

Scientific report on the detection of Delta variant virus by KOCH

COVID-19 antigen rapid test product

Recent studies have shown that there are mainly the following types of mutant strains from India (shown in the table below). The Delta variant is significantly more infectious. At present, infections have been found in more than 90 countries around the world. Through the mutation analysis and in vitro detection of the Delta variant, we will prove the effectiveness of the KOCH antigen rapid detection product.

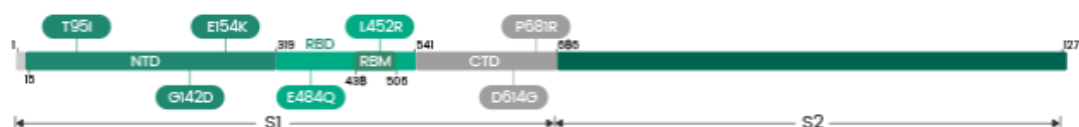
Mutant	Main mutation area	Mutation site (S protein)	Mutation site (N protein)
B.1.617	S1 protein area	D614G, E484Q, L452R	R203M, D377Y
B.1.617.1	S1 protein area	T95I, G142D, E154K, L452R, E484Q, D614G, P681R	R203M, D377Y
B.1.617.2	S1 protein area	T19R, G142D, E156G, del157/158, L452R, T478K, D614G, P681R	D63G, R203M, D377Y
B.1.617.3	S1 protein area	T19R, G142D, L452R, E484Q, D614G, P681R	P67S, R203M, D377Y

● Variants in S Protein:

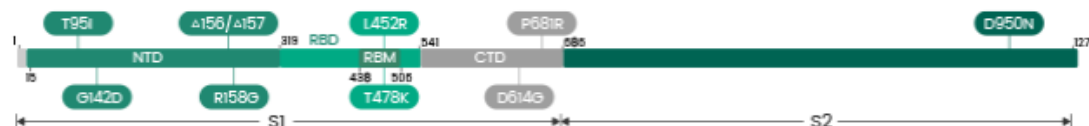
B.1.617



B.1.617.1



B.1.617.2



B.1.617.3



● Variants in N Protein

B.1.617 & B.1.617.1



B.1.617.2



B.1.617.3



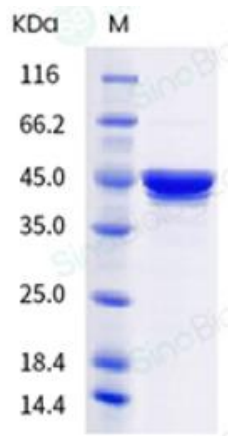
The target of KOCH COVID-19 antigen rapid detection product is SARS-CoV-2 N protein, and the main mutation site of Delta is located in S protein, which has no effect on detection. Nevertheless, we still used recombinant Delta N protein and conducted verification experiments in vitro. The results are shown in the table below.

Mutant N protein	Concentration	Test results	Result judgment
B.1.617 & B.1.617.1	1ng/mL	+	effective
B.1.617.2	1ng/mL	+	effective
B.1.617.3	1ng/mL	+	effective

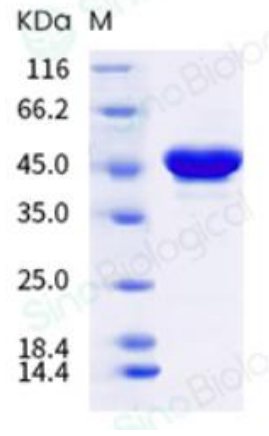
The image of the mutant N protein electrophoresis used in the test is as follows, and the purity is greater than 98%.



B.1.617 & B.1.617.1



B.1.617.2



B.1.617.3

In summary, the KOCH antigen rapid test product is effective against Delta mutant virus.