Scientists reveal the coronavirus camouflage that will aid hunt for vaccine
9 April 2020

They were then able to map the structure of the glycans which provides important information about how accessible the viral protein surface is to antibodies, this is an important step in vaccine design.

"By coating themselves in sugars, viruses are like a wolf in sheep's clothing," explained Professor Crispin. "But one of the key findings of our study is that despite how many sugars there are, this coronavirus is not as highly shielded as some other viruses."

"Viruses like HIV, which hang around in one host, have to evade the immune system constantly and they have a really dense coat of glycans as a shield to the immune system; but in the case of the coronavirus the lower shielding by sugars attached to it may reflect that it is a 'hit and run' virus, moving from one person to the next. However, the lower glycan density means there are fewer obstacles for the immune system to neutralize the virus with antibodies. So this is a very encouraging message for vaccine development."

At Southampton, Professor Crispin's team includes Ph.D. students Yasunori Watanabe and Joel Allen, and they worked closely with Jason McLellan's team from the University of Texas who were the first to determine the structure of SARS-CoV-2. They have released their findings ahead of peer-review on the BioRxiv preprint server.

Professor Crispin's team has a very strong history in analyzing the features of viruses and they have made key discoveries determining the features of the natively folded spike of HIV.

They are now working with partners who have developed candidate vaccines, including Professor Rogier Sanders at the University of Amsterdam, and are now analyzing the glycan content in Southampton. Evaluating the glycans on immunogens will determine how closely they mimic...
a natively folded viral spike and will help understand
the immune response to vaccine candidates.

More information: Yasunori Watanabe et al. Site-
specific analysis of the SARS-CoV-2 glycan shield,

Provided by University of Southampton
APA citation: Scientists reveal the coronavirus camouflage that will aid hunt for vaccine (2020, April 9)
retrieved 16 April 2020 from

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.