

**PRESS RELEASE**

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**HORIZON EUROPE - THE PREVALUNG EU PROGRAM, WHICH DEVELOPS PREDICTIVE BIOMARKERS ASSOCIATED WITH LUNG CANCER RISK, RECEIVES 7 MILLION EUROS FROM THE EUROPEAN COMMISSION**

A large European program coordinated by Gustave Roussy, PREVALUNG EU is an extension of the PREVALUNG study started in 2019 measuring the prevalence of lung cancer among patients with smoking-related cardiovascular disease. The objective of PREVALUNG EU is to validate in retrospective and prospective cohorts four classifiers based on systemic disorders (immunity, microbiota, inflammation, metabolism or bone marrow) that are the basis for carcinogenesis. These classifiers should make it possible to assess the risk of developing tobacco-related cancers, but also to reduce this risk through, not only life style changes, but also food supplements or immunomodulators based on the classifiers. Ultimately, PREVALUNG EU will allow for individualized lung cancer screening programs in cardiovascular patients who are current or former smokers based on low-dose chest tomographic scans with personalized prevention. This program has been selected by the European Commission in the framework of the Horizon Europe call for projects to receive funding of 7 million euros over 5 years (grant agreement No 101095604).

Smokers prone to cardiovascular disease have an annual incidence of lung cancer of 1-2%. Screening programs allow for early diagnosis in 80% of cases, with the result that curative treatments are more effective. Through the implementation of appropriate preventive measures and a better understanding of the pathophysiological failures linking cardiovascular disease to lung cancer, the PREVALUNG EU project has a major public health impact.

The program is an extension of the prospective PREVALUNG study, initiated in 2019 at Marie Lannelongue Hospital (Paris-Saint-Joseph Hospital Group) as part of a partnership between Prof. David Boulate's team (coordinator of the lung cancer screening care program), and Prof. Laurence Zitvogel's INSERM unit (coordinator of omics translational research). In this prospective study, 508 smokers aged 45 to 75 years with a history of smoking-related cardiovascular disease were selected to assess the prevalence of lung cancer. The prevalence of lung cancer was estimated to be approximately 3% in low-dose chest tomography scan in asymptomatic individuals. The biological analyses performed among PREVALUNG participants are based on five analytical technologies: metabolomics, metagenomics, proteomics, immunomics and bone marrow senescence genetics. Exploratory analyses have identified 4 main classifiers based on the 4 systemic pillars of early carcinogenesis (cancer formation) process: autophagy and metabolism, innate immunity, intestinal

barrier defects (dysbiosis), and clonal hematopoiesis. The identification of these biomarkers must now be validated in other European cohorts prospectively and then exploited in the PREVALUNG EU program for the implementation of cancer risk stratification tools and personalized measures to intercept lung cancer.

## Four biomarkers to target to anticipate lung cancer

Organized as a consortium of eleven European partners (from 7 countries) coordinated by Gustave Roussy, the PREVALUNG EU program has four main objectives:

- Refine and validate in retrospective and prospective cohorts of more than 60,000 patients, the 4 biomarkers to implement the risk stratification of lung cancer patients,
- Develop and validate robust and user-friendly tools to monitor these biomarkers and clinically assess patients' risk,
- Demonstrate the applicability of these biomarkers targeted by dietary supplements or pharmacological agents, in addition to dietary and lifestyle changes to return to a risk equivalent to the general population,
- Adapt a secure interface between patients and clinical researchers using these new tools for longitudinal follow-up of interceptive measures.

The PREVALUNG EU Consortium is characterized by a multidisciplinary group of experts including cardiologists, epidemiologists specializing in cardiovascular disease, lung cancer screening and biomarker development, thoracic surgeons, oncologists, pulmonologists and scientists with expertise in immunology and cellular metabolism.

The study, structured into six work programs, also relies on technology transfer to industrial partners integrated into the consortium for the development of diagnostic tools for patients. The company Bio-Me is involved in the development of rapid analysis of the digestive microbiota and the company Olink Proteomics AB in the analysis of blood proteomics. Finally, the Patients en Réseau association is integrated into the consortium in order to include patients in the development of diagnostic tools.

The project has been selected by the European Commission as part of the Horizon Europe call for projects, the European Union's framework program for research and innovation for the period 2021-2027. It has been awarded 7 millions euros in funding for a period of 60 months (grant agreement No 101095604).

This consortium brings together the universities of Turin (TORINO), London (University College London), Leuven (KU Leuven), Rotterdam (Erasmus), the Paris Saint-Joseph Hospital Group (Marie Lannelongue site), the Assistance Publique-Hôpitaux de Marseille (APHM)

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### About Gustave Roussy

Ranked as the leading European Cancer Centre and sixth in the world, Gustave Roussy is a centre with comprehensive expertise and is devoted entirely to patients suffering with cancer. The Institute is a founding member of the Paris Saclay Cancer Cluster. It is a source of diagnostic and therapeutic advances. It caters for almost 50,000 patients per year and its approach is one that integrates research, patient care and teaching. It is specialized in the treatment of rare cancers and complex tumors and it treats all cancers in patients of any age. Its care is personalized and combines the most advanced medical methods with an appreciation of the patient's human requirements. In addition to the quality of treatment offered, the physical, psychological and social aspects of the patient's life are respected. 4,100 professionals work on its two campuses: Villejuif and Chevilly-Larue. Gustave Roussy brings together the skills, which are essential for the highest quality research in oncology: a quarter of patients treated are included in clinical trials.

For further information: [www.gustaveroussy.fr/en](http://www.gustaveroussy.fr/en), [Twitter](#), [Facebook](#), [LinkedIn](#), [Instagram](#)

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