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(54) Title: A RECOMBINANT CONSTRUCT FOR SCREENING DRUGS AGAINST SARS-COV-2 SPIKE PROTEIN

(57) Abstract: Trypsin/trypsin-like proteases have been reported to be facilitating SARS-CoV-2 entry into host cells. Spike has protease cleavage sites between the S1 and S2 domains. Cleavage property of proteases can be used to design drug screening assays meant for screening antiviral candidates against spike cleavage. In the claimed invention we have developed a proof-of-concept assay system for screening drugs against proteases which cleave spike between S1 and S2. We designed a fusion substrate protein containing a reporter protein, the protease cleavage site between S1 and S2 and a cellulose binding domain. The substrate protein can be immobilized on cellulose due to the presence of cellulose binding domain (CBD). When proteases cleave the substrate, CBD remains bound to cellulose and the reporter protein is dislodged. The released reporter can be used as read out of protease activity.