



**ISTITUTO  
AUXOLOGICO  
ITALIANO**

Istituto di ricovero e cura a carattere scientifico

INNOVATION, CARE, PEOPLE

SCIENTIFIC  
PROFILE



## FROM BENCH TO BEDSIDE

The scientific history of Auxologico began in 1958 in the Northeast of Italy. Centro Auxologico Piancavallo was the first Italian Auxology centre (a multi-disciplinary science specialized in human physical growth) fully dedicated to abnormal growth in children.

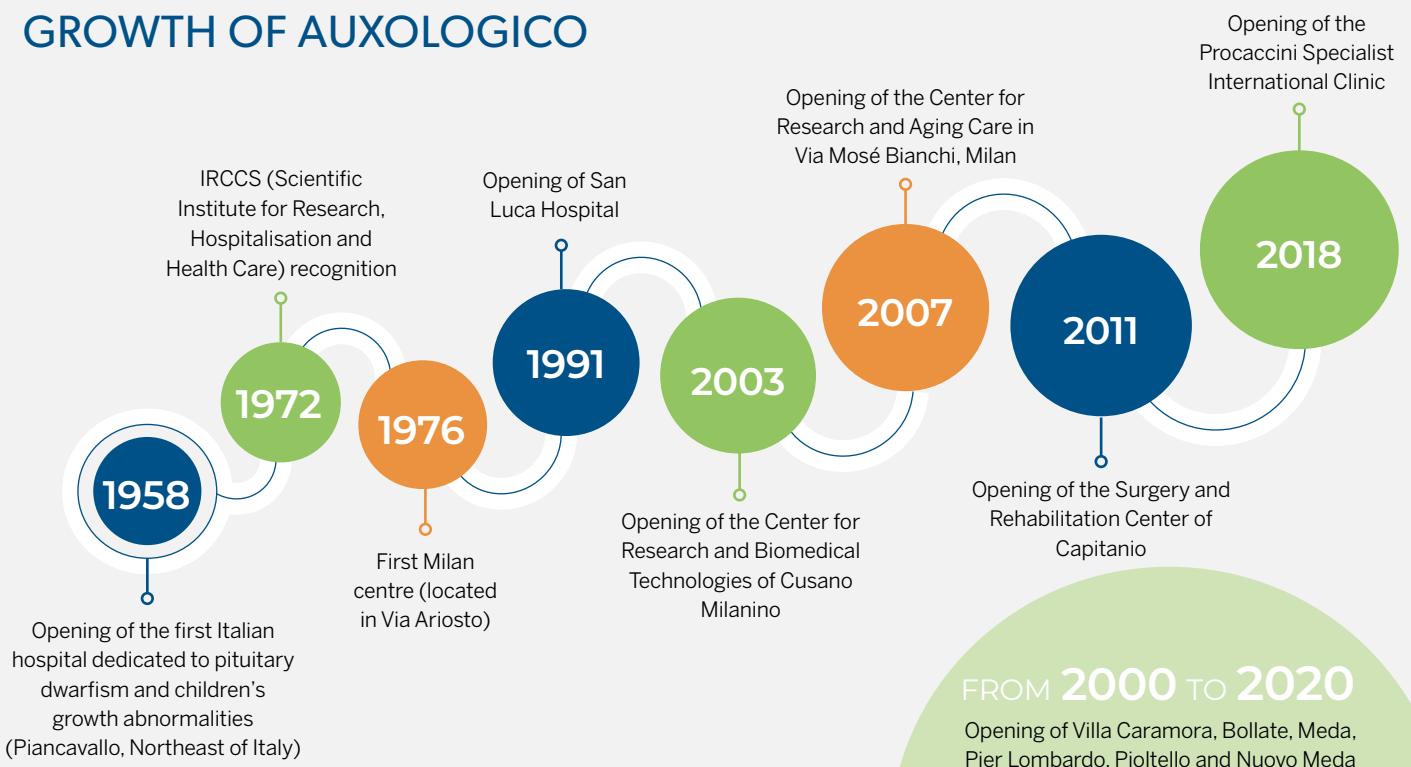
In 1972, Auxologico became a fully recognized Institute for Hospitalization and Health Care (IRCCS), establishing itself as a centre of excellence for treatments and the most advanced scientific research (in collaboration with several universities). Aside from consolidating its **auxo-endocrine-metabolic research**, in the 90s, Auxologico began to focus on new disciplines, including **cardiovascular, cerebrovascular, neurodegenerative, immunological and aging-related diseases**, while actively participating in national and international research networks. This was made possible by increasing Auxologico's activities in Milan, in particular, through the opening of both the San Luca Hospital and the Cusano Centre for Biomedic Research. Auxologico's research activities have always focused on the **prevention** of some of the most common diseases of modern society and their **genetic-molecular nature**. This is done through constant research of genetic mechanisms related to neurodegenerative, endocrine and cardiovascular diseases with the aim of applying a **translational perspective**, in other words, a transfer of experimental laboratory data to patient care and vice versa.

Auxologico has greatly contributed also to other areas of research: **biological effects generated by environmental factors**, the use of **advanced technologies** (including immersive virtual reality techniques and robotics), **integrated imaging** between various diagnostic methods, as well as the participation in numerous experimental, pharmacological and technological trials.

**Highly specialized rehabilitation methods** (part of a care model that focuses on the patient) which are at the core of multidisciplinary research and clinical programs. Auxologico strive to achieve full recovery of the patient's mental and physical abilities.

The **integrated, biomedical-clinical and rehabilitation approach** of Auxologico is, in many ways, unique, being based on a **wide network** of hospitals that are directly connected to several smaller and peripheral structures, making up a strategic network of clinical-scientific units.

## GROWTH OF AUXOLOGICO



# AREAS OF CLINICAL AND SCIENTIFIC EXCELLENCE



Over the years, Auxologico has achieved outstanding clinical and research excellence in the following areas:

## Cardiovascular diseases

Heart attacks, strokes, arrhythmias, hypertension, atherosclerosis, peripheral arterial diseases, electrophysiology, genetic cardiomyopathies, cardiovascular imaging, telemedicine and digital technologies in cardiology, sleep cardio-respiratory alterations and genetic cardiac arrhythmias

## Neurological diseases

Amyotrophic Lateral Sclerosis, Parkinson's, Alzheimer's, Multiple Sclerosis, dementia, strokes and cerebro-vascular diseases

## Endocrine and metabolic diseases

Diabetes and severe obesity, pituitary and adrenal diseases, thyroid disorders, growth disorders, anorexia, bulimia and osteoporosis

## Autoimmune diseases

Lupus, rheumatoid arthritis, Antiphospholipid syndrome and Systemic Sclerosis

## Genetic disorders

Mental retardation, syndromic diseases, metabolic bone disorders, retinal changes and oncological diseases

## Aging-associated diseases

Atherothrombotic, neurodegenerative, immunological respiratory, urological, bone/joint-related diseases, as well as diabetes (and relating complications) and frailty syndrome

## Rehabilitation

Cardiovascular, orthopedic, nutritional and respiratory pathological conditions



Neurological exam

## AUXOLOGICO'S NETWORK



## FIGURES

-  **1810** doctors and health care personnel
-  **750** beds
-  **178.000** hospitalization days
-  **1.300.000** outpatients
-  **4.000.000** outpatients/year

# SCIENTIFIC ACTIVITIES IN 2019: RESEARCH FIGURES

## Publications

4500

since year 2000



## Research projects

290

active projects  
(including 51 clinical trials)



## Main research areas

Cardiovascular  
diseases and  
cardiovascular  
rehabilitation

Auxoendocrine  
diseases and  
metabolic  
rehabilitation

Neurosciences  
and neuromotor  
rehabilitation

Personalized  
medicine

Prevention  
and lifestyles

## 2009-2019 H Index of researchers

	Researchers
$70 \leq h\text{-index} \leq 104$	4
$40 \leq h\text{-index} \leq 69$	13
$10 \leq h\text{-index} \leq 39$	70
$h\text{-index} \leq 9$	17

## Facilities, equipment and services

- 7,000 square meters dedicated to research and training
- Hamilton Microlab Star for automated preparation of DNA library
- Illumina MySeq Next Generation Sequencer
- Illumina NextSeq 500 Next Generation Sequencer
- Illumina iScan SNPs for genotyping, methylation analysis and analysis of Expression
- Quanterix SR SIMOA for ultra-sensitive determination of protein
- Gait Analysis and Equi Test
- 2 CAVEs for Immersive Virtual Reality
- 3 diagnostic and research MRI machines by Tesla
- Interventional Cardiology Unit
- Da Vinci Robot for surgery
- Biostatistics - Bioinformatics and Statistical Genomics
- Analysis of Signals - Bibliographic Services

# SCIENTIFIC RESEARCH LABORATORIES

## Scientific Direction

Prof. Gianfranco Parati

## Technical Management of Research Center and Biomedical Technologies

Dott.ssa Anna Maria Di Blasio



## Experimental Laboratories

### Directors

#### Cardiological Research

Prof. Gianfranco Parati

#### Cardiac Arrhythmias Research on Genetic Basis

Prof. Peter J. Schwartz

#### Clinical Research Center

Prof. Cesare Cuspidi

#### Preventive Medicine Research

Dott.ssa Cecilia Invitti

#### Neuroscience Research

Prof. Vincenzo Silani

#### Clinical Neurobiology Research

Prof. Alessandro Mauro

#### Endocrine-Metabolic Research

Prof. Luca Persani

#### Geriatric Neuro-endocrinologic and Oncological Research

Prof. Giovanni Vitale

#### Research on Child Bone Metabolism

Dott.ssa Maria Luisa Bianchi

#### Research on Nutrition and Obesity

Prof.ssa Simona Bertoli

#### Research on Metabolism

Prof. Massimo Scacchi

#### Auxo-Endocrinologic Research

Prof. Alessandro Sartorio

#### Research on Neuromotor Rehabilitation

Prof. Luigi Tesio

#### Research on Rehabilitation of the Elderly and Cerebro-Vascular Diseases

Dott. Marco Giovanni Stramba-Badiale

#### Research on Rehabilitation, Biomechanics and Ergonomics

Dott. Paolo Capodaglio

#### Respiratory Pathophysiology Research

Dott. Paolo Fanari

#### Psychological Research

Prof. Enrico Molinari

#### Technological Research applied in Psychology - ATNP Lab

Prof. Giuseppe Riva

#### Clinical Neuropsychology Research

Prof. Giuseppe Vallar

#### Molecular Biology Research

Dott.ssa Anna Maria Di Blasio

#### Research on Medical Cytogenetics and Molecular Genetics

Prof.ssa Lidia Larizza

#### Research on Clinical Immunology and Rheumatology

Prof. Pier Luigi Meroni

#### Vascular Surgery Research

Dott. Renato Casana

#### Urological Research

Dott. Andrea Cestari

#### Orthopedic Research

Prof. Marco D'Imporzano

#### Ophthalmology and Neurophthalmologic Research

Dott. Fulvio Bergamini

#### Bariatric Surgery Research

Prof. Giancarlo Roviato

# INTERNATIONAL AND NATIONAL NETWORKS

## IRCCS Networks

[Scientific Institute for Research, Hospitalisation and Health Care]

- “Network” - Association for the Study of Cardiovascular Diseases
- Italia Longeva, National Network for Research on Aging and Active Longevity
- Network Association of Neurosciences and Neurorehabilitation

## ERN Networks

- Rare Endocrine Diseases
- Guard-Heart
- Neuromuscular Diseases Network (NMD)

## ESADA Network

- European Sleep Apnoea Database

### International collaborations



Auxologico collaborates with several international research institutes based in about 70 countries.



## Non-stop medical education and scientific dissemination activities



94

Events and training courses



1354

Participants



760

Training hours

## Universities with undergraduate and postgraduate schools within Auxologico



- University of Milan-Bicocca
- University of Milan
- Catholic University of the Sacred Heart
- University of Pavia
- University of Turin
- University of Eastern Piedmont



AuxoSleep International Workshop,  
San Luca Hospital, 18 May 2019

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**SCIENTIFIC DIRECTION**

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Dott. Luca Grappiolo  
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## HOW TO SUPPORT AUXOLOGICO'S RESEARCH

### Fully deductible donations

#### **5X1000 in the income statement:**

Putting Auxologico's tax code in the box dedicated to funding research organizations: 02703120150