Italian Institute for Genomic Medicine

IIGM

2026

IIGM Research Units

Genetic and Molecular Epidemiology

(Established in 2010)

Our Focus

Italian Institute for Genomic Medicine
IIGM

We focus on **integrating omics data** with clinical,preclinical and environmental factors (exposures, lifestyles, diet) in large **human studies.**

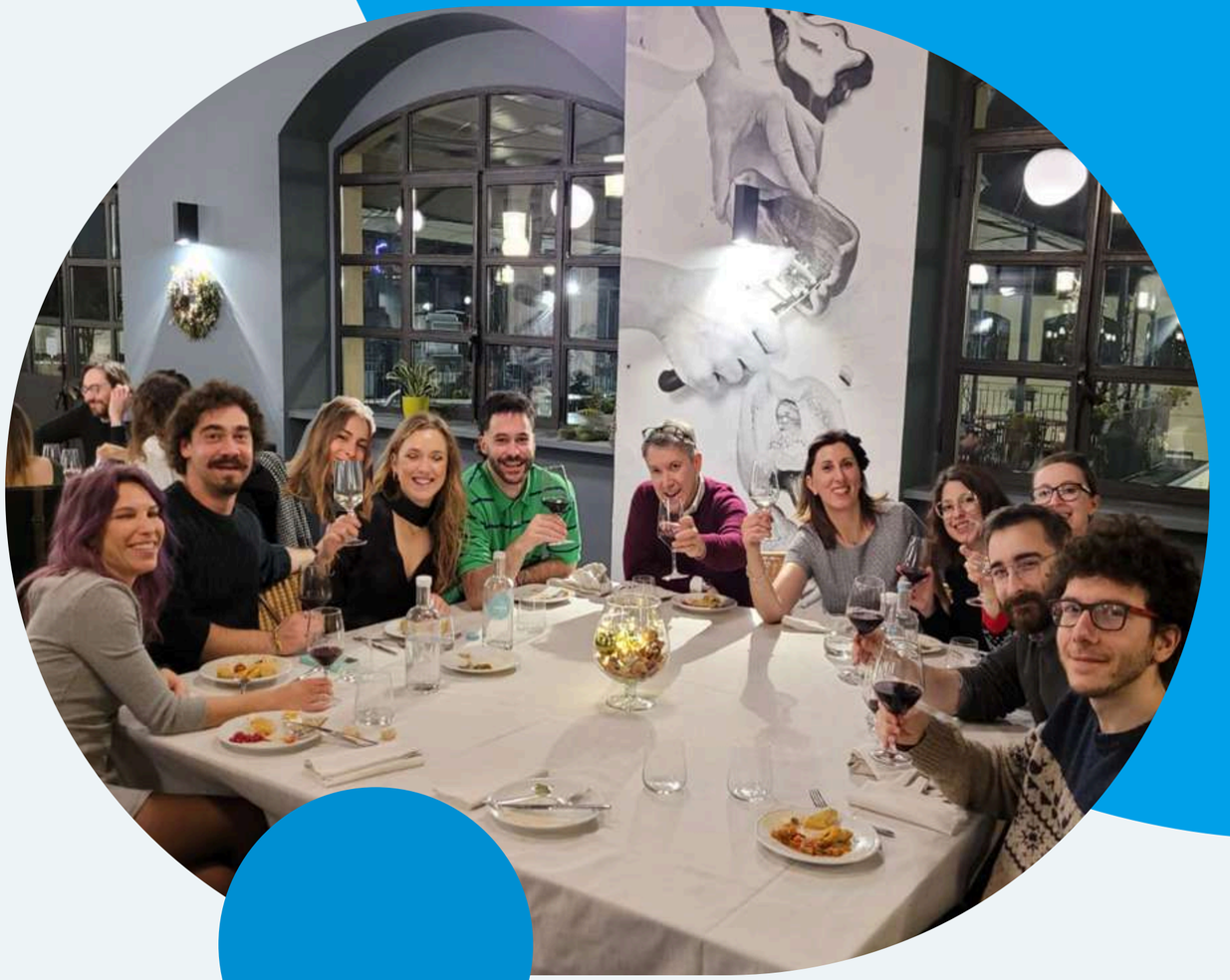
The main goal is to identify and develop novel **non-invasive biomarkers** in different biospecimens for disease detection and prevention, mainly **for colorectal cancer**, and other **gastrointestinal diseases**.

Who We Are

Italian Institute for Genomic Medicine
IIGM

TEAM:

Alessio G. Naccarati, PI
Barbara Pardini, Senior Researcher
Amedeo Gagliardi, Postdoctoral fellow
Lorenzo Franchitti, Postdoctoral fellow
Sara Bulfamante, Postdoctoral fellow
Giulia Francescato, PhD student
Virginia Alberini, PhD student
Benedetta Genta, PhD student
Serena Bernardi, PhD student
Paolo Vineis, Emeritus
Giulio Ferrero (researcher at UniTO), visiting scientist



KEY COLLABORATORS:

Prof Nicola Segata (CIBIO, Trento); Prof Laurence Zitwogel (Goustave Roussy, FRA); Prof Pavel Vodicka (Charles Univ., CZ), Dr Carlo Senore (CPO, Torino), Prof Trine Rounge (Oslo University, NO), Prof Monika Cahova (IKEM, CZ)

Research Lines

Italian Institute for Genomic Medicine
IIGM

01

CRC biomarkers in stool: Fecal miRNAs Gut metagenome

- Diagnosis
- Screening implementation
- Prognosis
- Longitudinal studies
- Sporadic vs. hereditary

MIMICC study (with FPO/Candiolo hospital)
BIOFIT study (with CPO Turin)
Oncobiome project
H2020 project

02

Integration of omics for CRC characterization

- Multiomic biomarkers
- Tumor heterogeneity
- Refinement of subtypes

Caress project (with FPO)
AIRC IG 2020 project

03

Role of specific dietary and lifestyle habits on investigated biomarkers

- Different dietary habits
- Different lifestyle habits in healthy subjects

MIME study (with IKEM, Prague)

04

Diet management based on biomarkers profiles

- Obesity
- FAP on dietary intervention
- Celiac disease adult GFD
- Celiac disease in children

KETOMI study (with Molinette Hospital, Turin)
MICROCELIAC study (with Regina Margherita hospital, Turin)

Key Results

Italian Institute for Genomic Medicine
IIGM

01

Fecal miRNA and microbiome signatures for CRC

- Pardini B, et al.;A Fecal MicroRNA Signature by Small RNA Sequencing Accurately Distinguishes Colorectal Cancers: Results From a Multicenter Study. Gastroenterology 2023
- Piccinno G, Pooled analysis of 3,741 stool metagenomes from 18 cohorts for cross-stage and strain-level reproducible microbial biomarkers of colorectal cancer. Nat Med. 2025

02

Non-coding RNA biomarkers for CRC

- Camandona A. et al.; Multiple regulatory events contribute to a widespread circular RNA downregulation in precancer and early stage of colorectal cancer development. Biomark Res. 2025

03

Multiomics signatures related to different diet/lifestyle habits

- Ouradova A. et al.; A vegan diet signature from a multi-omics study on different European populations is related to favorable metabolic outcomes. Gut Microbes 2025
- Tarallo S et al.; Stool microRNA profiles reflect different dietary and gut microbiome patterns in healthy individuals. Gut 2022

04

Biomarkers for diet-related diseases

- Francavilla A. et al.; Gluten-free diet affects fecal small non-coding RNA profiles and microbiome composition in celiac disease supporting a host-gut microbiota crosstalk. Gut Microbes 2023

Italian Institute for Genomic Medicine

IIGM

Interested in collaborations, projects, or scientific exchange?

GET IN TOUCH WITH US!

alessio.naccarati@iigm.it

www.iigm.it