# THE DRUG DISCOVERY PROCESS

ADVANCING **DISCOVERY**

How scientists use the latest research science in the drug discovery process

Drug discovery involves the translation of advances in the understanding of the biology of diseases into medicines to treat a huge variety of medical conditions. It is a complex process, involving a wide range of scientific disciplines such as molecular biology and medicinal chemistry, as well as clinicians and business experts.

ACADEMIA

BIOTECH
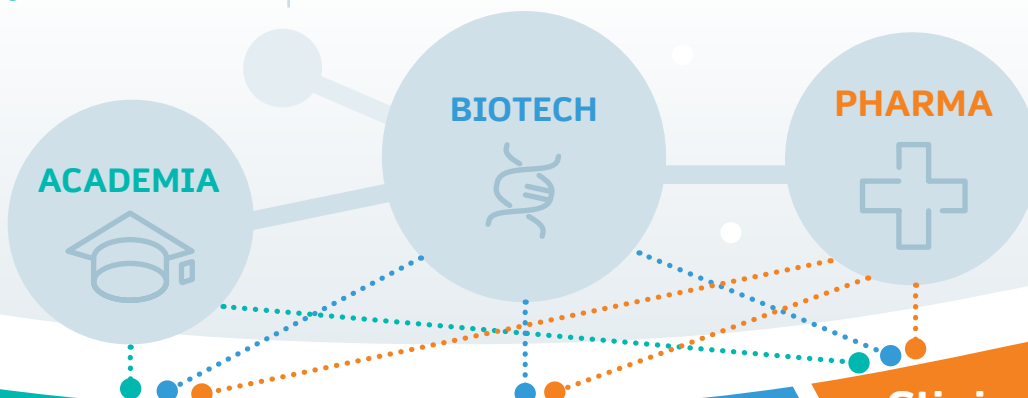
PHARMA

Disease investigation

Target identification and validation

Drug discovery

Screening, lead optimisation pharmacology, toxicology

Clinical trials:

Phase 1 to Phase 3
Translational research, clinical development

Who's involved?
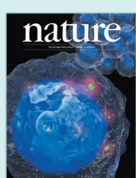- Molecular Biologists
- Biochemists
- Geneticists

Who's involved?
- Medicinal Chemists
- Chemical Biologists
- Biotechnologists
- Chemoinformaticians
- Process Chemistry
- Pharmaceutical Scientists

Who's involved?
- Clinicians
- Pharmacologists
- Biostatisticians
- Regulatory affairs experts
- Business developers

Objective
Understanding how disease works in the body, by tracking the disease down to its cellular level of action

Objective
Developing a potential molecule to go into clinical trials and to cure disease

Objective
To study the efficacy and safety of candidate drugs, providing evidence to support introduction into clinical practice, passing both patent and international regulation

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Research outcome
Identification of potential molecular targets against which new drugs can be developed

Research outcome
Creation and optimization of molecules that modulate disease targets and show therapeutic effects in disease models, with a sufficient safety margin

Research outcome
A new drug that treats a disease for which no therapy exists already or that could potentially improve on existing therapies

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Communication
Read and publish protocols, methods, reviews and research in journals like *Nature* or *Nature Cancer*, or databases like SN Experiments

Communication
Read and publish content from journals like *Nature Reviews Drug Discovery* and *Nature Biotechnology*, or in databases like AdisInsights

Communication
Read and publish their own and others' findings in journals such as *Nature Medicine, Nature Reviews Clinical Oncology* and *Nature Reviews Drug Discovery*

SPRINGER NATURE Experiments

Springer Protocols

Adis Insight

Find out more about the content that helps guide and inform the drug discovery process