

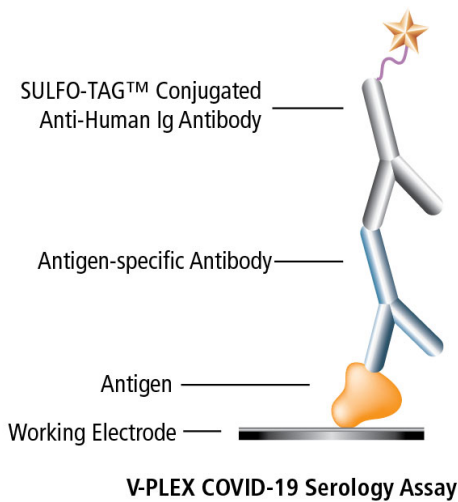


V-PLEX[®] Serology Panels for SARS-CoV-2 Variants

V-PLEX Serology Panels now available for more than 20 SARS-CoV-2 variants, including the Alpha, Beta, Gamma, and Delta variants. These tests supplement MSD's V-PLEX SARS-CoV-2 Panel 2, which was chosen by Operation Warp Speed (OWS) as the basis of its standard binding assays for immunogenicity assessments in all funded Phase III clinical trials of vaccines.

V-PLEX Serology Panels are provided as complete kits, including the same reference standards and controls that are being used in OWS laboratories to analyze clinical trial samples. The Reference Standard 1 in V-PLEX Serology kits is calibrated against the WHO International Standard (NIBSC code: 20/136).

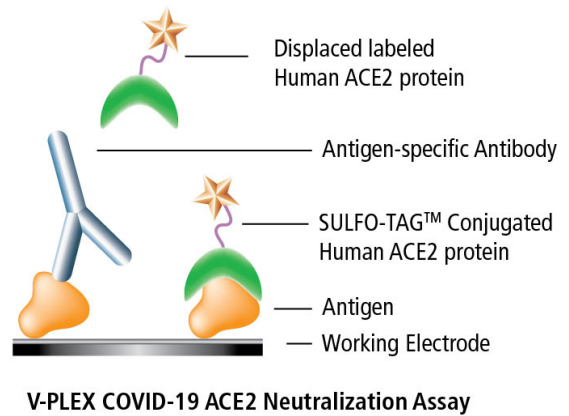
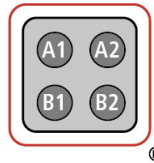
Kits are available in 96- and 384-well formats for quantitative serological testing and functional testing (ACE2 blocking).



MSD MULTI-SPOT[®]
96-Well 10-Spot Plate



MSD MULTI-SPOT[®]
384-Well 4-Spot Plate



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SARS-CoV-2 Spike Antigens

Lineages	Amino Acid Modifications	Common Designation
A.23.1	F157L, V367F, Q613H, P681R	Uganda
A.VOI.V2	D80Y, ΔY144, ΔI210, D215G, Δ246-248, L249M, W258L, R346K, T478R, E484K, H655Y, P681H, Q957H	Tanzania
AY.1	T19R, Δ157/158, K417N, L452R, T478K, D614G, P681R, D950N	Nepal
AY.2	T19R, V70F, G142D Δ157/158, A222V, K417N, L452R, T478K, D614G, P681R, D950N	India
B.1	D614G	-
B.1.1.519	T478K, D614G, P681H, T732A	Mexico/Texas BV-2
B.1.1.7	ΔH69-V70, ΔY144, N501Y, A570D, D614G, P681H, T716I, S982A, D1118H	U.K. (Alpha)
B.1.1.7+E484K	ΔH69-V70, ΔY144, E484K, N501Y, A570D, D614G, P681H, T716I, S982A, D1118H	U.K.
B.1.258.17	ΔH69-V70, L189F, N439K, D614G, V772I	Europe
B.1.351	L18F, D80A, D215G, Δ242-244, R246I, K417N, E484K, N501Y, D614G, A701V	South Africa (Beta)
B.1.351.1	D80A, D215G, K417N, E484K, N501Y, D614G, A701V	Botswana
B.1.429	S13I, W152C, L452R, D614G	California (Epsilon)
B.1.466.2	W152R, N439K, D614G, P681R	Indonesia
B.1.525	Q52R, A67V, ΔH69-V70, Δ144, E484K, Q677H, D614G, F888L	Nigeria (Eta)
B.1.526	L5F, T95I, D253G, E484K, D614G, A701V	New York (Iota)
B.1.526.1	D80G, ΔY144, F157S, L452R, D614G, T859N, D950H	New York
B.1.617	L452R, E484Q, D614G	India
B.1.617.1	T95I, G142D, E154K, L452R, E484Q, D614G, P681R, Q1071H	India (Kappa)
B.1.617.2 (AY.3)	T19R, Δ157/158, L452R, T478K, D614G, P681R, D950N	India (Delta)
B.1.617.2 [‡]	T19R, G142D, Δ156/157, R158G, L452R, T478K, D614G, P681R, D950N	India (Delta)
B.1.617.2+ΔY144	T19R, ΔY144, Δ157/158, L452R, T478K, D614G, P681R, D950N	Vietnam
B.1.617.3	T19R, G142D, L452R, E484Q, D614G, P681R, D950N	India
B.1.618	ΔY145/146, E484K, D614G	India
B.1.620	P26S, ΔH69-V70, V126A, ΔY144, Δ242-244, H245Y, S477N, E484K, D614G, P681H, T1027I, D1118H	Europe
BV-1	ΔH69-V70, ΔY144, Q493R, N501Y, A570D, D614G, P681H, T716I, S982A, D1118H	Texas BV-1
C.37	G75V, T76I, ΔR246, ΔS247, ΔY248, ΔL249, ΔT250, ΔP251, ΔG252, D253N, L452Q, F490S, D614G, T859N	Chile/Peru
P.1	L18F, T20N, P26S, D138Y, R190S, K417T, E484K, N501Y, D614G, H655Y, T1027I, V1176F	Brazil (Gamma)
P.2	E484K, D614G, V1176F	Brazil (Zeta)
P.3	Δ141-143, E484K, N501Y, D614G, P681H, E1092K, H1101Y, V1176F	Philippines
R.1	W152L, E484K, D614G, G769V	Kentucky

- = Not applicable

[‡]Alternative S-GENE mutations for Spike of B.1.617.2 listed by CDC



SARS-CoV-2 S1 RBD Antigens

Lineages	Amino Acid Modifications	Common Designation
A.23.1	V367F	Uganda
A.VOI.V2	R346K, T478R, E484K	Tanzania
AY.3	L452R, T478K	India (Delta)
B.1.1.519	T478K	Mexico/Texas BV-2
B.1.1.7	N501Y	U.K. (Alpha)
B.1.1.7+E484K	E484K, N501Y	U.K.
B.1.214.2	Q414K, N450K	Belgium
B.1.351	K417N, E484K, N501Y	South Africa (Beta)
B.1.351.1	K417N, E484K, N501Y	Botswana
B.1.427	L452R	California (Epsilon)
B.1.429	L452R	California (Epsilon)
B.1.525	E484K	Nigeria (Eta)
B.1.526	E484K	New York (Iota)
B.1.526.1	L452R	New York
B.1.526.2	S477N	New York
B.1.617	L452R, E484Q	India
B.1.617.1	L452R, E484Q	India (Kappa)
B.1.617.2	L452R, T478K	India (Delta)
B.1.617.2+ΔY144	L452R, T478K	Vietnam
B.1.617.3	L452R, E484Q	India
B.1.618	E484K	India
BV-1	Q493R, N501Y	Texas BV-1
C.37	L452Q, F490S	Chile/Peru
P.1	K417T, E484K, N501Y	Brazil (Gamma)
P.2	E484K	Brazil (Zeta)
P.3	E484K, N501Y	Philippines
R.1	E484K	Kentucky

- = Not applicable



SARS-CoV-2 Variant Focus Panels

SARS-CoV-2 384 Panel 2	Spot Location	Lineages	Antigens	Common Designation
K25420U (IgG) K25421U (IgM) K25422U (IgA) K25423U (ACE2)	Spot A1	A (WT)	SARS-CoV-2 Spike	Wuhan
	Spot A2	A (WT)	SARS-CoV-2 Nucleocapsid	Wuhan
	Spot B1	B.1.351	SARS-CoV-2 S1 RBD (B.1.351)	South Africa (Beta)
	Spot B2	B.1.351	SARS-CoV-2 Spike (B.1.351)	South Africa (Beta)

SARS-CoV-2 Panel 5	Spot Location	Lineages	Antigens	Common Designation
K15429U (IgG) K15430U (IgM) K15431U (IgA) K15432U (ACE2)	Spot 1	A (WT)	SARS-CoV-2 Spike	Wuhan
	Spot 2	-	BSA	-
	Spot 3	A (WT)	SARS-CoV-2 Nucleocapsid	Wuhan
	Spot 4	-	BSA	-
	Spot 5	-	BSA	-
	Spot 6	-	BSA	-
	Spot 7	P.1	SARS-CoV-2 Spike (P.1)	Brazil (Gamma)
	Spot 8	B.1.1.7	SARS-CoV-2 Spike (B.1.1.7)	U.K. (Alpha)
	Spot 9	B.1.351	SARS-CoV-2 Spike (B.1.351)	South Africa (Beta)
	Spot 10	-	BSA	-

SARS-CoV-2 Panel 6	Spot Location	Lineages	Antigens	Common Designation
K15433U (IgG) K15434U (IgM) K15435U (IgA) K15436U (ACE2)	Spot 1	A (WT)	SARS-CoV-2 Spike	Wuhan
	Spot 2	-	SARS-CoV-2 Spike (D614G)	-
	Spot 3	A (WT)	SARS-CoV-2 Nucleocapsid	Wuhan
	Spot 4	-	BSA	-
	Spot 5	-	BSA	-
	Spot 6	-	BSA	-
	Spot 7	P.1	SARS-CoV-2 Spike (P.1)	Brazil (Gamma)
	Spot 8	B.1.1.7	SARS-CoV-2 Spike (B.1.1.7)	U.K. (Alpha)
	Spot 9	B.1.351	SARS-CoV-2 Spike (B.1.351)	South Africa (Beta)
	Spot 10	A (WT)	SARS-CoV-2 S1 RBD	Wuhan



SARS-CoV-2 Panel 7	Spot Location	Lineages	Antigens	Common Designation
K15437U (IgG) K15438U (IgM) K15439U (IgA) K15440U (ACE2)	Spot 1	A (WT)	SARS-CoV-2 Spike	Wuhan
	Spot 2	B.1.351	SARS-CoV-2 S1 RBD (B.1.351)	South Africa (Beta)
	Spot 3	A (WT)	SARS-CoV-2 Nucleocapsid	Wuhan
	Spot 4	P.1	SARS-CoV-2 S1 RBD (P.1)	Brazil (Gamma)
	Spot 5	-	BSA	-
	Spot 6	B.1.1.7	SARS-CoV-2 S1 RBD (B.1.1.7)	U.K. (Alpha)
	Spot 7	P.1	SARS-CoV-2 Spike (P.1)	Brazil (Gamma)
	Spot 8	B.1.1.7	SARS-CoV-2 Spike (B.1.1.7)	U.K. (Alpha)
	Spot 9	B.1.351	SARS-CoV-2 Spike (B.1.351)	South Africa (Beta)
	Spot 10	A (WT)	SARS-CoV-2 S1 RBD	Wuhan

SARS-CoV-2 Panel 8	Spot Location	Lineages	Antigens	Common Designation
K15444U (IgG) K15445U (IgM) K15446U (IgA) K15447U (ACE2)	Spot 1	A (WT)	SARS-CoV-2 Spike	Wuhan
	Spot 2	B.1.429	SARS-CoV-2 S1 RBD (B.1.429)	California (Epsilon)
	Spot 3	A (WT)	SARS-CoV-2 Nucleocapsid	Wuhan
	Spot 4	B.1.526	SARS-CoV-2 S1 RBD (B.1.526)	New York (Iota)
	Spot 5	-	BSA	-
	Spot 6	B.1.526.2	SARS-CoV-2 S1 RBD (B.1.526.2)	New York
	Spot 7	-	BSA	-
	Spot 8	B.1.526	SARS-CoV-2 Spike (B.1.526)	New York (Iota)
	Spot 9	B.1.429	SARS-CoV-2 Spike (B.1.429)	California (Epsilon)
	Spot 10	A (WT)	SARS-CoV-2 S1 RBD	Wuhan



NEW! SARS-CoV-2 Variant Screening Panels

SARS-CoV-2 Panel 9	Spot Location	Lineages	Antigens	Common Designation
K15448U (IgG) K15449U (IgM) K15450U (IgA) K15451U (ACE2)	Spot 1	B.1.427; B.1.429; B.1.526.1	SARS-CoV-2 S1 RBD (L452R)	California (Epsilon), California, New York
	Spot 2	B.1.351; B.1.351.1	SARS-CoV-2 S1 RBD (K417N, E484K, N501Y)	South Africa (Beta), Botswana
	Spot 3	B.1.525; B.1.526; B.1.618; P.2; R.1	SARS-CoV-2 S1 RBD (E484K)	Nigeria (Eta), New York (Iota), India, Brazil (Zeta), Kentucky
	Spot 4	P.1	SARS-CoV-2 S1 RBD (K417T, E484K, N501Y)	Brazil (Gamma)
	Spot 5	B.1.526.2	SARS-CoV-2 S1 RBD (S477N)	New York
	Spot 6	B.1.1.7	SARS-CoV-2 S1 RBD (N501Y)	U.K. (Alpha)
	Spot 7	B.1.1.7+E484K; P.3	SARS-CoV-2 S1 RBD (E484K, N501Y)	U.K., Philippines
	Spot 8	B.1.617; B.1.617.1; B.1.617.3	SARS-CoV-2 S1 RBD (L452R, E484Q)	India (Kappa), India
	Spot 9	B.1.214.2	SARS-CoV-2 S1 RBD (Q414K, N450K)	Belgium
	Spot 10	A (WT)	SARS-CoV-2 S1 RBD	Wuhan

SARS-CoV-2 Panel 11	Spot Location	Lineages	Antigens	Common Designation
K15455U (IgG) K15456U (IgM) K15457U (IgA) K15458U (ACE2)	Spot 1	B.1.427; B.1.429; B.1.526.1	SARS-CoV-2 S1 RBD (L452R)	California (Epsilon), California, New York
	Spot 2	B.1.351; B.1.351.1	SARS-CoV-2 S1 RBD (K417N, E484K, N501Y)	South Africa (Beta), Botswana
	Spot 3	B.1.525; B.1.526; B.1.618; P.2; R.1	SARS-CoV-2 S1 RBD (E484K)	Nigeria (Eta), New York (Iota), India, Brazil (Zeta), Kentucky
	Spot 4	P.1	SARS-CoV-2 S1 RBD (K417T, E484K, N501Y)	Brazil (Gamma)
	Spot 5	B.1.526.2	SARS-CoV-2 S1 RBD (S477N)	New York
	Spot 6	B.1.1.7	SARS-CoV-2 S1 RBD (N501Y)	U.K. (Alpha)
	Spot 7	B.1.1.7+E484K; P.3	SARS-CoV-2 S1 RBD (E484K, N501Y)	U.K., Philippines
	Spot 8	B.1.617; B.1.617.1; B.1.617.3	SARS-CoV-2 S1 RBD (L452R, E484Q)	India (Kappa), India
	Spot 9	AY.3; B.1.617.2; B.1.617.2+Δ144	SARS-CoV-2 S1 RBD (L452R, T478K)	India (Delta), Vietnam
	Spot 10	A (WT)	SARS-CoV-2 S1 RBD	Wuhan



SARS-CoV-2 Panel 12	Spot Location	Lineages	Antigens	Common Designation
K15459U (IgG) K15460U (IgM) K15461U (IgA) K15462U (ACE2)	Spot 1	A.23.1	SARS-CoV-2 S1 RBD (V367F)	Uganda
	Spot 2	C.37	SARS-CoV-2 S1 RBD (L452Q, F490S)	Chile/Peru
	Spot 3	B.1.525; B.1.526; B.1.618; P.2; R.1	SARS-CoV-2 S1 RBD (E484K)	Nigeria (Eta), New York (Iota), India, Brazil (Zeta), Kentucky
	Spot 4	BV-1	SARS-CoV-2 S1 RBD (Q493R, N501Y)	Texas BV-1
	Spot 5	B.1.1.519	SARS-CoV-2 S1 RBD (T478K)	Mexico/Texas BV-2
	Spot 6	A.VOI.V2	SARS-CoV-2 S1 RBD (R346K, T478R, E484K)	Tanzania
	Spot 7	B.1.1.7+E484K; P.3	SARS-CoV-2 S1 RBD (E484K, N501Y)	U.K., Philippines
	Spot 8	B.1.617; B.1.617.1; B.1.617.3	SARS-CoV-2 S1 RBD (L452R, E484Q)	India (Kappa), India
	Spot 9	AY.3; B.1.617.2; B.1.617.2+Δ144	SARS-CoV-2 S1 RBD (L452R, T478K)	India (Delta), Vietnam
	Spot 10	A (WT)	SARS-CoV-2 S1 RBD	Wuhan

SARS-CoV-2 Panel 13	Spot Location	Lineages	Antigens	Common Designation
K15463U (IgG) K15464U (IgM) K15465U (IgA) K15466U (ACE2)	Spot 1	A (WT)	SARS-CoV-2 Spike	Wuhan
	Spot 2	P.2	SARS-CoV-2 Spike (P.2)	Brazil (Zeta)
	Spot 3	B.1.617.1	SARS-CoV-2 Spike (B.1.617.1)	India (Kappa)
	Spot 4	B.1.617.2 (AY.3)	SARS-CoV-2 Spike (AY.3; B.1.617.2)	India (Delta)
	Spot 5	B.1.617.3	SARS-CoV-2 Spike (B.1.617.3)	India
	Spot 6	B.1.617	SARS-CoV-2 Spike (B.1.617)	India
	Spot 7	P.1	SARS-CoV-2 Spike (P.1)	Brazil (Gamma)
	Spot 8	B.1.1.7	SARS-CoV-2 Spike (B.1.1.7)	U.K. (Alpha)
	Spot 9	B.1.351	SARS-CoV-2 Spike (B.1.351)	South Africa (Beta)
	Spot 10	B.1.526.1	SARS-CoV-2 Spike (B.1.526.1)	New York

SARS-CoV-2 Panel 14	Spot Location	Lineages	Antigens	Common Designation
K15468U (IgG) K15469U (IgM) K15470U (IgA) K15471U (ACE2)	Spot 1	A (WT)	SARS-CoV-2 Spike	Wuhan
	Spot 2	A.23.1	SARS-CoV-2 Spike (A.23.1)	Uganda
	Spot 3	A.VOI.V2	SARS-CoV-2 Spike (A.VOI.V2)	Tanzania
	Spot 4	B.1.617.2 [†]	SARS-CoV-2 Spike (B.1.617.2)	India (Delta)
	Spot 5	C.37	SARS-CoV-2 Spike (C.37)	Chile/Peru
	Spot 6	R.1	SARS-CoV-2 Spike (R.1)	Kentucky
	Spot 7	P.3	SARS-CoV-2 Spike (P.3)	Philippines
	Spot 8	B.1.525	SARS-CoV-2 Spike (B.1.525)	Nigeria (Eta)
	Spot 9	B.1.1.519	SARS-CoV-2 Spike (B.1.1.519)	Mexico/Texas BV-2
	Spot 10	BV-1	SARS-CoV-2 Spike (BV-1)	Texas BV-1

[†]Alternative S-GENE mutations for Spike of B.1.617.2 listed by CDC



SARS-CoV-2 Panel 15	Spot Location	Lineages	Antigens	Common Designation
K15499U (IgG) K15500U (IgM) K15501U (IgA) K15502U (ACE2)	Spot 1	A (WT)	SARS-CoV-2 Spike	Wuhan
	Spot 2	AY.1	SARS-CoV-2 Spike (AY.1)	Nepal
	Spot 3	AY.2	SARS-CoV-2 Spike (AY.2)	India
	Spot 4	B.1.617.2+ΔY144	SARS-CoV-2 Spike (B.1.617.2+ΔY144)	Vietnam
	Spot 5	B.1.620	SARS-CoV-2 Spike (B.1.620)	Europe
	Spot 6	B.1.258.17	SARS-CoV-2 Spike (B.1.258.17)	Europe
	Spot 7	B.1.466.2	SARS-CoV-2 Spike (B.1.466.2)	Indonesia
	Spot 8	B.1.1.7+E484K	SARS-CoV-2 Spike (B.1.1.7+E484K)	U.K.
	Spot 9	B.1.351.1	SARS-CoV-2 Spike (B.1.351.1)	Botswana
	Spot 10	B.1.618	SARS-CoV-2 Spike (B.1.618)	India

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MK-DS-1082-v2-2021Jul

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