

Fundación MEDINA

Discovering the Future

Olga Genilloud, PhD
Scientific Director



About us

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.



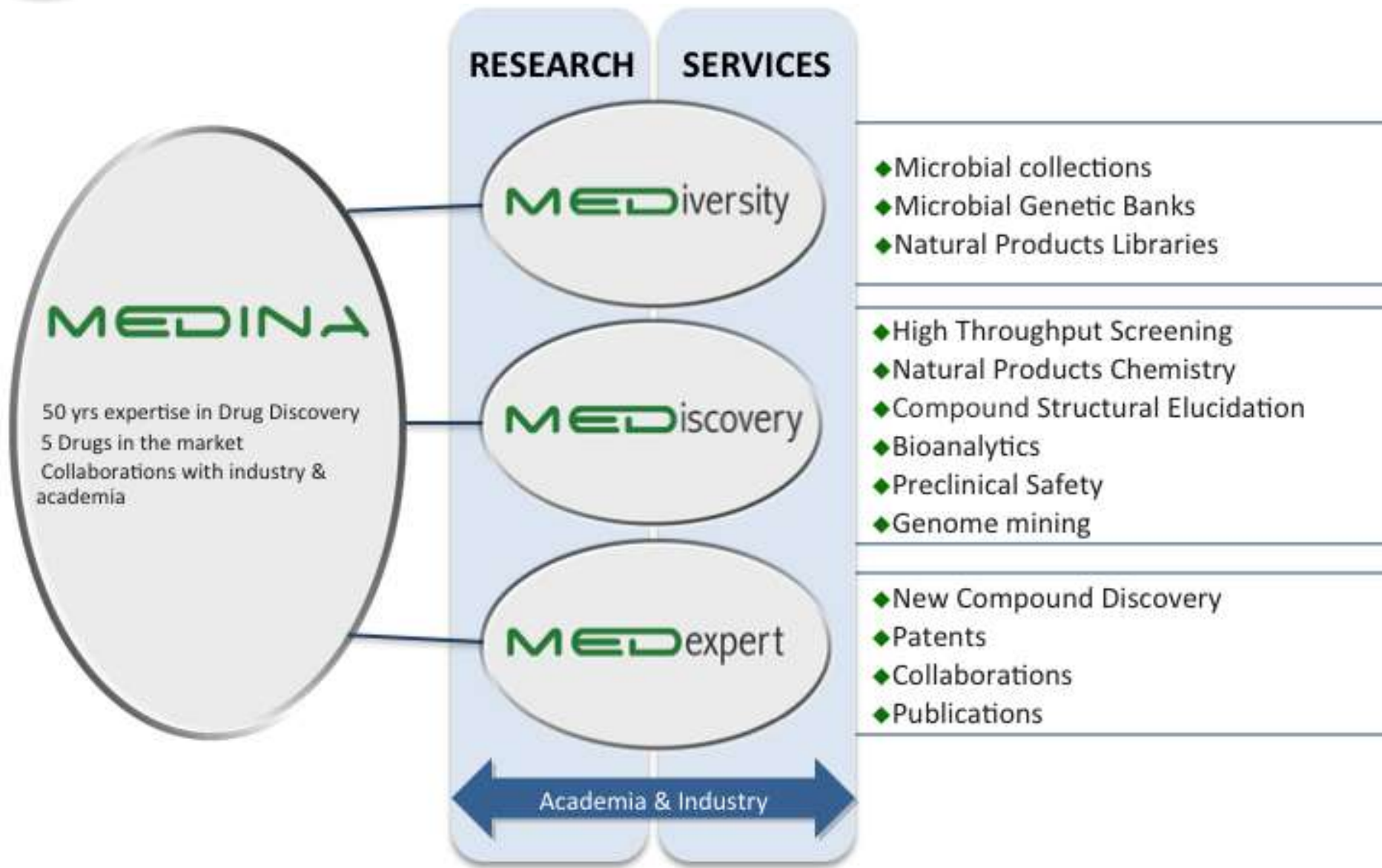
Our Mission

Discovery of new bioactive compounds and innovative therapies for unmet medical and industrial needs.





At a glance





Natural Products: Untapped sources of novel drugs

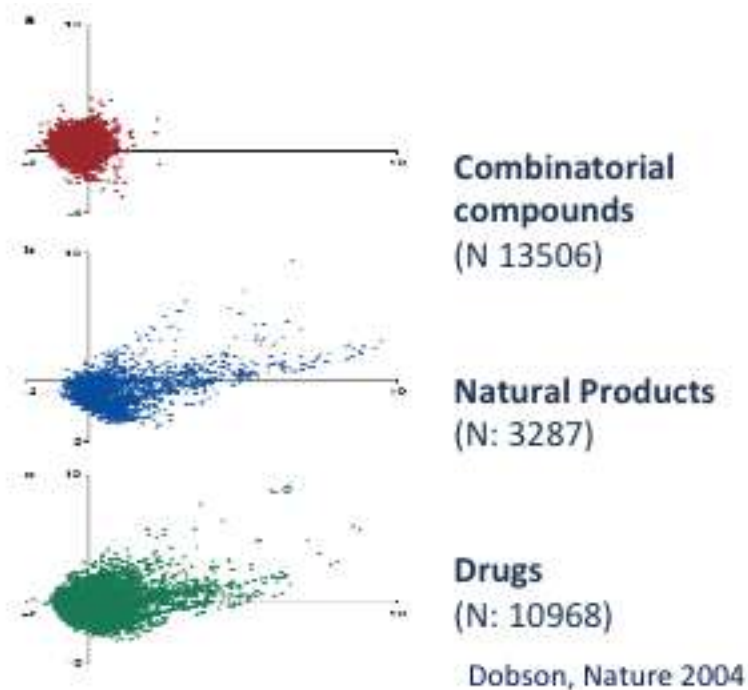
Unique chemical space compared to synthetic libraries

Potency and selectivity derived from extended evolution selection

Underexplored microbial sources of novel compounds

Outstanding scaffold starting points for new drug candidate development

Privileged structures: excellent templates for the synthesis of novel, biologically active, natural product-like molecules



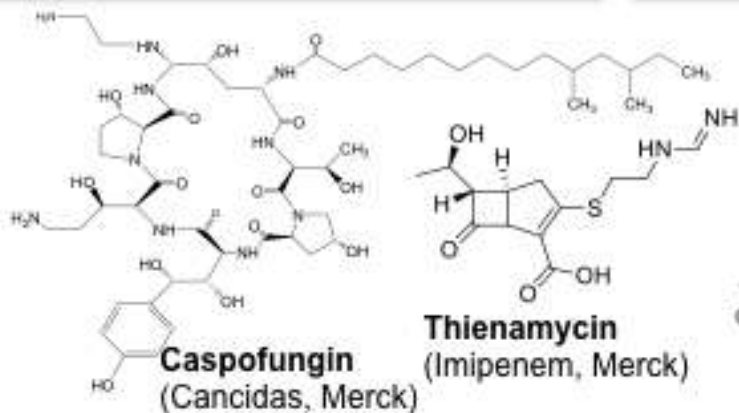
53% of new chemical entities
in the last 20 yrs are naturally derived or
related with natural products scaffolds
(Newman and Cragg, 2012)



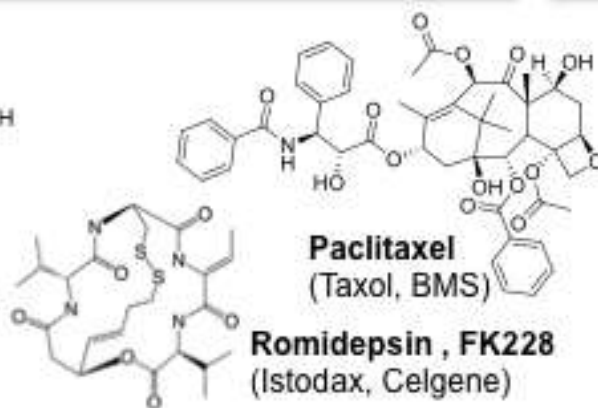


Natural Product Drugs

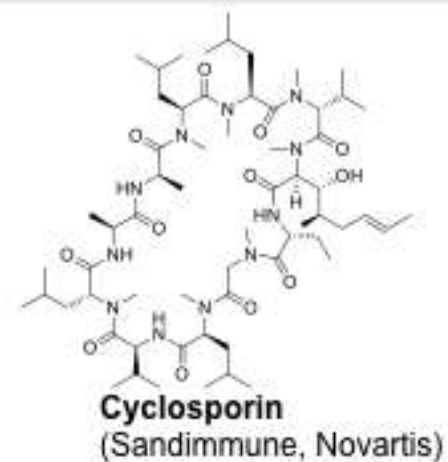
Antimicrobials



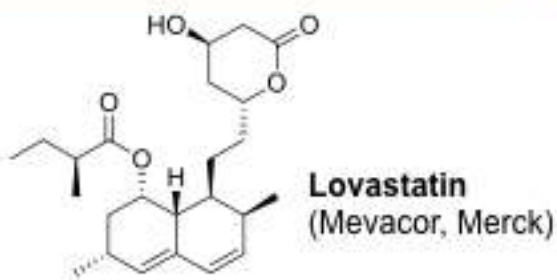
Antitumor



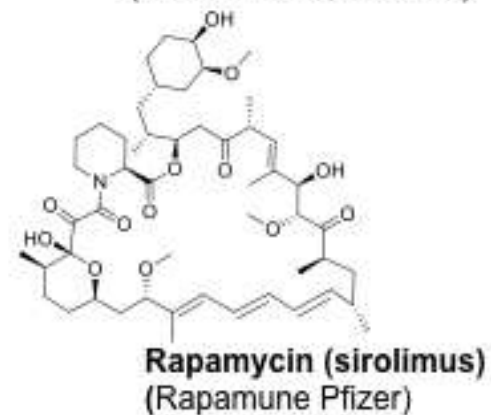
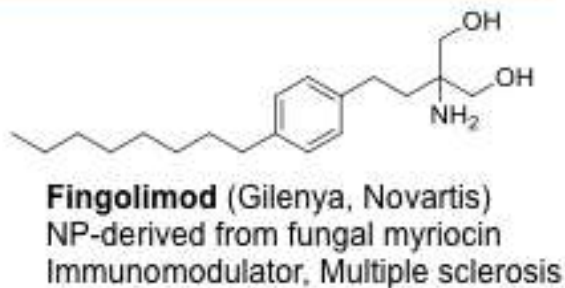
Immunosuppressors



Cardiovascular



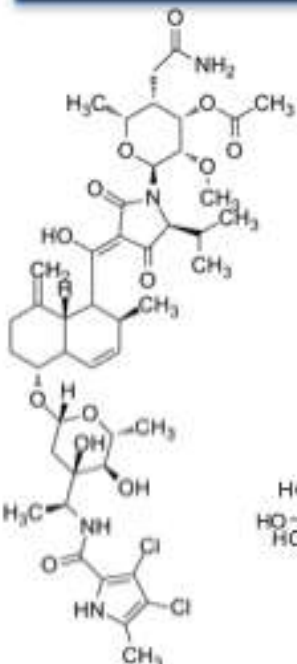
Neurodegeneration



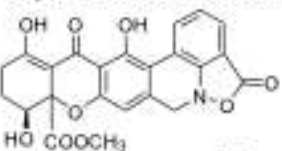


Natural products leads and clinical candidates

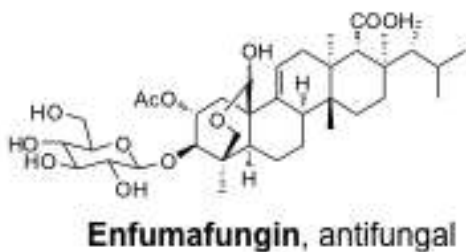
Antimicrobials, antitumorals, immunosuppressors, metabolism



Kibdelomycin, antibacterial
Topo II isomerase inhibitor

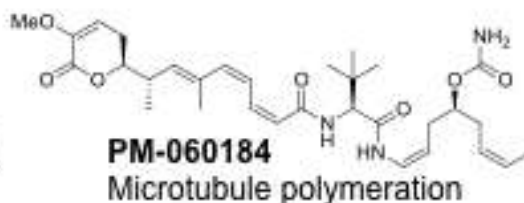
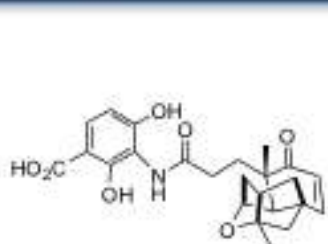


Parnafungins
mRNA polyadenylation inhibitors

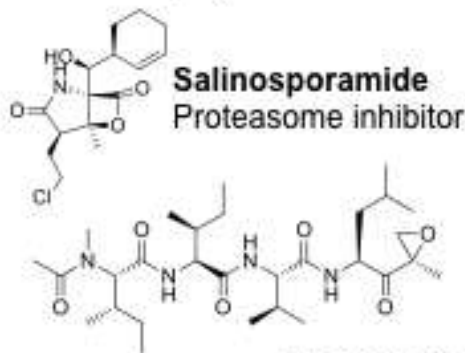


Enfumafungin, antifungal

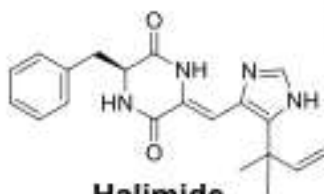
Platensimycin, antibacterial
Fatty acid synthesis inhibitor



PM-060184
Microtubule polymerization

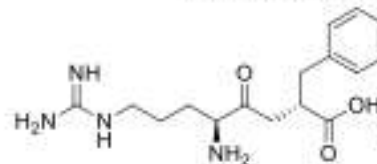


Salinosporamide
Proteasome inhibitor

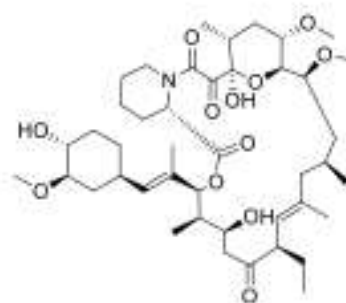


Halimide,
tubulin-depolymerizing agent

Epoxomicin
Proteasome inhibitor



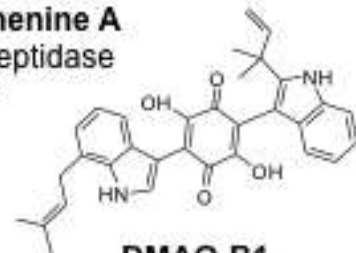
Arphamenine A
Aminopeptidase inhibitor



Immunomycin
immunosuppressor



Mycestericin
immunosuppressor



DMAQ-B1,
Insulin mimetic



Maximizing chemical diversity by maximizing biodiversity



Microbial Collection

>110.000 strains

fungi, actinomycetes & other bacteria
(ex. MSD)

Natural Products Libraries

- ◆ 130.000 extracts & fractions
- ◆ Ready extracts for screening
- ◆ Development of new extracts
- ◆ Plants extracts

Microbial Genetic Banks

- ◆ Genome DNA libraries for gene mining





Access to collection and exploitation



Volume
>110.000 Microbial strains
113.000 extracts & fractions
Genome banks

Diversity
Taxonomically
Geographically
Ecologically

Exclusivity
Proprietary
isolations

Reliability
Traceability from
origins, in digital
format

**Fully integrated
Discovery
Research**

**Through
Collaborations & Partnerships**





Drug Discovery - Collaboration Agreements

Partners

Academia

Industry

MEDINA

Early
discovery

Hit to lead

Preclinical

Phase I

Phase II

Phase III

Shared Risk Programs
Contract Research Programs

Out Licensing





Drug Discovery Current Research Areas



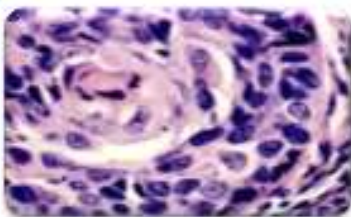
Infectious Diseases

- Gram negative
- Tuberculosis
- Aspergillosis



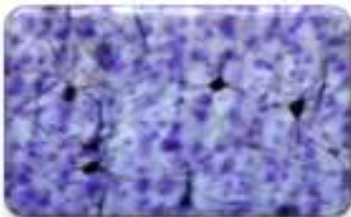
Parasitic Diseases

- Malaria
- Leishmaniasis
- Trypanosomiasis



Oncology

- Kidney
- Breast
- Pancreas
- Lung



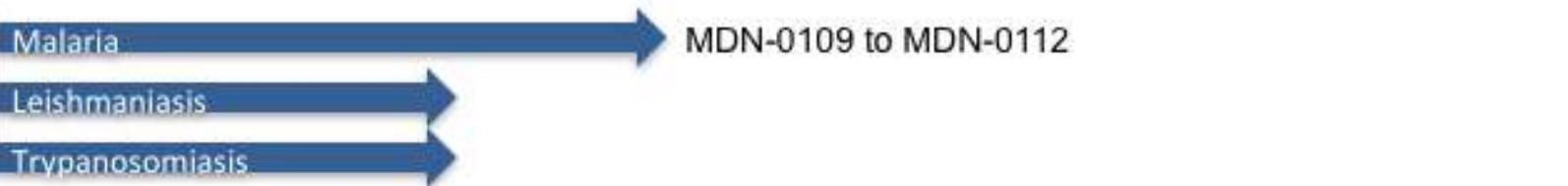
Neurodegeneration

- Amyotrophic lateral sclerosis
- Neuroprotection





Drug Discovery Research Pipeline



*Patent applications filed

†Patent application under preparation



State-of-the-art high resolution and automated sample handling systems
Analytical evaluation of **minute amounts** of drugs and natural molecules
High throughput assay of biological samples / **cost and time efficient**

Pharmacology/ Toxicology

In Vitro ADME-Tox
Drug Metabolism
Cardiotoxicity
Neurotoxicity
Cytotoxicity
Functional assays

Bioanalytics

Pharmacokinetics
Analytical evaluation of drugs
& other substances

Metabolomics

Biomarkers Identification





Current Partners & Collaborators

Industrial Partners

Mendel
ferrer
CUBIST
PHARMACEUTICALS
MERCK
Research Laboratories
ARIETIS
SANOFI
NEURON
EPh
entrechem
BIOTECHNOLOGY
vivia
BIOTECH

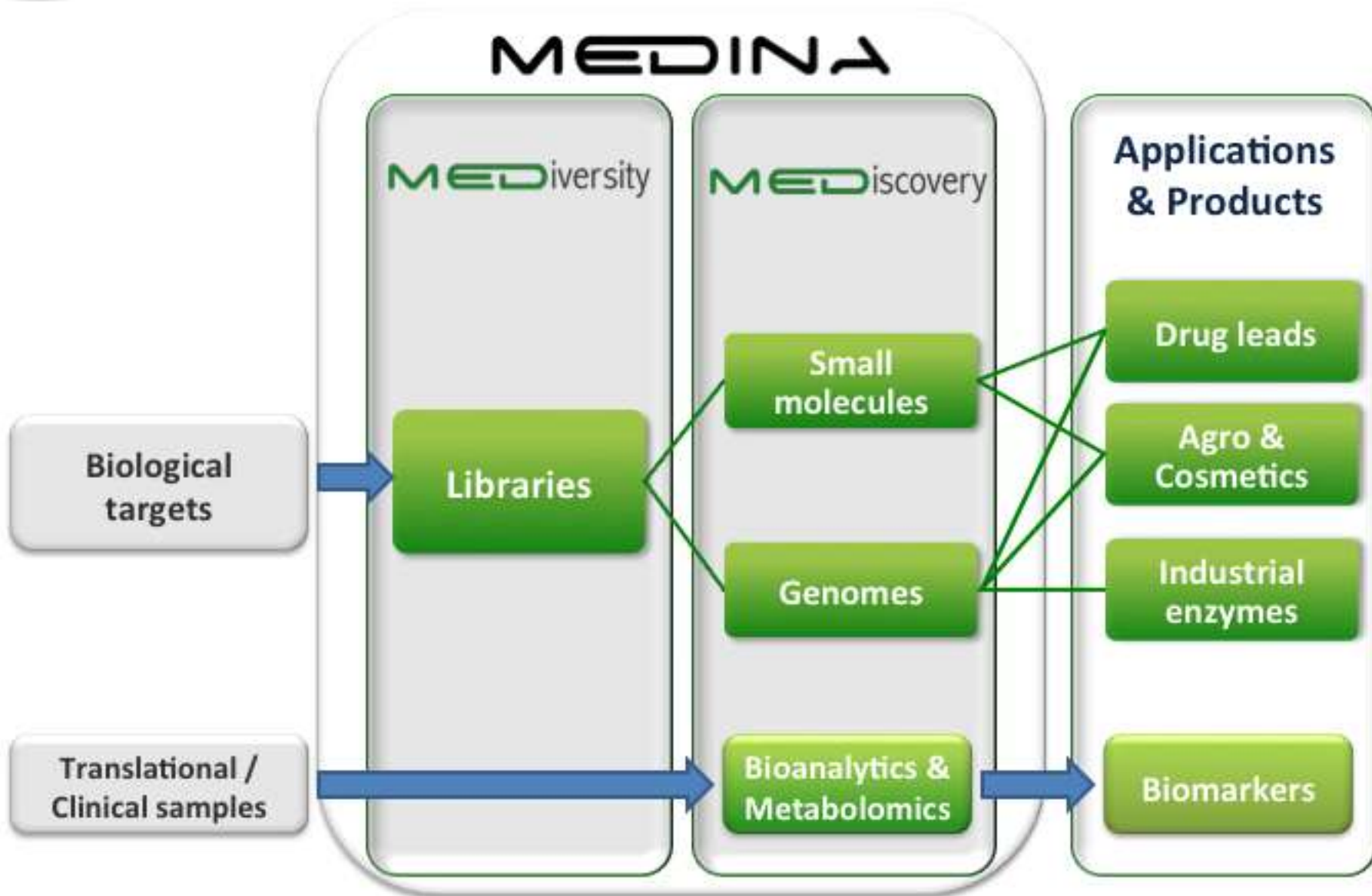
Academic Partners & Consortia

PHARMASEA
ParaMet
Instituto de Salud Carlos III
cnio
Centro Nacional de Investigaciones Oncológicas
er ciberer
REIPI
IBIS
IMI
Innovative Medicines Initiative
INSTITUT PASTEUR
CSIC
UIC
University of Illinois at Chicago
Universidad San Pablo
Max Planck Institute for Chemical Ecology
CEU
EU-OPENSREEN
ESFRI ROADMAP 2008
orphanet
VHI0
VALL D'HEBRON
Institute of Oncology
HIKI
Hans Krøll Institute
University of Western Sydney
Bringing knowledge to life
THE UNIVERSITY of TEXAS
HEALTH SCIENCE CENTER AT HOUSTON





What we can offer to Industry





Contact:
Olga Genilloud
olga.genilloud@medinaandalucia.es

MEDINA

**Centro de Excelencia en Investigación de
Medicamentos Innovadores en Andalucía**

www.medinaandalucia.es