



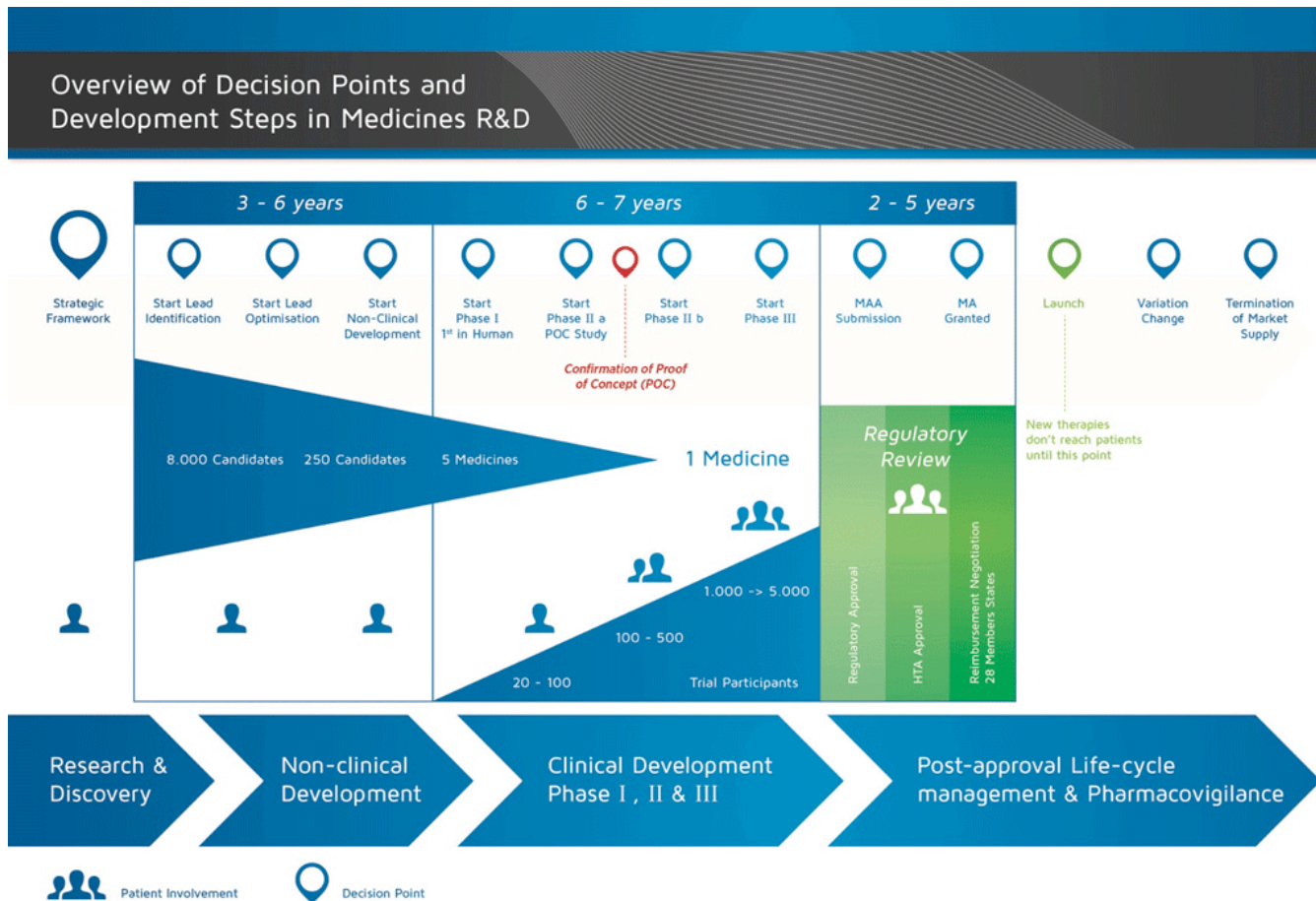
Discovery and Development of Medicines

Discovery and development of medicines



- By studying a disease, scientists can understand what causes the illness and which cells in the body and their receptors are involved.
- Research can help scientists to develop new medicines to treat diseases and to relieve symptoms.
- It takes well over 10 years of careful planning and research for a medicine to go from molecule to a marketable treatment.

Overview of the medicines development process



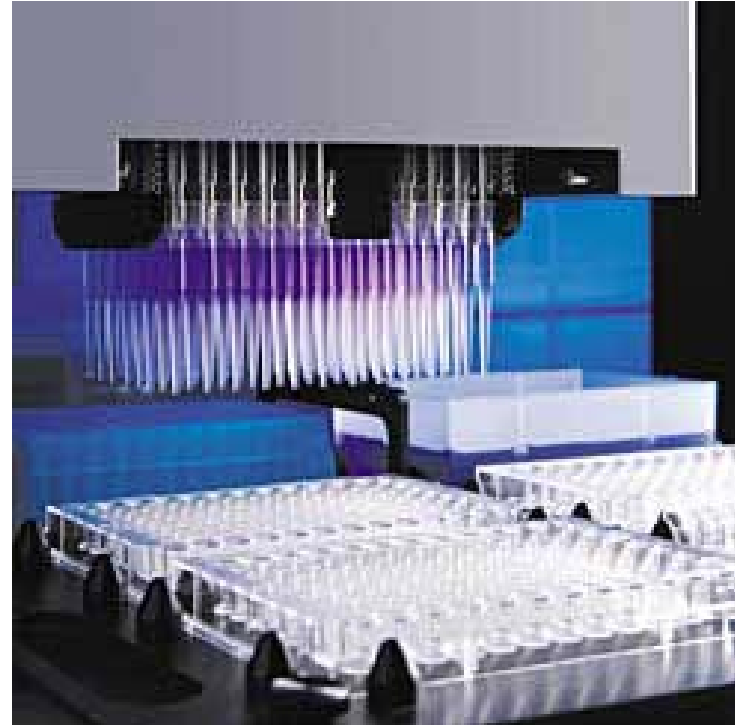
Finding the right molecule



- Once a target receptor has been identified, scientists begin to look for potential compounds that will interact with the target to correct disease-related activity.
- This research can involve searching through 'libraries' of millions of molecules that have been developed by pharmaceutical companies.

High-throughput screening process

- Large-scale testing of potentially useful molecules from the 'libraries' (also called high-throughput screening), is conducted to discover which ones will bind to the target receptor.



The ideal molecule



The ideal molecule should:

- reach the right part of the body to hit the target (ideally only the target and no other healthy cells or enzymes),
- have few side effects,
- be absorbed by the body,
- remain in the body long enough to have the desired effect,
- be able to be manufactured in sufficient quantities,
- and have a long shelf-life as a medicine.

From molecule to medicine



- The most promising molecules discovered will be modified in many ways to try to make an effective medicine that has few negative side effects.
- When scientists find a molecule with the desired properties for a potential medicine, testing in animals is often necessary.
- If this testing shows the medicine is safe, the process will continue with testing in humans.
- Finally, regulatory authorities will consider whether or not to approve the medicine for use in humans.