VACCINES | |

Our Best Hope for a Long-Term Solution

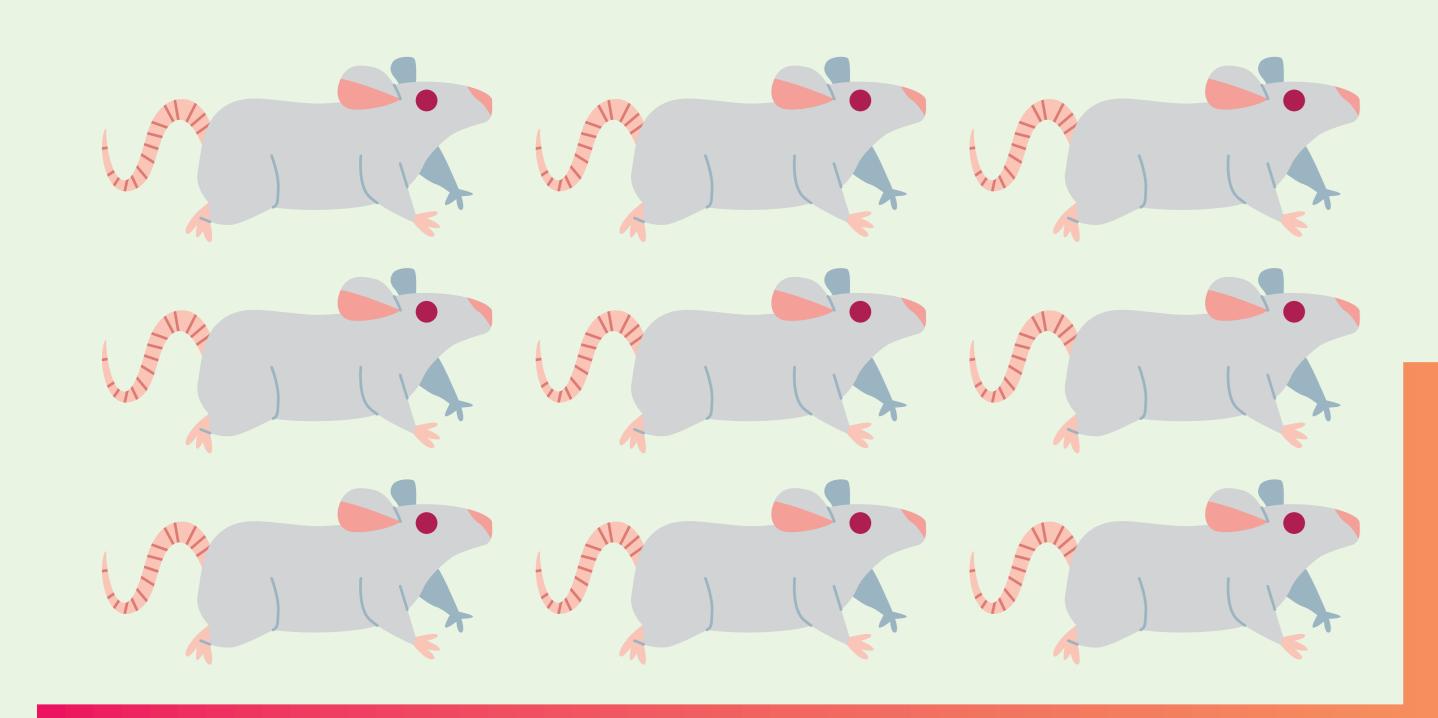
What is a vaccine?

A vaccine is a substance that stimulates the body to build active immunity against a virus, effectively protecting the body from the disease it causes.



Pocket Fact:

Vaccines are usually injected into the body, but some vaccines are administered by mouth or sprayed into the nose!



Preclinical

A vaccine candidate, usually containing a weakened or "killed" virus, is tested on animals. In this stage, the approximate dose of vaccine is determined, as well as any negative side effects.



Pocket Fact:

Viruses are not considered living things as they cannot live or survive without a host cell.



Pocket Fact:

Instead of whole viruses, parts of viruses called antigens can also effectively trigger the human immune response!

Phase

The vaccine candidate is then tested on a small group of healthy people to assess its safety and determine any negative side effects. Antibody production by the body is also observed.



Pocket Fact:

Antibody production is the body's natural response to fight infections!



Vaccine Development Process

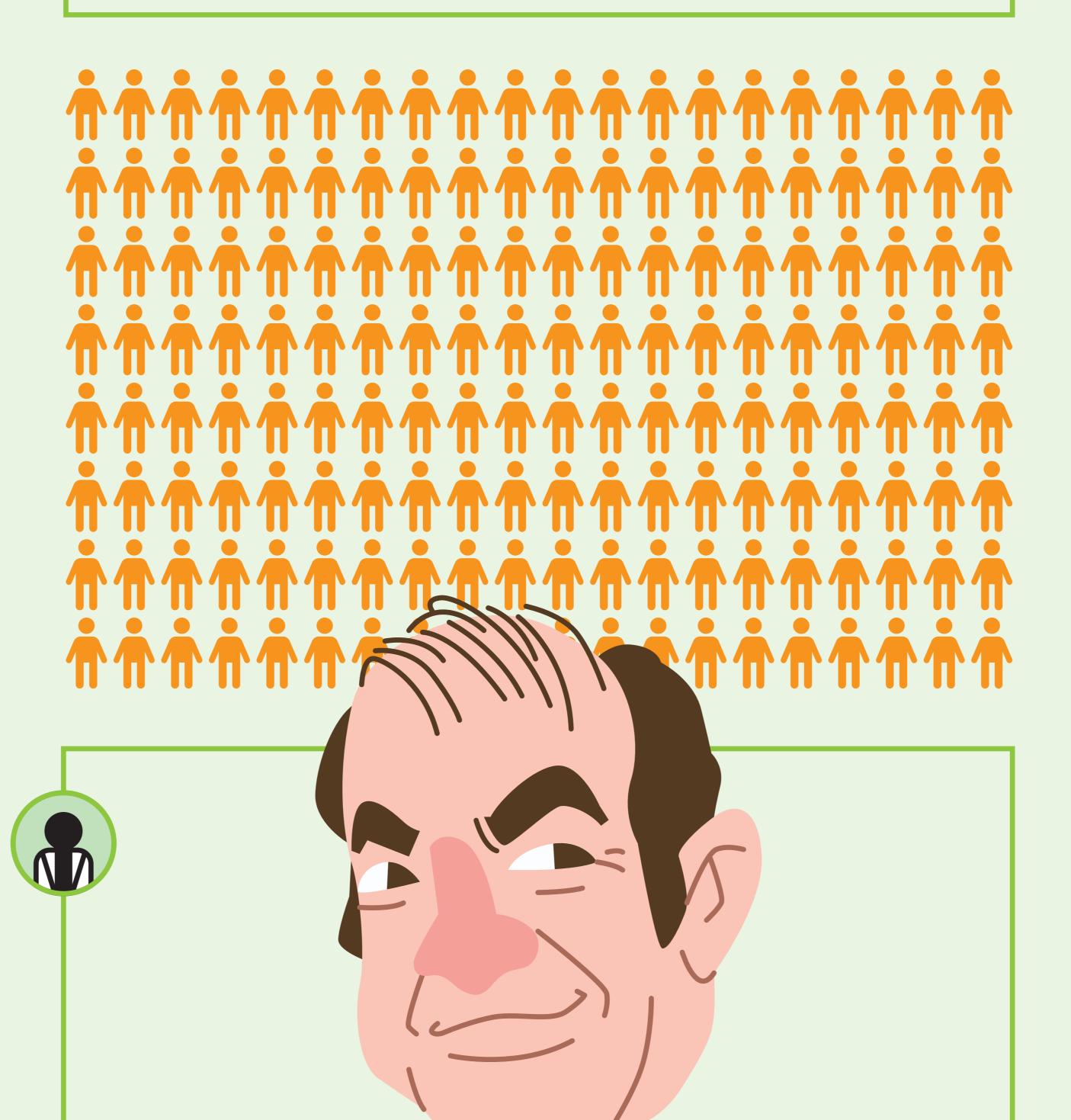
Phase II

The same data is collected as in Phase II, but in this stage, a larger scale.



Pocket Fact:

Placebo, or fake drug, is used in blinded trials to ensure recipients do not know whether they receive a real or fake treatment.



Virus Hunter Icon:

Baruch Blumberg discovered the antigen responsible for hepatitis B immune response, leading to the successful production of hepatitis B vaccine.

Phase III

The effectiveness of the candidate vaccine against the disease is determined at this stage, tested on a large scale—involving even up to thousands of people!





Try This:

Can you recall the role of antigens in the human immune response?

Approval

If the candidate vaccine successfully enters and completes all previous stages, it can be licensed and marketed upon approval.



Pocket Fact:

FDA is responsible for vaccine approval in the US.



This is a replica of the six vaccines put into the National Millennium Time Capsule.

"Six Vaccines of the Twentieth Century Which Averted Illness, Disability, and Death and Changed the Face of the World. Dr. Maurice R. Hilleman, December 1999."



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What's Next?

The highly complex process of vaccine development utilizes multiple tools, technologies and techniques to ensure the safety and efficacy of the final licensed vaccine.

Let's continue virus hunting!