

## Problem

The current drug discovery process takes multiple phases, spans several years, and costs several billion just to bring a new drug to market. This is due to the fact that we can't fully predict how the human body will react to a certain drug. Meanwhile, we have issues like antibiotic resistance and new pandemics occurring.

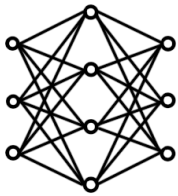
## Pharmabit

A quantum simulation paired with smart AI algorithms allows for the possibility of speeding up the drug discovery process by calculating possible candidates and repurposing pre-approved drugs in a blink of an eye. Clinical trials are no longer necessary as tests can be conducted on cell models and tissues in parallel.

## Our Solution

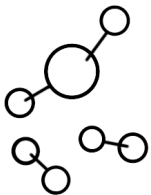
The current drug discovery process takes an excessive amount of time. Pharmabit mass accelerates this process through quantum simulation and allows us to zero in on the perfect vaccine candidates using quantum annealing

## Pharmabit In Action



### Identifying the Virus

First off we are able to identify a virus through multiple established processes and techniques. Such as the Polymerase Chain Reaction or PCR for short. This test enables us to identify the sequence of the virus through, amplifying and annealing (separate strands of) specific segments of the viral RNA/DNA.



### Immunological Memory

Our bodies are able to recognize certain pathogens that we have come into contact with previously. When the specific antigens are recognized, our body responds by triggering a corresponding immune response, building certain antibodies that are able to bind to the cells. Viruses trigger this immune response and Pharmabit is able to trace back to past vaccines and repurpose them based on the extracted RNA/DNA sequence.



### Quantum Annealing

By recognizing different epigenetic and genetic biomarkers on B-Cells we can better build protein-profiles. Through simulation of the compound and immune cells, we can quickly discover how a potential candidate affects different populations over a period of years in a few minutes. Quantum annealing is able to optimize for a minimum of a given function within a set of candidates using quantum fluctuations. By leveraging quantum annealing we can optimize for the most effective dosage.

*Imagine a society without any diseases, quantum computing has the potential to achieve that!*