NEWS ARTICLE

Pioneering Cancer Treatments through Enhanced Genomic Profiling in the GenomeMET Project

In the face of a rising global cancer crisis, with a death toll of 1.3 million[1] in 2020 and an anticipated 32% increase in cases by 2040[2] in Europe, the accurate profiling of cancer's genetic makeup is a critical tool in its treatment.

Increasingly, genomic profiling is being used to advance cancer treatment, utilising detailed genetic mapping to enable earlier diagnoses and personalised therapies. The essence of this lies in genome sequencing, notably through techniques such as Next Generation Sequencing (NGS), which provide key insights about the nature of the disease. However, the analytical complexity of genome sequencing introduces significant uncertainties. Metrology (measurement science) is fundamental to overcome these challenges and provide confidence in data to support timely access to accurate cancer diagnostics and therapies. A new project under the European Partnership on Metrology, seeks to address these challenges.

GenomeMET, a collaborative project, is focussed on developing a robust metrological (measurement) infrastructure to support method validation and quality control at both the pre-analytical and analytical stages. The consortium, led by the Istituto Nazionale di Ricerca Metrologica (INRiM – the Italian metrology institute) includes leading European metrology institutes, instrument manufacturers, EQA scheme providers, regulatory bodies, and clinical laboratories. The project will also develop reference measurement procedures for measuring genomic biomarkers. This will support improved accuracy and comparability of genomic profiling across European healthcare systems in support of Horizon Europe's Mission on Cancer.

[1] Data explorer | ECIS (europa.eu)

[2] Data explorer | ECIS (europa.eu)

Beyond its clinical implications, the outcomes of the GenomeMET project have the potential to ease the economic burden of cancer, which in Europe is €141.8 billion annually (1.07 % of GDP)[3], and reduce reliance on single-use diagnostic materials, thereby contributing to a more sustainable healthcare model.

Enabling wider roll out of genomic testing is not just about tackling cancer; it's about improving the quality of life and patient outcomes, ensuring that treatments are as unique as the individuals receiving them.

"We hope that GenomeMET can help improve personalised medicine and that it can be the first of a series of projects aimed at improving NGS protocols" said Carla Divieto, the project coordinator.

By embedding metrology within genomic profiling, this project will support earlier and more accurate cancer diagnosis, alongside tailored treatment strategies, marking a significant stride towards a future where cancer treatment is not just a standard procedure but a personalised journey towards recovery.

For more information on the GenomeMET project, please visit EURAMET'GenomeMET page and our LinkedIn page. Further inquiries or engagement opportunities can be directed to Carla Divieto (c.divieto@inrim.it) and Carole Foy (Carole.Foy@lgcgroup.com).

[3] The Cancer Atlas. Https://Canceratlas.Cancer.Org/Taking-Action/Economic-Burden/; 2022;

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THE PROJECT

Full name	**GenomeMET - Metrology for genomic profiling to support early cancer detection and precision medicine**
Start date	01 September 2023
Duration	3 years
Funding	The project has received funding from the European Partnership on Metrology, co-financed from the European Union's Horizon Europe Research and Innovation Programme and by the Participating States.
Budget	1,743 M €
Project number	**22HLT06**
Coordinator	Dr. Carla Divieto (INRiM)
Website	www.genomemet.org

PROJECT PARTNERS

no.	Short Name	Organisation legal full name	Country
1	INRIM	Istituto Nazionale di Ricerca Metrologica	Italy
2	LNE	Laboratoire national de métrologie et d'essais	France
3	NIB	Nacionalni Institut za Biologijo	Slovenia
4	PTB	Physikalisch-Technische Bundesanstalt	Germany
5	TUBITAK	Turkiye Bilimsel ve Teknolojik Arastirma Kurumu	Türkiye
6	CEA	Commissariat à l'énergie atomique et aux énergies alternatives	France
7	FPO	Fondazione del Piemonte per l'Oncologia	Italy
8	INSTAND	INSTAND e.V. - Gesellschaft zur Förderung der Qualitätssicherung in medizinischen Laboratorien e.V.	Germany
9	MUG	Medizinische Universität Graz	Austria
10	UNITO	Università degli Studi di Torino	Italy
11	BIORAD	BIORAD Laboratories, Inc.	United States
12	GenQA	GenQA Ltd	United Kingdom
13	LGC	LGC Limited	United Kingdom
14	METAS	Eidgenössisches Institut für Metrologie METAS	Switzerland
15	MHRA	Medicines and Healthcare Products Regulatory Agency	United Kingdom
16	ULE	University of Leeds	United Kingdom