Review 1: "A Targeted Vaccine against COVID-19: S1-Fc Vaccine Targeting the Antigen-Presenting Cell Compartment Elicits Protection against SARS-CoV-2 Infection"

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This manuscript focuses on developing a vaccine for SARS COV-2. The authors develop an Fc-fused antigen of the S1 domain of SARS COV-2, which is designed to target antigen to Fc-gamma-R+ APCs. The antigen is delivered as both a plasmid and as recombinant protein.

Several biochemical assays were performed to demonstrate that the Fc-S1 fusion protein was expressed properly and was able to bind the Ace2 receptor. Animal experiments are presented that demonstrate that the Fc-S1 antigen, in the protein format, can elicit antibodies and that these antibodies can inhibit viral replication in cells.

The Fc-S1 fused antigen strategy seems promising, and given the urgent need for a vaccine, this data is worth publishing.

A few controls would enhance the quality of the paper.

(1) Immunization with just the S1 protein is necessary to determine the impact and significance of the Fc fusion

(2) The viral inhibition assay needs additional verification, RT-PCR on the virus treated cells should be done to verify that viral inhibition has actually occurred.

(3) There are currently several other SARS COV-2 vaccines being developed, it would be very helpful to have a side by side comparison against an mRNA vaccine or an attenuated viral vaccine.