



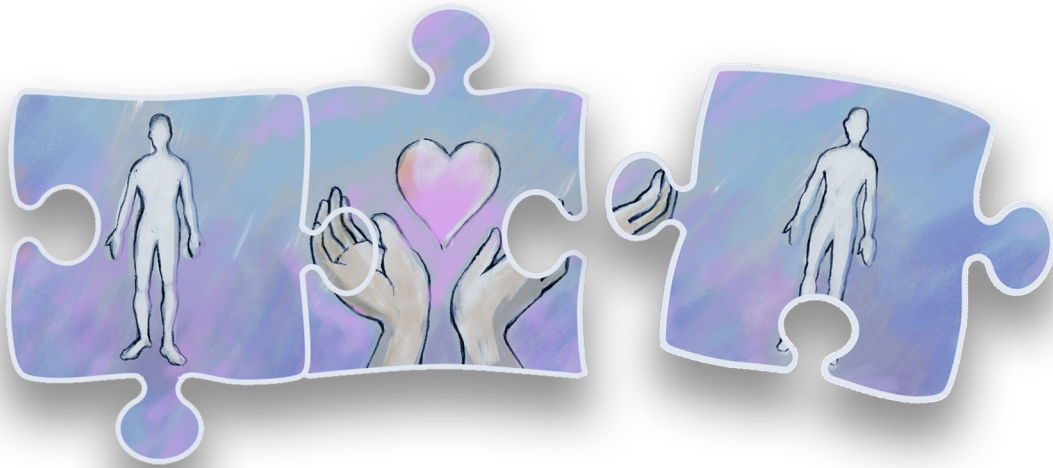
THE PONTIFICAL
ACADEMY OF SCIENCES



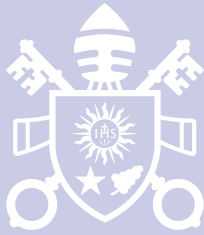
EUROPEAN ACADEMY
OF CANCER SCIENCES

CONFERENCE ON

Strategies to decrease inequalities in cancer therapeutics/care and prevention



23-24 FEBRUARY 2023 | CASINA PIO IV, VATICAN CITY



“Let us thank the Lord for the progress that medical science has made, especially in recent times; new technologies have made it possible to prepare therapies that are of great benefit to the sick; research continues to make a valuable contribution to eliminating old and new pathologies; rehabilitation medicine has greatly expanded its expertise and skills. None of this, however, must make us forget the uniqueness of each patient, his or her dignity and frailties. Patients are always more important than their diseases, and for this reason, no therapeutic approach can prescind from listening to the patient, his or her history, anxieties and fears. Even when healing is not possible, care can always be given. It is always possible to console, it is always possible to make people sense a closeness that is more interested in the person than in his or her pathology.”

Message of His Holiness Pope Francis,
XXX World Day of the Sick, February 11th, 2022

Concept note

Inequalities tend to be systemic and often entrenched in socio-economic and political structures within and across countries. In recent years, analyses of inequalities related to cancer therapeutics/care and prevention have shown important disparities between and within countries, including those with high economic standards. The conference will explore how to overcome disparities even in the present relatively unequal financial situation between countries.

Over the last decades, the impressive development of basic and technological research has offered unexpected clinical/prevention research opportunities. Still, the translation to cancer therapeutics/care and prevention is severely hindered by the sub-optimal structuring underpinning of clinical and prevention research necessary to develop personalized/precision cancer medicine. This situation has been the subject of several investigations in Europe. Lately, a collective attempt to overcome some of these problems has materialised with the launching by the European Commission of the Cancer Mission and the Europe's Beating Cancer Plan. The EU should further explore opportunities to engage in international scientific collaborations and action partnerships to reduce related inequalities. The US Moonshot initiative is an illuminating example attempting to bridge basic and clinical cancer research.

The conference will address some of the important factors behind inequalities and how to improve equal access to cancer therapeutics/care, diagnostics and prevention. The European Union (EU) and its Member States' efforts are timely and of global interest. However, the success of these efforts will heavily depend on the strategies used to invigorate and interconnect the complete cancer research continuum. The conference will also address cancer therapeutics/care and prevention internationally, including low-income countries.

Translational research bridges the gaps in the cancer research continuum from basic to clinical/prevention research and further to implementation and follow-up to assess effectiveness. Several gaps need to be bridged to achieve a coherent research continuum, and Comprehensive Cancer Centers (CCCs) and networks thereof constitute essential infrastructures for integrating therapeutics/care, prevention, research and education. The organisational complexity of the infrastructures needed to develop innovative treatments for the many subgroups of patients and individuals at risk poses major challenges, with the critical mass of patients, biological materials, technological resources and competencies as limiting factors. Structuring translational cancer research for all therapeutics/care and prevention components is necessary to achieve effective international innovation and decrease present inequalities.

New knowledge is acquired much faster in the basic and technological research areas than in clinical and prevention cancer research. This is exemplified by the fact that translational research is often referred to as crossing "the valley of

death", the large gap between basic research and translation to novel therapeutics. It is also illustrated by the concept of "P4 medicine" relevant for chronic diseases with cancer among them: cancer medicine should be "Preventive, Predictive, Personalized and Participative", but it is not.

Basic and technological research sets the agenda for innovation of clinical and prevention translational cancer research aimed at personalized/precision cancer medicine. A coherent bridging of basic and preclinical research and its integration with early clinical trials, is a primary responsibility for countries with well-developed basic research. Effective translational research covering late clinical, outcomes and health economics requires high-quality geographically spread infrastructures with good access to local patient populations. These facilities can boost expertise and enable capacity building, especially in underprivileged areas. The establishment of suboptimal infrastructures for research will rather aggravate than mitigate inequalities.

There is a good reason for the initiation of two comprehensive strategies, the Moonshot in the US and the Mission on Cancer in Europe. Despite advances made in cancer research over decades, the cancer problem is still increasing, both in incidence, prevalence and the number of patients dying from it. Expanding possibilities for both prevention and therapeutics are expected to come from basic/technological research. However, establishing a coherent and effective translational research continuum is a major challenge due to the complexity to effectively exploit the increasing number of promising innovations from basic research.

Cancer biology research is expected to provide new information on causes of cancer, relevant targets for early detection, identification of new tumour cell vulnerabilities, molecular pathology and stratification of patients for treatment, and rational combinations of anticancer agents paving the way for preclinical research.

Immunology research will lead to new insights to further develop immuno-oncology - immune-checkpoint inhibition, adoptive T-cell therapy, neoepitopes as targets for vaccination strategies, and the microbiome for immunomodulation.

Technological research will innovate diagnostics through new imaging technologies, radiation therapy, surgical and endoscopic advances, new developments in digitized pathology through omics and IT technologies, and digital data collection.

Data sciences will boost clinical and prevention research through computational approaches, including bioinformatics, modelling, systems and computational cancer biology, diagnostics, clinical trials and outcomes research.

A long-term goal is the structuring cancer activities in the EU member states to improve multidisciplinary treatment/care, prevention and research. Currently, personalized/precision cancer medicine development is impossible without strong infrastructure support, which cannot be es-



established in each centre. Sharing advanced infrastructures is mandatory both within and between countries. Access to sufficient numbers of patients, once stratification technologies for treatment will be more advanced, will further force international collaborations. With this perspective, each member state has to plan the implementation of Europe's Beating Cancer Plan, and the Mission on Cancer. The latter focusing on innovation, has to facilitate international research collaboration to establish a coherent cancer research continuum representing all therapeutics/care and prevention components.

A Comprehensive Cancer Center (CCC), as defined by the Organisation of European Cancer Institutes and the German Cancer Aid, should be established in each member state and in countries with large populations, preferentially with one CCC per 5 million inhabitants. To reach all patients, the CCCs have to assure that cancer patients in their surrounding geographic areas have access to the same high level of cancer care and involving clinical cancer centres and hospitals in research collaborations and education. Comprehensiveness means integrating cancer therapeutics/care, prevention, research and education to secure continuous innovation. For each country, research priorities should be defined and supported by the necessary infrastructures.

Presentations will discuss the concept of CCC and the implementation of translational research to develop personalized/precision cancer medicine in selected EU member states with focusing on infrastructures, as described at the European Cancer Research Summit in Porto, in May 2020. Examples of circumstances in other continents like Asia, Africa and Australia will be presented. The discussion will focus on the need for educational support, the expected difficulties and barriers.

An important goal of both Europe's Beating Cancer Plan and the Mission on Cancer is the reduction of present inequalities. Innovative translational research needs to be embedded in well-functioning healthcare and prevention organisations that foster new types of collaborations to achieve the necessary critical mass, a driving force towards

international research collaborations. All components of therapeutics/care and prevention should be targets for research. To achieve sustainability, long-term support for CCCs and collaboration between CCCs are mandatory. Consortia of CCCs should collaborate with basic/preclinical research centres and research-oriented hospitals. Sharing the most advanced infrastructures will support innovative research in the EU member states and help decrease inequalities between and within countries. Cancer Core Europe and Cancer Prevention Europe may serve as examples.

The number of consortia has to expand to cover the cancer research continuum properly. The clinical trials methodologies show increasing complexity from proof-of-concept clinical trials to next-generation clinical trials, clinical-practice changing trials and implementation research. Thus, different geometries regarding collaborations need to be explored. Consortia will be indispensable for the various components of prevention, immunotherapy, radiation therapy, innovative surgery, health-related quality of life research, outcomes research, health economics etc. Paediatric oncology is already organised in this way, but geriatric oncology is not.

Mitigating inequalities will also need the linking with insights into the economic consequences by outcomes research and health economics analyses. It is often more cost-effective to prevent than treat diseases, and treatment at an early stage of the disease is often more effective than at later stages. The basic idea of personalized/precision cancer medicine is "the right treatment for the right patient at the right time" to avoid unnecessary treatments and side effects. A stronger focus on the definition of evidence-based medicine, including survival and health-related quality of life, should lead to a decrease of treatments that lack sufficient evidence.

Support of the conference by the Swedish Embassy to the Holy See is gratefully acknowledged.



Programme

DAY 1

10.00-10.15	Welcome Joachim von Braun , President, PAS, Chair Peter Turkson , Cardinal, Chancellor, PAS Michael Baumann , President, EACS and German Cancer Research Center, Heidelberg, Germany
	Introduction Chair: Julio Celis , EACS and Danish Cancer Society Research Center, Copenhagen, Denmark
10.15-10.30	<i>A Mission on Cancer</i> Mariya Gabriel , European Commissioner for Innovation, Research, Culture, Education and Youth
10.30-10.45	<i>Inequalities in cancer care and prevention</i> Elisabete Weiderpass , EACS and International Agency for Research on Cancer (IARC), Lyon, France
10.45-11.00	<i>Addressing health disparities with the US Cancer Moonshot and beyond</i> Douglas Lowy , Deputy-Director of the US National Cancer Institute, US National Institutes of Health
11.00-11.15	<i>The patient perspective</i> Francesco de Lorenzo , EACS and European Cancer Patient Coalition, Brussels, Belgium
11.15-11.30	<i>Opening lecture: Main challenges for translational research aimed at personalized/ precision cancer medicine</i> Ulrik Ringborg , EACS Secretary General, and Cancer Center Karolinska, Stockholm, Sweden
11.30-12.00	Discussion
12.00-13.30	Lunch
Session 1 Innovative basic/ preclinical and technological research – the agenda for translational cancer research Chair: Edith Heard , PAS and European Molecular Biology Laboratory (EMBL), Heidelberg, Germany	
13.30-13.45	<i>Cancer biology and immunology are the drivers for the development of preclinical and early clinical research</i> Olivier Michielin , CHUV Centre Hospitalier Universitaire Vaudois, Lausanne, Switzerland
13.45-14.00	<i>Technology- and data-driven precision cancer medicine</i> Olli Kallioniemi , EACS and Science for Life, Laboratory, Stockholm, Sweden
14.00-14.15	<i>Cell biological approaches in cancer treatment</i> Edward M. de Robertis , PAS and University of California, Los Angeles, USA
14.15-14.30	<i>Targeted gene therapies: from the laboratory to the bedside</i> Charles L. Sawyers , Memorial Sloan Kettering Cancer Center, New York, USA
14.30-14.45	<i>The technological development for innovation of radiation therapy</i> Mechthild Krause , EACS and Karl Gustav Carus University Hospital, Dresden, Germany
14.45-15.00	<i>The role(s) of data science for future biological and clinical cancer research</i> Jan Korbel , EACS and European Molecular Biology Laboratory, Heidelberg, Germany
15.00-15.15	<i>Strategies to process basic research innovations towards preclinical and early clinical research</i> Edith Heard , PAS and European Molecular Biology Laboratory, Heidelberg, Germany
15.15-15.45	Discussion
15.45-16.15	Break



Session 2

Current situation and examples of national structuring of cancer activities in EU member states and beyond

Chair: **Alexander Eggermont**, EACS and Prinses Maxima Centrum voor Kinderoncologie, Utrecht, Holland

16.15-16.30	<i>The concept of Comprehensive Cancer Center – multidisciplinary cancer care and innovation</i> Simon Oberst , Organisation of European Cancer Institutes, Brussels, Belgium
16.30-16.45	<i>Development of a national research landscape in Germany</i> Michael Baumann , EACS and German Cancer Research Center, Heidelberg, Germany
16.45-17.00	<i>Structuring cancer activities in Portugal</i> Rui Henrique , Porto Comprehensive Cancer Center, Portugal
17.00-17.15	<i>Improving access to cancer care in India</i> Mammen Chandy , Tata Medical Center, India
17.15-17.30	<i>Structuring cancer activities towards personalized/ precision cancer medicine in Africa</i> M. Iqbal Parker , University of Cape Town, South Africa
17.30-17.45	<i>Structuring cancer activities towards personalized/ precision cancer medicine in Australia</i> David Thomas , Garvan Institute of Medical Research, The Kinghorn Cancer Centre, Sydney, Australia
17.45-18.00	<i>Structuring cancer activities towards personalized/precision cancer medicine in China</i> Huanming Yang , Beijing Genomics Institute (BGI), Shenzhen, China  by Zoom Paper read by Prof. Frederick Charles Dubee
18.00-19.00	Discussion
19.15	Dinner at Casina Pio IV



DAY 2

Session 3

How to exploit innovation as the driver to reduce inequalities

Chair: **Anton Berns**, EACS and Netherlands Cancer Institute, Amsterdam, Holland

- 08.30-08.45 *The organisation of cancer research to reach the critical mass and share advanced infrastructures – Consortia of Comprehensive Cancer Centres (CCCS)*
Anton Berns, EACS and Netherlands Cancer Institute, Amsterdam, Holland
-
- 08.45-09.00 *Inequalities in cancer research – improved science with improved outreach*
Peter Nagy, EACS and National Institute of Oncology, Budapest, Hungary
-
- 09.00-09.15 *Structuring sharing of infrastructures and patients for precision cancer medicine clinical trials in Norway*
Åslaug Helland, Institute of Clinical Medicine, Oslo, Norway
-
- 09.15-09.30 *Cancer Prevention Europe, a consortium for cancer prevention research*
Joachim Schüz, EACS and International Agency for Research on Cancer, Lyon, France
-
- 09.30-09.45 *Prevention, early detection and treatment of cancers caused by bacteria and viruses in the Asia-Pacific region*
Chien-Jen Chen, Academia Sinica, Taipei, Taiwan  by Zoom
-
- 09.45-10.00 *How will the EU-project UNCAN prioritize and implement innovations from basic/ preclinical research into clinical/prevention research?*
Eric Solary, EACS and Gustave Roussy Cancer Campus Grand Paris, Villejuif, France
-
- 10.00-10.25 **Break**
-
- 10.25-10.40 *The outcomes research needed for health economics research of therapeutics and Prevention – how to achieve cost-effectiveness*
Bengt Jönsson, EACS and Stockholm School of Economics, Stockholm, Sweden
-
- 10.40-12.00 **Discussion**
-
- 12.00-13.15 **Lunch**

Concluding Session

Co-Chairs: **Joachim von Braun**, PAS and **Michael Baumann**, President of EACS

- 13.30-13.45 *Perspective from Holy See Decreasing inequalities in cancer therapeutics/care and prevention*
H.E. Msgr. Vincenzo Paglia, President of the Pontifical Academy for Life
-
- 13.45-14.30 **Conference Conclusions**
How to decrease inequalities in cancer medicine when innovations from basic and preclinical research are expanding?
- Introductory remarks by **Manuel HEITOR**, University of Lisbon, Portugal
 - A structured discussion with prepared questions
 - Agreement on recommendations and a draft statement



List of Participants

Tit ALBREHT

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Huanming YANG  by Zoom

Beijing Genomics Institute (BGI),
Shenzhen, China



Memorandum

In person attendance

- ▶ Pickup schedule from the Domus Sanctae Marthae:
On 23 February a bus will leave the Domus at 9.30 a.m. to accompany participants to the Casina Pio IV, where the meeting starts at 10.00 a.m.
On 24 February a bus will leave the Domus at 8.00 a.m. to accompany participants to the Casina Pio IV, where the meeting starts at 8.30 a.m.
- ▶ On 23 and 24 February the same buses will take participants back to the Domus (On 23 February after dinner, at 20.15; on 24 February at 16.00)
- ▶ Lunch and dinner for the participants will be served at the Academy on 23 February. On 24 February only the lunch. If you are a vegetarian or have any dietary restrictions (food allergies, and/or religious restrictions), please let us know as soon as possible.

Access instructions to the Vatican Casina Pio IV

- ▶ You can come through the entrance called Perugino (Via della Stazione Vaticana, no number, it's a very short street). Instructions to the Casina Pio IV, headquarters of the Pontifical Academy of Sciences, can be found in the following link:

<https://www.pas.va/en/about/contacts-and-maps.html>



Just inside the gate there is a Vatican Security checkpoint. The Vatican Gendarmes already have the names of the invitees and will make sure everyone reaches us.

For all eventualities the telephone numbers of the Academy are the following:
+39 06 69883195 or +39 06 69883451

Virtual attendance

- ▶ A zoom link will be sent to virtual participants before the event, with the request not share it with external parties.

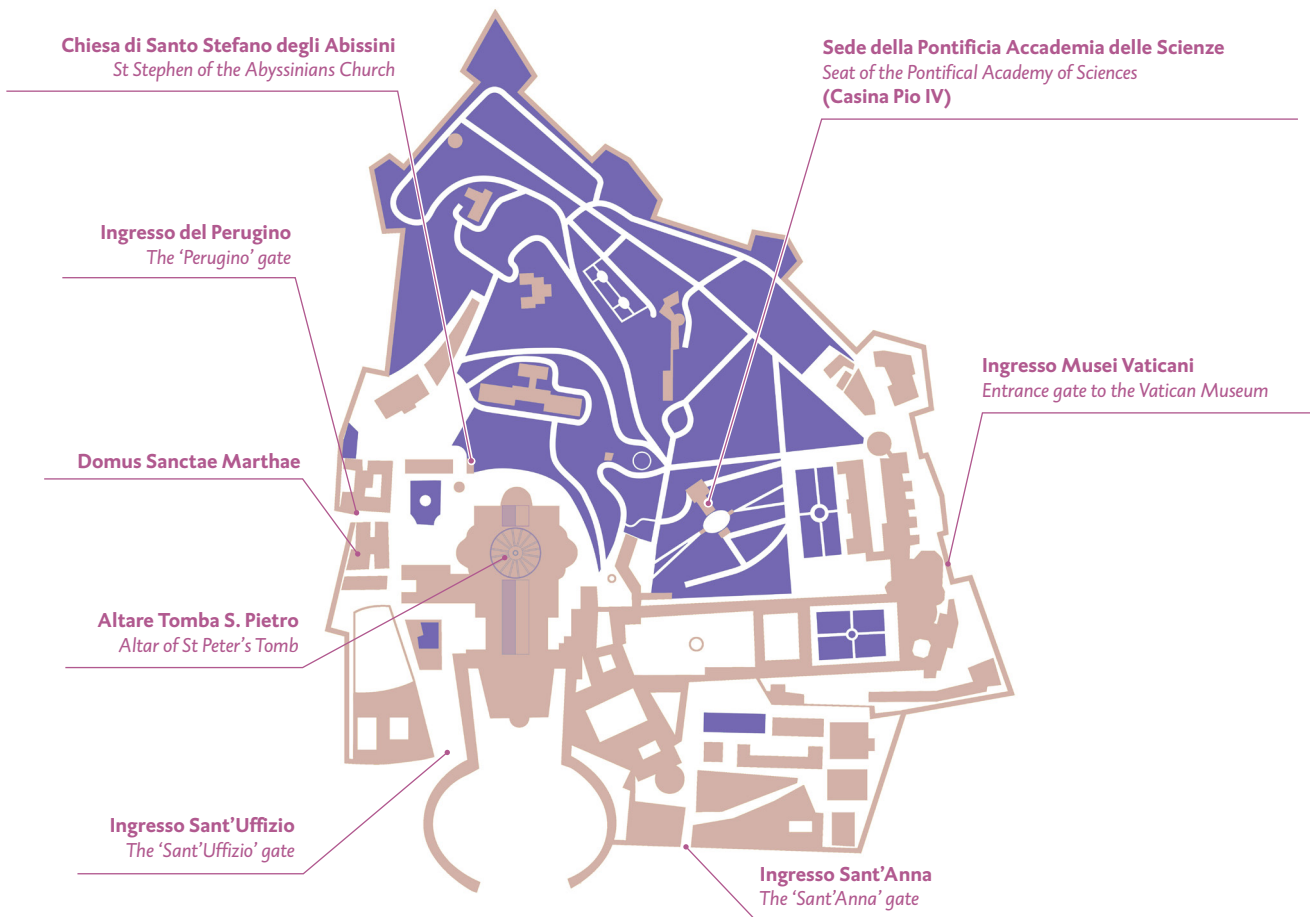
For more information

- ▶ Please refer to www.pas.va for further information on the Academy, the Academicians, and current and past events.
- ▶ Dress code: is formal business attire.
- ▶ Security: Invites are strictly personal. Please remember to bring a valid ID.

WI-FI

- ▶ WI-FI network: academy-guest
- ▶ Password: G@rdens1936





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