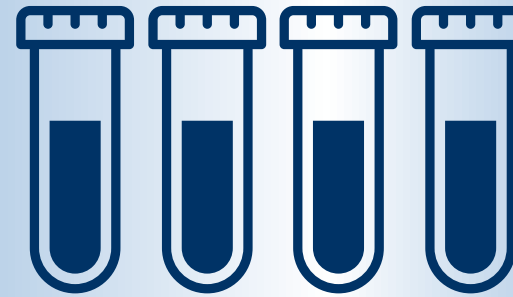


HOW WE DISCOVER OUR **INNOVATIVE MEDICINES**

Compounds

10,000

Researchers identify 'targets' such as genes or proteins involved in diseases and then search or 'screen' many thousands of potential compounds or 'candidates' that may act on the target and have the potential to change the course of disease.



DISCOVERY RESEARCH 4–5 years

- Target identification & validation
- Assay development
- Lead identification
- Lead optimization
- Biomarker development
- Pre-development

Years

01

02

03

04

05

06

07

08

09

10

11

12

13

14

15

200

DEVELOPMENT 6–8 years

Pre-clinical

Phase 1 20–100 Healthy Volunteer

Phase 2 100–500 Patients

Phase 3 1000–5000 Patients



Only about 200 will progress to be investigated in pre-clinical trials which investigate the safety and efficacy of the compounds. 5 to 10 candidates will advance to clinical trials where they will be studied in humans.

10

5

1–2 in 10,000

On average, only one to two of every 10,000 substances synthesized in laboratories will be investigated in late-stage clinical trials and finally made available to patients.²

01

REGISTRATION 1–2 years

Only when a potential new medicine has been demonstrated to be effective and safe will it be submitted to the regulatory authorities for approval.



12–15 YEARS

It takes, on average, about 12–15 years from discovery to the approved medication and requires a significant investment.¹

REGULATORY APPROVAL

REFERENCES:

1. DiMasi et al, Journal of Health Economics, January 2016

2. The Pharmaceutical Industry in Figures. European Federation of Pharmaceutical Industries. Key Data 2018 https://www.efpia.eu/media/361960/efpia-pharmafigures2018_v07-hq.pdf