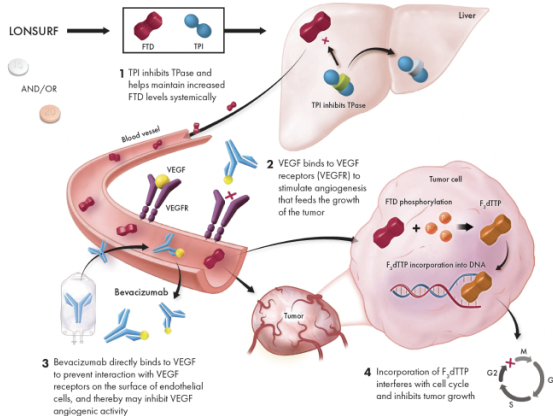


Mechanism of Action (MoA) Analysis

March 13, 2025

What is Mechanism of Action (MoA)?

- ▶ Defines how a drug interacts with its biological target.
- ▶ Can involve receptors, enzymes, signaling pathways, etc.
- ▶ Critical for drug discovery and development.

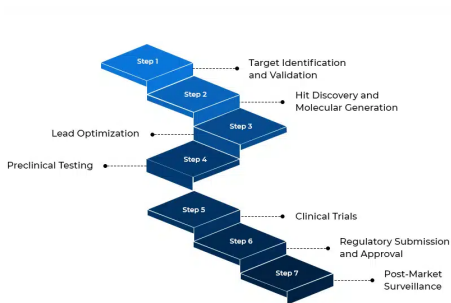


Why is MoA Important?

How to Determine It?

Why is MoA Important?

- ▶ **Identifies drug targets** (Step 1)
- ▶ **Guides hit discovery optimization** (Steps 2-3)
- ▶ **Supports preclinical clinical evaluations** (Steps 4-5)
- ▶ **Ensures safety regulatory approval** (Steps 6-7)



How to Determine MoA?

- ▶ **Expose** human cells to drugs.
- ▶ **Measure** responses (e.g., gene expression, cell viability).

Dataset Overview & Project Objective

Dataset Overview

- ▶ **Contains** gene expression and cell viability data.
- ▶ **Covers** responses from 100 human cell types.
- ▶ **Annotated with** MoA labels for 5000+ drugs.
- ▶ **Enables** multi-label classification of drug effects.

Project Objective

- ▶ **Develop** a model to predict MoA based on drug response data.
- ▶ **Utilize** machine learning techniques.
- ▶ **Identify** key patterns in gene expression & cell viability.
- ▶ **Address** multi-label classification challenges.