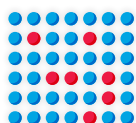


THERAPEUTIC DEVELOPMENT



Target discovery and validation

Potential targets identified by discovery science are confirmed to play a causal role in disease development.



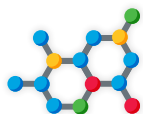
Target to hit

Large numbers of chemical or biological agents are screened to identify and robustly validate molecules that “hit” the target.



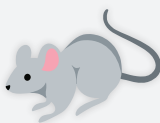
Hit to lead

Agents that hit the target are further tested to determine which ones bind the target with the most specificity and have promising medicinal properties.



Lead optimization

The characteristics of lead compounds are reiteratively optimized to enhance potency and drug-like properties, and to reduce side effects by enhancing specificity.



Preclinical testing

Cell-based and animal models are used to test for effectiveness of the optimized lead, identify potential toxicity issues, and determine an optimal starting dose and dosing schedule for clinical or “first-in-human” testing. The final compound is called the clinical candidate.



Investigational new drug (IND)

Prior to clinical testing, one or more clinical candidates are assessed in rigorous good laboratory practice (GLP) studies with the drug product generated through good manufacturing practices (GMP) and then submitted to the U.S. Food and Drug Administration (FDA) for approval for use in clinical trials.