



# **The drug discovery process**

## **Build your own medicine in 6 (not so) easy steps**

### **1. Target discovery**

Understand which molecule in the body you need to target with a drug to treat a particular condition, like cancer. It is also important to understand how that molecule usually works when we are healthy and when we are ill, so you can see how targeting it might have other effects!

### **2. Drug discovery**

Identify what existing or potential new medicines have an effect on that target. Test and refine them to look for strong candidates.

### **3. Safety**

Test the medicine in the lab and in animal models of the disease to see whether it causes any unwanted side effects, and to make sure it can be broken down safely in our bodies.



#### **4. Clinical trials**

The first tests of the medicine in humans. This helps to understand more about the medicine's safety and efficacy.

#### **5. More clinical trials**

Test the medicines in larger and more diverse populations. This makes sure the medicine is safe and works as expected. It also helps doctors to know how to prescribe it safely for everyone.

#### **6. Registering and monitoring**

Register your new medicine! Checking the medicine is safe and effective does not stop at the end of the clinical trial! Medicines are monitored in a process called pharmacovigilance. This helps to ensure that each medicine is used as safely and as effectively as possible to help treat people around the world.

**Developing medicines can be a long and expensive process. It can take an average of 9–12 years for a drug to be developed from the lab bench to be used to treat patients. Pharmacologists are involved at every stage of the process.**