



UNIVERSITÀ
DEGLI STUDI
FIRENZE

DIPARTIMENTO DI
MEDICINA SPERIMENTALE
E CLINICA



PROMISE@LAB



Fondazione
Don Carlo Gnocchi
Onlus



PROTOCOLS AND OUTCOME MEASURES IN REHABILITATION MEDICINE

JOINT RESEARCH LAB

Department of Clinical and Experimental Medicine, University of Florence
IRCCS Fondazione don Carlo Gnocchi ONLUS, Firenze

Scientific Director: Francesca Cecchi

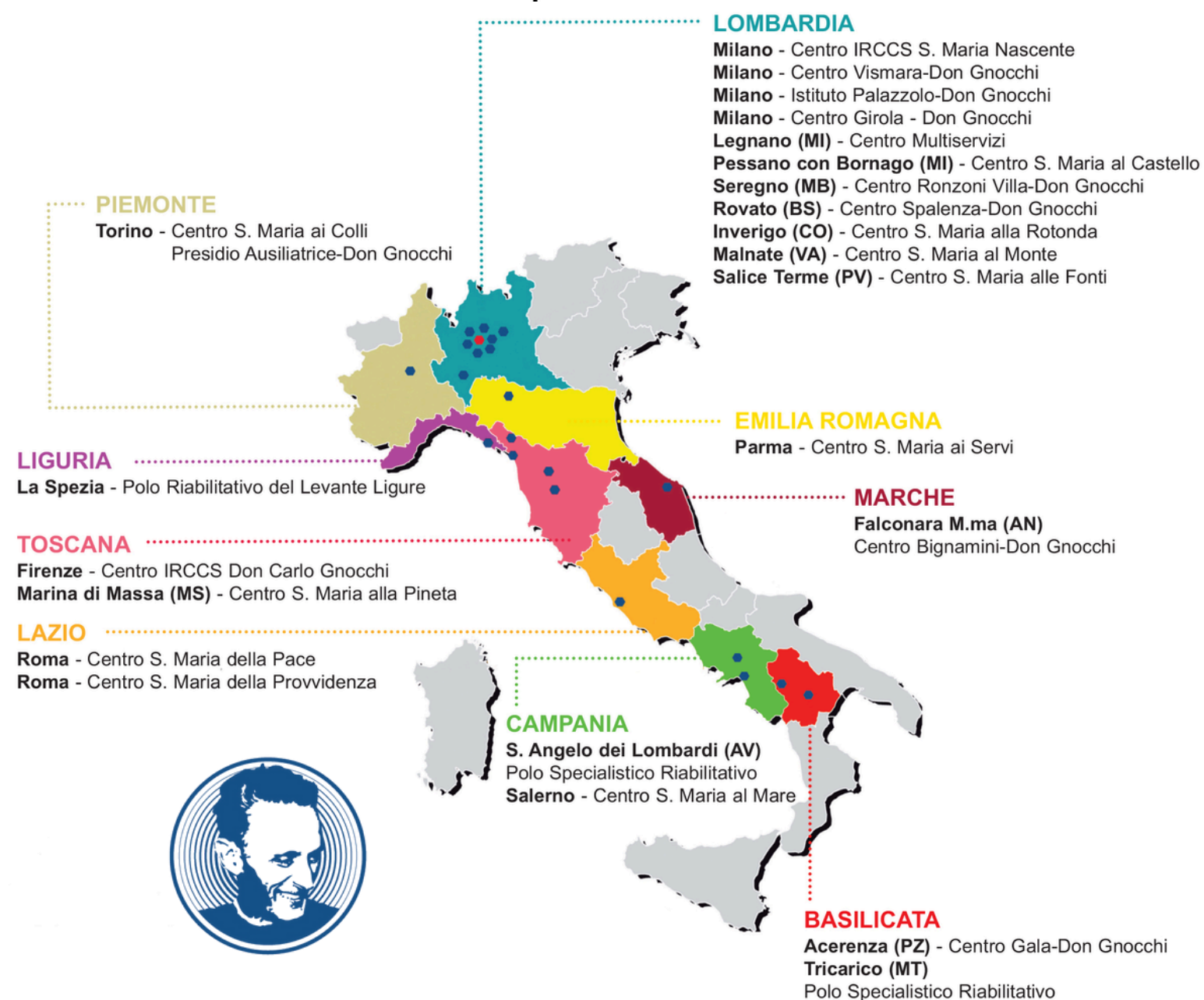




Joint research lab Department of Experimental and Clinical Medicine (DMSC), University of Florence - IRCCS Fondazione don Carlo Gnocchi, Florence, Italy

The DMSC was established as a professional aggregation of faculty and researchers pertaining to different scientific disciplinary fields whose common goal is to promote research activities in their respective areas of expertise. clinical and experimental research are carried out in the pursuit of scientific and technological innovation and allows for the provision of advanced cultural and professional training for students at the University of Florence. Fondazione don Gnocchi is a Scientific Institute of Care and Research with 27 facilities in Italy. The centre of Florence hosts a neuromotor rehabilitation unit with: 100 beds+100 outpatients/day.

Affiliated Departments, Unifi: Health Sciences (DSS), Neurosciences-Pharmacological-pediatric (NEUROFARBA) and Industrial Engineering (DIEF), Departments, University of Florence, Italy



PROMISE@LAB MISSION

PROMISE@LAB is an interdisciplinary research group that gathers the different research and clinical expertise of:

- medical specialists (physiatrists, neurologists, geriatricians)
- physiotherapists
- psychologists
- occupational therapists
- speech therapists

Our mission is to develop and validate innovative outcome measures and rehabilitation interventions, including **rehabilitation technologies**, for persons with disability, with focus on:

- Neurological conditions** (stroke, severe Acquired Brain Injuries (sABI) and Parkinson's disease)
- Musculoskeletal conditions**
- to co-create and validate innovative interventions to promote **healthy/active aging**.



OUR MAIN ACTIVITIES

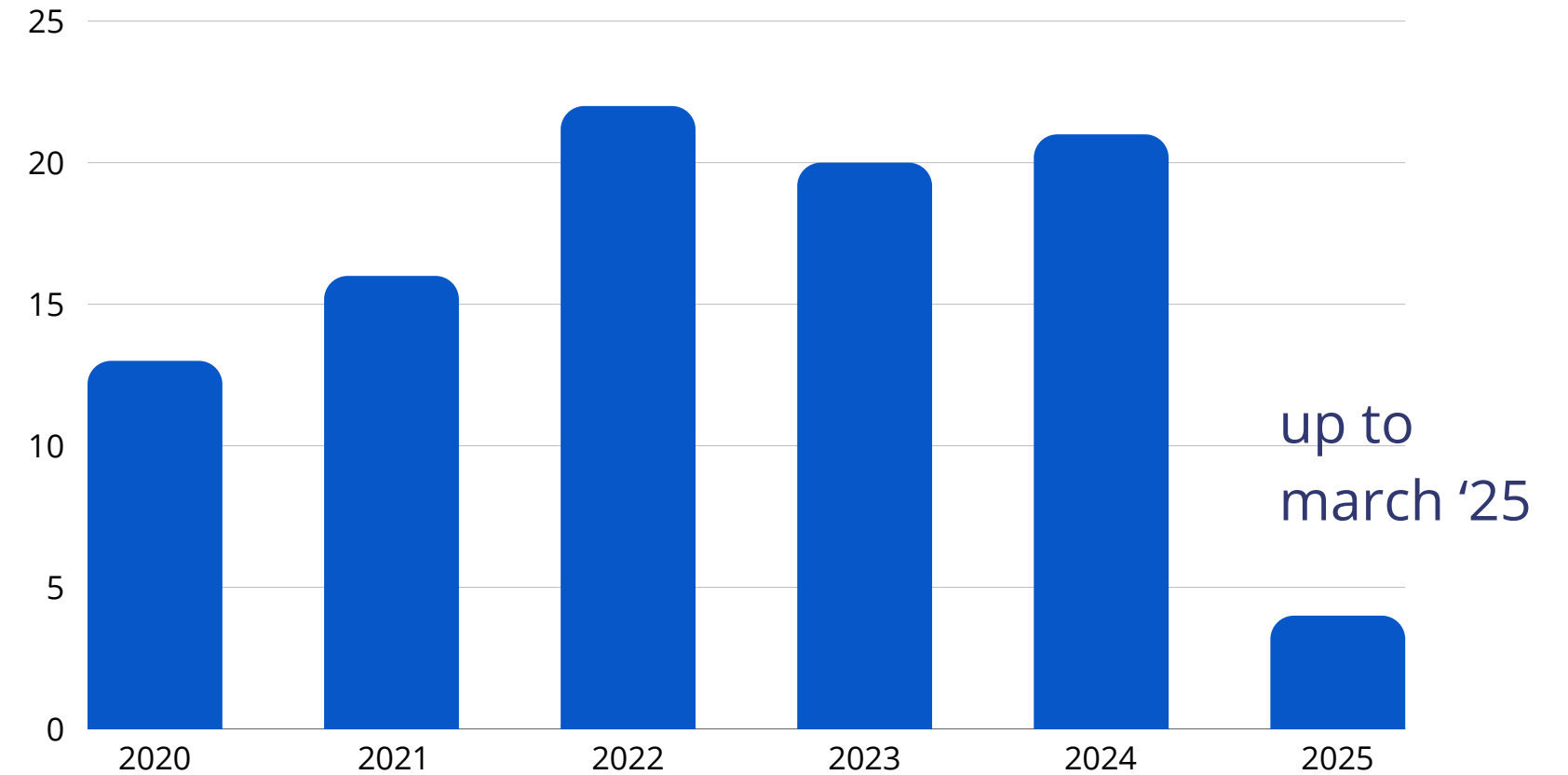
The laboratory has experience in conducting:

- multicentric observational studies
- clinical measures validation
- robot- and sensor-derived measures validation
- cross cultural adaptation
- case series
- usability and feasibility
- single subject design
- RCTs
- medical device testing

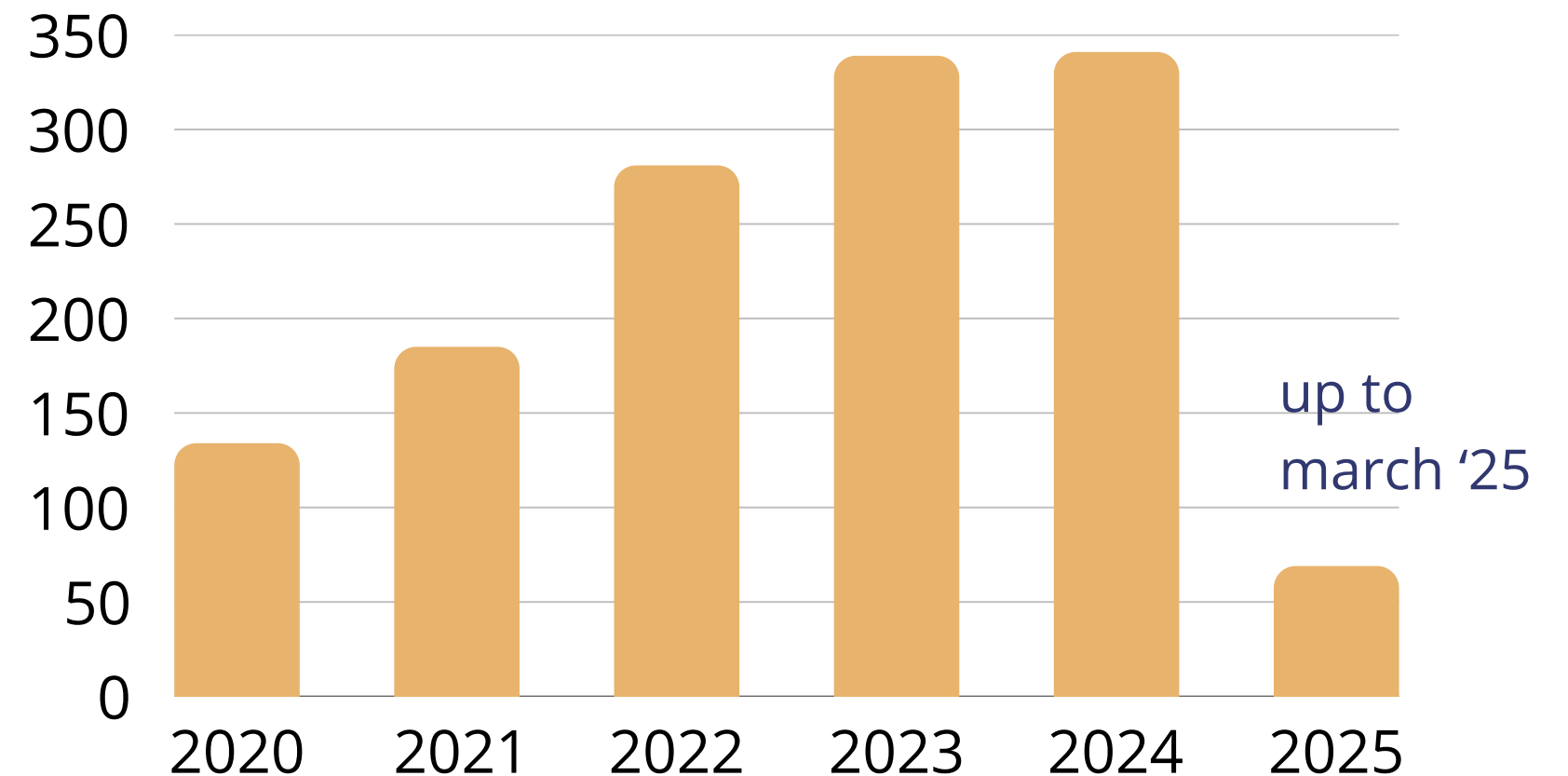
Our research is mainly aimed at:

- understanding how an **exposure** affects patients' **outcome**
- generating outcome **prediction models**
- Innovating and improving rehabilitation **assessment** and **treatment protocols**
- comparing treatments' effectiveness
- **supporting technological development** through patients and experts' opinion
- **testing medical devices**

PUBLICATIONS



CITATIONS



Technologies for rehabilitation and analysis of movement



Gloreha IDROGENET s.r.l.



MOTORE – Humanware



C-mill - Motek



Walker view - TecnoBody



Tyrosolution - Tyromotion



D-Wall - Tyromotion



Optogait - Microgate

Neurophysiology, neuromodulation and telerehabilitation

2 5-channel **Electromyography** and **Evoked Potentials Equipment**



1 Be-PLUs **64-Channel Electroencephalograph**



Repetitive Magnetic Stimulator for Neuromodulation (r-100 Magventure)



Khymeia Home Kit



Star-Stim **tDCs2** systems for EMS tDCs1



Some ongoing projects

ACTIVE AGEING

AGAPE - Active aGeing And Personalized service's Ecosystem

Age-IT - A novel public-private alliance to GEnerate socioeconomic, biomedical and technological solutions for an inclusive ITalian ageing society

INFORMA - piattaforma iNnovativa Funzionale e adattiva per prOmuoveRe un invecchiaMento sAno e attivo

STROKE

STRATEGY - Design and national implementation of a registry of post-stroke rehabilitation patients for systematic evaluation of processes and outcomes and development of data-driven prediction models

BIG-MENTI - National Database of the Virtual Institute of CErebrovascular Diseases - a multicentric observational study (PI P. Calabresi, IRCCS Gemelli Rome)

PESO - Parametrare Esiti Stroke Ospedalieri - Outcomes of patients with acute cerebrovascular event - a prospective longitudinal observational study (PI P. Palumbo, USLToscana Centro)

REDIRECT - A RandomizED controlled trial on the effects Induced by Robot-assistED rehabllitation versus occupational therapy on the functional recovery of the upper limb in chronic post-strokE subjeCTs

SCORES - Sensory and Cognitive Outcomes of Robotic Exercises in Stroke - a multicentric RCT (PI M. Germanotta, FdG Rome)

BE-TOP - Biomarcatori Elettroencefalografici per l'ottimizzazione e personalizzazione della Terapia di Osservazione dell'azione in Pazienti con esiti di ictus in fase cronica- New strategies to maximize the effectiveness of functional rehabilitation of the upper limb - a multicentric clinical trial (PI F. Infarinato, IRCCS San Raffaele Rome)

NEURODEGENERATIVE DISEASES

SANDY-POC - An Innovative method in SALiva samples for the early differential diagnosis of high-impact NeuroDegenerative diseases through Raman spectroscopY - a multicentric prospective observational study

MINERVA - Nuovo metodo per la diagnosi delle malattie neurodegenerative basato sulla profilazione biochimica della saliva - a multicentric prospective observational study (PI P. Arcuri, FdG Milan)

INERTIAL - DefINizionE di ReliabiliTy e valldity delle misure derivate da sensore in persone con mALattia di Parkinson - Clinical investigation with a pre-market medical device.

REHABILITATION TECHNOLOGIES

THE - Tuscany Health Ecosystem; SPOKE 3: Advanced technologies, methods and materials for human health and well-being (spoke leader UNIFI; partner affiliati UNIPI, UNISI, CNR, SSSA, IMT, Esaote, Museo Galileo), PNRR SPOKE 3

ROOMMATE

FDG-PROMISE@LAB Leading partner

A cohort multiple Randomized Clinical Trial - AggRegated system Of sensOrs and Multimedia Monitors: technology for innovAtion and personalizaTion of rEhabilitation care.

The ROOMMATE Consortium aims are to:

- identify and develop innovative technological solutions aimed at relieving the pressure on health and care facilities;
- overcome current barriers to the implementation of technological solutions in the continuum of rehabilitation, addressing the issues of accessibility, sustainability, and equity of care for all;
- foster a shift of current procedures toward digitization of evaluation, treatment, monitoring and rehabilitation, and adopting sustainable and user friendly technologies to promote equity and accessibility of the developed system;
- support patients, as well as researchers and healthcare providers, to improve quality of care, and support caregivers to care for their close ones



ONGOING COLLABORATIONS



Sant'Anna
Scuola Universitaria Superiore Pisa



Scientific Board



Francesca Cecchi, AP
Scientific Director

MD, Psychiatrist, Geriatrician
DMSC-FDG
publications

Marco Baccini, AdP
Scientific Co-Director

PT, MCs
DMSC-FDG
publications

Claudio Macchi, FP

Geriatrician, Cardiologist
FDG
publications

Bahia Hakiki, AP

MD, PhD, Neurologist, AP
DMSC-FDG
publications

Group Coordinators



Antonello Grippo

MD, Neurophysiologist
AOUC-FDG
publications

Stefano Doronzio

PT, Msc, PhDs
DMSC-FDG
publications

Giulio Cherubini

PT, Msc, PhDs
DMSC
publications

Diego Longo

PT, Msc, PhD
DMSC
publications

LAB Coordinators



Donata Bardi

PSY, Msc -FDG
Project Manager
publications

Chiara Castagnoli

PT, MSc -FDG
bedside and benchside
Research Coordinator
publications

Antonello Grippo, MD: Neurophysiology group coordinator
Stefano G. Doronzio PT, MSc, PhDs: Robotics group coordinator
Giulio Cherubini, PT, MSc, PhDs: Parkinson's Disease group coordinator
Diego Longo, PT, Msc, PhD: Healthy Aging group coordinator

Donata Bardi, PSY, MSc; Project Manager
Chiara Castagnoli, PT, MSc: bedside and benchside Research Coordinator

TEAM



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Maria Angela Bagni

FP Physiology; [publications](#)

Mario De Marco

PT, MSc; [publications](#)

Marta Massei

PSY, MSc

Michele Piazzini

PT, MSc; [publications](#)

In collaboration with
**Physical and Rehabilitative Medicine
Specialisation School**
of University of Florence



**Fondazione
Don Carlo Gnocchi
Onlus**

Virginia Ambrogi

PSY, MSc

Monica Bernabè

PT

Rachele Burali

NPP Technician; [publications](#)

Tommaso Ciapetti

PT, MScs; [publications](#)

Alessandra Consales

MD, PhDs

Agnese De Nisco

ST; [publications](#)

Lorenzo del Re

MD, Geriatrician; [publications](#)

Maria Luigia Del Vicario

PT, MScs; [publications](#)

Francesca Draghi

ST; [publications](#)

Alessio Faralli

PSY, PhD; [publications](#)

Julieta Giacani

OT

Tommaso La Russa

PT

Daniela Maccanti

PT

Sara Marignani

ST; [publications](#)

Ilaria Pellegrini

ST, MSc; [publications](#)

Chiara Pedrini

PSY, MSc; [publications](#)

Angela M. Poli

PT; [publications](#)

Olimpia Salvini

PSY, MSc

Alessandro Sodero

MD, Neurologist, PhDs;
[publications](#)

Tanita Toci

NPP Technician

Contact us



PROMISE@LAB

francesca.cecchi@unifi.it
fcecchi@dongnocchi.it
ccastagnoli@dongnocchi.it

<https://www.dmsc.unifi.it/>

<https://www.dongnocchi.it/>

THANK YOU!

