Fundación MEDINA
Public-private partnership for innovative drug discovery

Olga Genilloud, PhD
Scientific Director
www.medinadiscovery.com

Novel Approaches to Solving the Anti-infective Crisis: The Combined Role of Government, Universities and Industry
Public-Private Partnership

Independent, Non-profit Research Organization established as a Private-public partnership between

- Government of Andalucía (Spain)
- University of Granada (Spain)
- Merck Sharp and Dohme de España S.A.

Our Mission

*Discovery of new bioactive compounds and innovative therapies for unmet medical needs*
Microbial collections (110,000 strains)
Microbial Genome Banks
Natural Products Libraries (130,000 extracts)
New Compound Discovery
Patents
Collaborations
Publications
High Throughput Screening
Natural Products Chemistry
Compound Structural Elucidation
Bioanalytics
Preclinical Safety
Genome mining

MEDINA at a glance

- 50 yrs expertise in Drug Discovery
- 5 Drugs in the market
- Collaborations with industry & academia
Natural Products: Untapped sources of novel drugs

Pivotal Role of Natural Products in Drug Discovery:
- Unique chemical space
- Potency and selectivity
- Underexplored microbial sources
- Outstanding scaffold starting points
- Privileged structures

Microbial Collections & NPs Libraries
- >110,000 Microbial strains
- 130,000 Extracts & fractions
Drug Discovery Engine

Screening Approach

**MEDiversity**

Extraction & fraction collections from microbial fermentations

- High Throughput Screening
- Hit Confirmation & LC/MS dereplication
- Hit Selection
- Bioassay-guided Isolation
- Structural Elucidation
  - HPLC-MS & NMR

3-6 months

Novel Compound

---

**BIO International Convention**

The Global Event for Biotechnology
Technology Platforms & Related Activities

- Bioanalysis
- Metabolomics
- Toxicology profiling & functional screening
- Translational / Clinical R&D support
- High Throughput Screening
- High Content Bioimaging
- Isolation of Natural Products
- Analytical Chemistry Services
- Structural Elucidation
- Microbiology
- Fermentation
- Access to genomes
- Bioanalysis
- Metabolomics
MEDINA Business model

Partners

Academia  Industry

Early discovery  Hit to lead  Preclinical  Phase I  Phase II  Phase III

Risk sharing programs and research contracts  Out Licensing
## Drug Discovery Research areas

### Infectious Diseases
- Gram negative
- Tuberculosis
- Aspergillosis

### Parasitic Diseases
- Malaria
- Leishmaniasis
- Trypanosomiasis

### Oncology and Immunomodulation
- Kidney
- Breast
- Pancreas
- Translocation

### Neurodegeneration
- Amyotrophic lateral sclerosis
- Neuroprotection
Drug Discovery Research Pipeline

**Assay development**
- **Anti Infectives**
  - Gram (-)
  - Tuberculosis
  - Antifungals
  - Malaria
  - Leishmaniasis
  - Trypanosomiasis
- **Parasitic**
- **Oncology**
  - PI3K Pathway (Breast, Colon, Lung & Gastric Cancer)
  - Nuclear Translocation
  - Pancreatic Cancer
- **Neuro degeneration**
  - Parkinson
  - Amyotrophic Lateral Sclerosis (ALS)

**Hit identification**
- MDN-0057*
- MDN-0018*
- MDN-0080 & MDN-0096
- MDN-0109 to MDN-0112 †
- MDN-0088 †
- MDN-0105
- MDN-0090
- MDN-0113†
- MDN-0005*

*Patent applications filed  †Patent application under preparation
ND4BB - ENABLE Project
European Gram Negative Antibacterial Engine

- €85million European programme funded by the Innovative Medicines Initiative targeting novel antibiotics
- Joint public and private investment between the European Commission and major pharmaceutical companies (through EFPIA).
- Mission to mobilise expertise from universities and industry in Europe: Consortium of 32 European universities and companies, led by GSK and Uppsala University in 6 year programme
- Mission to establish an anti-bacterial drug discovery platform for the progression of research programmes through discovery and Phase 1 clinical trial
- Full development pipeline from preliminary portfolio of programmes to be expanded through open calls
• MEDINA brings to the project one of the novel antibiotic molecules that will be developed within this partnership MDN-0057 – 0060

  • New family of four novel natural product antibiotics with previously unreported chemical scaffold obtained by fungal fermentation

  • Broad spectrum against key Gram negative pathogens (*E. coli*, *P. aeruginosa* and *A. baumannii*).

  • Excellent safety profile

• H2L development program: improved med chem series, MOA and in vivo POC will be developed within ENABLE anti-bacterial drug discovery platform.
Collaborations and partnerships

Industrial Partners
- Mendel
- CUBIST
- MERCK
- ARIETIS
- SANOFI
- ferrer
- NEURON
- entrechem
- vivia
- BIOTECH

Academic Partners & Consortia
- IMPRINT
- PHARMASEA
- IC
- ciberer
- CSIC
- UIC
- University of Illinois at Chicago
- Marins
- Paramet
- MICROSOMES
- IBiS
- Institut Pasteur
- Max Planck Institute for Chemical Ecology
- CEU
- University of Western Sydney
- HKI
- VHI
- Vall d’Hebron Institute of Oncology
- The University of Texas Health Science Center at Houston

Innovative Medicines Initiative
- SEVENTH FRAMEWORK PROGRAMME
- Marie Curie
- EU-OPENSSCREEN
- ESFRI ROADMAP 2008

Other
- convention.bio.org
Contact:
Olga Genilloud, Scientific Director
olga.genilloud@medinaandalucia.es