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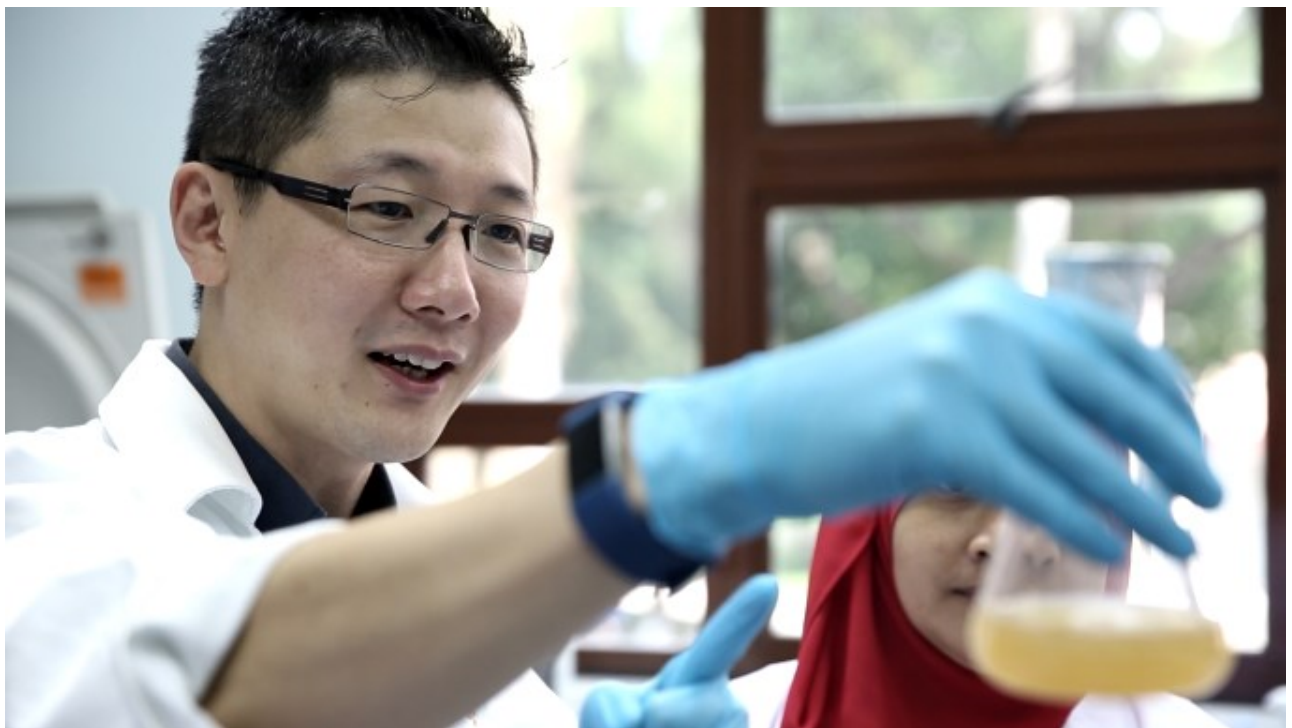
NEED GOOD GENES? WE CAN HACK AND RE-ENGINEER THEM



PENANG, 2 May 2017 - When we praise people on their good looks or other outstanding traits, saying 'it must be in your genes' would be one way of doing so (while we lament ours).

Having good genes is the desire of many, but having them would be more to one's advantage in the future than merely for good looks alone.

Genes influence human traits and behaviours, and also with regard to health and diseases.

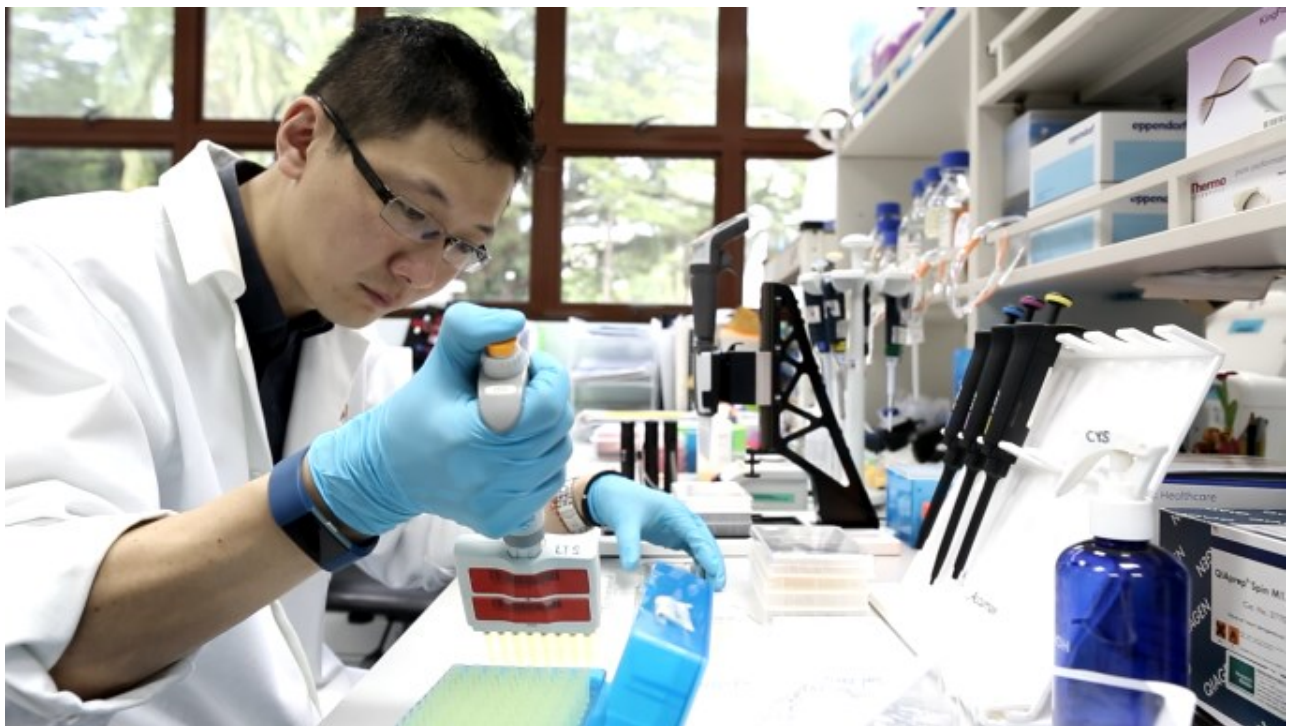


Dr. Lim Theam Soon surely knows a thing or two when it comes to taking a closer look at the genes. Currently attached to the Institute for Research in Molecular Medicine (INFORMM) at Universiti Sains Malaysia (USM), he has undergone training at the Max Planck Institute for Molecular Genetics in Germany on DNA-based technology.

He has since been focusing on research regarding antibody engineering, with an emphasis on sensing and therapeutic applications.

Much like a computer hacker, Lim can be regarded as a 'gene hacker'. His research looks into how human antibodies can be customized through genetic engineering.

He studies the human antibody genes and recreates these antibodies using the help of viruses and bacteria in test tubes. Viruses are used to help in the discovery process to identify required antibodies.



Bacteria are used as they can play host in the production of different types of protein. Antibodies are proteins, along with Sortase A and invertase; also referred to as enzymes.

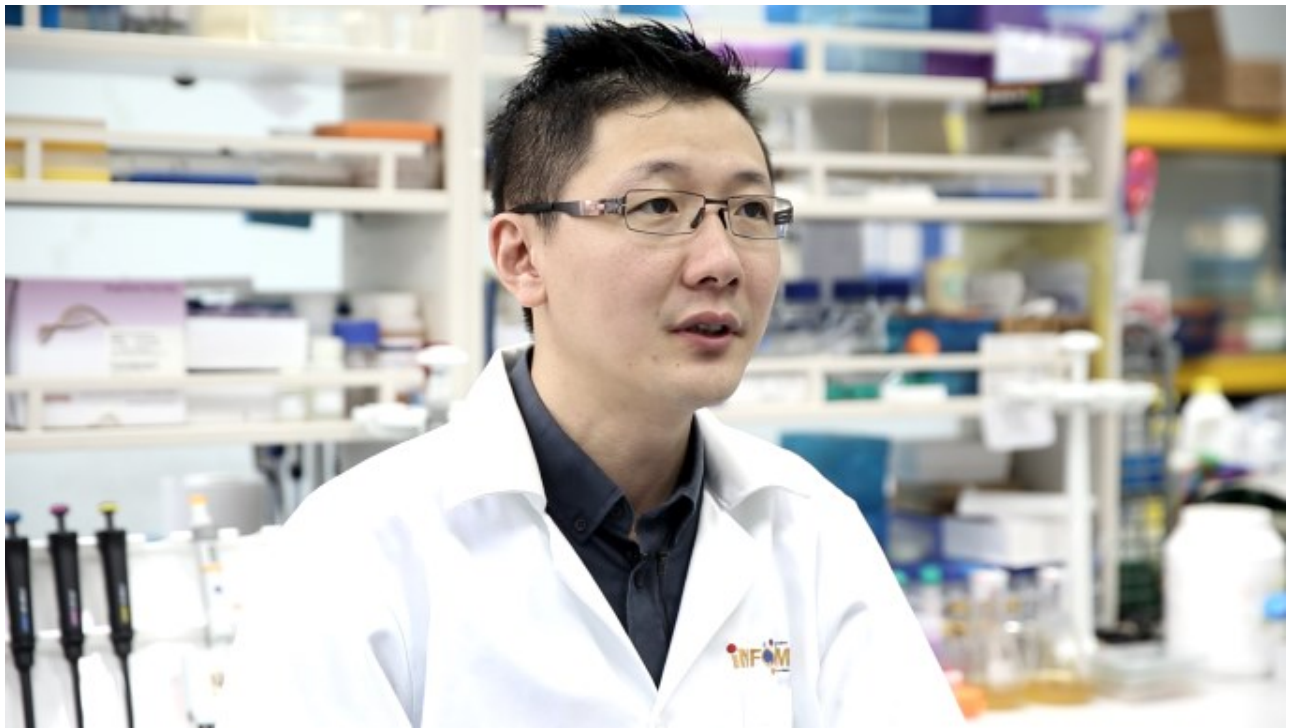
Although many of us regard viruses and bacteria as bad news, they are considered by Lim as best friends.

He engineers human antibodies by taking different blocks of genetic sequences, and basically putting them together in a virus to identify unique antibodies that fulfil more specified and different functions.

The genes would be combined in the laboratory to produce new human antibodies that could detect certain diseases. The system put together by his team allows the assembly of these antibodies with a set of different enzymes produced by bacteria to play a specific role in telling you if the antibodies have captured the target or not.

As the blocks are interchangeable (much like Lego blocks, but totally different in looks though), they can be geared to detect other diseases as the need arises with different indicators.

The 'gene hacker' and his team would be aiming to 'hack' into and modify the system (antibody response, that is) so that the system can be applied for the detection of dengue fever, as a start.



Dengue poses a major problem to the country and the local community. Genetic engineering could be utilised to identify it much earlier and offer the potential means to deal with this problem as well as other such problems in the future.

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