-organized or participated into more than 15 major events regarding the Nanomedicine community and the area Innovation for healthcare.

¹⁴ www.nanomedtab.eu

¹⁵ www.euncl.eu

¹⁶ <http://www.etp-nanomedicine.eu/public/news-events/newsletter/articles/available-update-of-the-strategic-research-and-innovation-agenda-a-vision-of-Nanomedicine-in-europe-for-2016-2030>

- ✓ **FUNDING OPPORTUNITIES:** ETPN regularly promotes, from the European Commission and all other relevant initiatives, the calls for applications for Nanomedicine projects and open consultation into the field. Brokerage sessions are also organized.
- ✓ **EDUCATION:** ETPN works in close collaboration with the Nanomed TAB to encourage the innovative project holders at improving their skills to pitch their projects, aiming to raise more awareness towards the best innovations of the field

In Country NANO BEST-OF at a glance

Your logo and/or
Technology or product
picture

Name institution *Here*

Type *Select between: SME, Big company, Public Laboratory or Other*

Concept/ technology:

Present in a short paragraph (max. 150 words) the concept and/or the technology and products

Website *Here*

Name institution *Here*

Type *Select between: SME, Big company, Public Laboratory, Other*

Concept/ technology:

Present in a short paragraph (max. 150 words) the concept and/or the project/technology and products

Website *Here*

Your logo and/or
Technology or product
picture

Website

www.nanoworldcancerday.eu



In Country NANO BEST-OF at a glance

<p>Your logo and/or Technology or product picture</p>	<p>Name institution <i>Here</i></p>
	<p>Type <i>Select between: SME, Big company, Public Laboratory or Other</i></p>
	<p>Concept/ technology: <i>Present in a short paragraph (max. 150 words) the concept and/or the project/technology and products</i></p>
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<p>Concept/ technology: <i>Present in a short paragraph (max. 150 words) the concept and/or the project/technology and products</i></p>	
<p>Website <i>Here</i></p>	

Website

If you are looking for more Nanomedicine actors in **Country** please visit our Nanomed Map <http://www.etp-nanomedicine.eu/public/nanomedmap>

www.nanoworldcancerday.eu



COORDINATORS AND CONTACTS

About ETPN

Created in 2005, the European Technology Platform on Nanomedicine is an initiative led by Industry and set up together with the European Commission to address the applications of nanotechnology to achieve breakthroughs in healthcare. The ETPN is structuring and federating the European Nanomedicine community and leading the communication toward the European Commission and the European Members States.

The ETPN contributed to set up numerous European funded projects providing a first impression of economic environment and the structural requirements for an efficient translation of R&D results into innovative Nanomedicine.

For more information visit: www.etp-nanomedicine.eu



About ENATRANS

ENATRANS is led by a consortium of 7 partners belonging to the European Technology Platform for Nanomedicine.

It has been built to help the translation of innovative projects related to Nanomedicine to successfully go through the different stages of development from the idea to the patients and improve global knowledge on Nanomedicine.



The key corner stone of ENATRANS is the Translation Advisory Board (TAB) a new instrument to provide free of charge advice and support to ambitious European Nanomedicine projects. First-in-class recognized experts from industry deliver concrete and invaluable advice to drive selected Nanomedicine projects into innovative products for healthcare.

ENATRANS partners: CEA-LETI (Grenoble, France), Nanobiotix SA (Paris, France), Gesellschaft für Bioanalytik Muenster e.V. (Muenster, Germany), Tel-Aviv University (Tel-Aviv, Israel), Fondazione Don Carlo Gnocchi ONLUS (Milan, Italy), TecMinho (Braga, Portugal) and coordinated by VDI/VDE-IT (Berlin, Germany).

For more information visit: <http://enatrans.eu/public>