

The PIN codes of the immune system can be hacked

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There are several reasons why the world is still plagued by diseases we cannot treat or vaccinate against, one of them being the vast complexity of the human immune system. Danish researchers have now developed a method, which can help expose a complicated but crucial part of the immune system's defence mechanisms. This method can lead to entirely new vaccines and treatments.

Researchers from BioCentrum DTU and the Faculty of Health Sciences at the University of Copenhagen have combined the fields of Bioinformatics and ImmunoChemistry and created models of neural networks, which can do what has thus far been impossible: Simulate how the immune system defends itself from disease.

The neural network models also indicate that the immune system protects itself from being deceived by microorganisms, by using ingenious PIN code-like mechanisms. Every human being has its own unique immune system PIN code, so that even if e.g. a virus unlocks the code in one person, the knowledge gained by the virus is useless in infecting the next individual.

But the same defence mechanism makes it difficult to decode the entire human immune system and develop precise immunological treatments such as vaccines.

With the new neural network models, however, Danish researchers will be able to predict all the different known, but also the as of yet unknown

immune system PIN codes. This makes it the most comprehensive tool of its kind, putting the technology at the forefront of international research. News of the development has just been published in the scientific journal PloS ONE.

Source: University of Copenhagen

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