

**S1 Fig.** Multiple sequence alignment of 1000 S protein sequences with reference S protein of SARS-CoV-2 (QHD43416.1) showing position 601 to 720 that contains D614G mutation with high frequency

QHD43416.1	601	GTNTSNQVAVLYQDVNCTEVPVAIHADQLTPTWRVYSTGNSNVFQTRAGCLIGAETHVNSYECDIPIGAGICASYQTQTNsprrrarsvasqsiiIAYTMSLGAENSVAYSNNSIAIPTNFTI	720
QJF75467.1	601	.....	720
QII57278.1	601	.....	720
QJR85953.1	601	.....	720
QJX45031.1	601	.....	720
QJS39567.1	601	.....	720
QJF77846.1	601	.....	720
QJR87129.1	601	.....	720
QIZ16509.1	601	.....	720
QIS60546.1	601	.....	720
QJD20632.1	601	.....	720
QJS39579.1	601	.....	720
QIC91196.1	601	.....	720
QIZ16559.1	601	.....	720
QKV38208.1	601	.....	720
QJT73034.1	601	.....	720
QIU81585.1	601	.....	720
QKV39923.1	601	.....	720
QJG65956.1	601	.....	720
QIS30425.1	601	.....	720
QKS90791.1	601	.....	720
QJQ84843.1	601	.....	720
QIZ297039.1	601	.....	720
QKU32813.1	601	.....	720
QKV41471.1	601	.....	720
QIS60489.1	601	.....	720
QJE38426.1	601	.....	720
QLC48052.1	601	.....	720
QII87830.1	601	.....Y.....	720
GHU79173.2	601	.....	720
QIS61422.1	601	.....	720
QJS53398.1	601	.....	720
QKU28894.1	601	.....	720
QIO04367.1	601	.....	720
QIT07011.1	601	.....	720
QII57268.2	601	.....	720
QIS61254.1	601	.....X.....	720
QJE38822.1	601	.....	720
QKG89546.1	601	.....	720
QIU80913.1	601	.....	720
QKK14611.1	601	.....T.....	720
QKV06271.1	601	.....	720
QKV06859.1	601	.....	720
QIU81885.1	601	.....	720
QIU81873.2	601	.....V.....	720
QJW39952.1	601	.....	720
QIS30165.1	601	.....	720
QIS98583.1	601	.....	720
QKV35819.1	601	.....	720
QJS57147.1	601	.....A.....	720
QJF76007.1	601	.....	720
QJC19455.1	601	.....L.....	720
QKU31481.1	601	.....	720
QIS60906.1	601	.....	720
QJR84837.1	601	.....X.....	720
QKU33257.1	601	.....	720
QJQ84676.1	601	.....	720
QIV65033.1	601	.....	720
QKU28906.1	601	.....	720
QJR84993.1	601	.....	720
QIS30335.1	601	.....	720
QIU80973.1	601	.....	720
QJQ39524.1	601	.....	720
QJG65957.1	601	.....	720
QJR84873.1	601	.....	720
QKV78084.1	601	.....	720
QJB39236.1	601	.....	720
QJR84969.1	601	.....X.....	720
QJX45333.1	601	.....	720
QIK50427.1	601	.....G.....	720
QIS61338.1	601	.....	720
QJC20993.1	601	.....	720
QIS61468.1	601	.....	720
QIS30105.1	601	.....X.....	720
QKV06235.1	601	.....	720
QJS54814.1	601	.....	720
QIA20044.1	601	.....	720
QJF11959.1	601	.....	720
QJD47202.1	601	.....	720
QJR85701.1	601	.....	720
QKS65788.1	601	.....	720
QIZ13143.1	601	.....	720
QLC94832.1	601	.....	720
QKS89927.1	601	.....	720
QJR87477.1	601	.....H.....	720
QJR86013.1	601	.....	720
QKU53313.1	601	.....	720
QKV07519.1	601	.....	720
QKV74810.1	601	.....	720
QJD48279.1	601	.....	720
QJR94041.1	601	.....	720
QJR85833.1	601	.....	720
QKV38653.1	601	.....	720
QJQ38816.1	601	.....	720
QJR88113.1	601	.....	720
QJR84585.1	601	.....	720
QJR88761.1	601	.....	720
QJG65951.1	601	.....	720
QIZ13861.1	601	.....	720
QIZ13789.1	601	.....G.....I.....	720
QRE46016.1	601	.....	720
QIC53204.1	601	.....	720
QJR84957.1	601	.....	720
QKV25357.1	601	.....	720

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QKS65584.1	601	.....	720	
QIQ08810.1	601	.....	720	
QJX44586.1	601	.....G	720	
QHR84449.1	601	.....	720	
QIZ14569.1	601	.....	720	
QKG89150.1	601	.....G	720	
QIS60930.1	601	.....	720	
QKV39263.1	601	.....G	720	
QKV37344.1	601	.....	720	
QLC47285.1	601	.....G	720	
QJT72350.1	601	.....	720	
QJR85857.1	601	.....	720	
QJR85965.1	601	.....	720	
QJR84537.1	601	.....	720	
QJQ27878.1	601	.....	720	
QIQ50092.1	601	.....	720	
QKT21158.1	601	.....	720	
QJA17276.1	601	.....G	720	
QIV15164.1	601	.....X	720	
QJS54754.1	601	.....G	720	
QJQ28105.1	601	.....G	720	
QKI36829.1	601	.....	720	
QKG88142.1	601	.....G	720	
QRM76822.1	601	.....	720	
QKN95051.1	601	.....G	A	720
QKS90131.1	601	.....	720	
QIS60978.1	601	.....	720	
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QJF11971.1	601	.....X	720	
QJT73010.1	601	.....G	720	
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QJT43608.1	601	.....G	720	
QKV06079.1	601	.....G	720	
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QKS66532.1	601	.....G	720	
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QKS65656.1	601	.....	720	
QIS60582.1	601	.....G	720	
QJC20391.1	601	.....G	720	
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QIZ13179.1	601	.....	720	
QKV40847.1	601	.....G	720	
QKG90434.1	601	.....G	720	
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QJX44574.1	601	.....G	720	
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QLC47117.1	601	.....G	720	
QJX68694.1	601	.....G	720	
QKS91082.1	601	.....G	720	
QJA47775.1	601	.....G	720	
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QJT72242.1	601	.....G	720	
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QJY51864.1	601	.....G	720	
QJX70300.1	601	.....G	S	720
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QLC47908.1	601	.....G	720	
QLC92852.1	601	.....G	720	
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QKN20643.1	601	.....G	720	
QJR88005.1	601	.....G	720	
QJZ28114.1	601	.....G	V	720
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QKE45932.1	601	.....G	Z	720
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QKE44665.1	601	.....G	V	720
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QIZ16197.1	601	.....G	720	
QJQ38972.1	601	.....G	720	
QKE45824.1	601	.....	V	720
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QKU31397.1	601	.....G	720	
QJT43572.1	601	.....G	S	720
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QJA17596.1	601	.....G	720
QJF77194.1	601	.....G	720
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QJS54898.1	601	.....G	720
QKU31205.1	601	.....G	720
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QJT72278.1	601	.....F	720
QKG89918.1	601	.....G	720
QKV38964.1	601	.....G	720
QKV40775.1	601	.....G	720
QKE61804.1	601	.....G	720
QJF76438.1	601	.....G	720
QKN19515.1	601	.....G	720
QIZ264530.1	601	.....G	720
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QJR86037.1	601	.....G	720
QKY60121.1	601	.....G	720
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QKS91031.1	601	.....G	720
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QJS53578.1	601	.....G	720
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QJZ32209.1	601	.....G	720
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QJX44430.1	601	.....G	720
QIZ297051.1	601	.....G	720
QKU32465.1	601	.....G	720
QJD47442.1	601	.....G	720
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QJR87909.1	601	.....G	720
QJW69235.1	601	.....G	720
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QJU70545.1	601	.....G	720
QJQ82996.1	601	.....G	720
QIZ264578.1	601	.....G	720
QKE45692.1	601	.....G	720
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QIZ15969.1	601	.....G	720
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QJX70519.1	601	.....G	720
QJS39507.1	601	.....G	720
QJX44634.1	601	.....G	720
QJR84369.1	601	.....G	720
QIX13999.1	601	.....G	720
QJS57135.1	601	.....G	720
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QJX68786.1	601	.....G	720
QLC91688.1	601	.....G	720
QKG81727.1	601	.....G	720
QJH92167.1	601	.....G	720
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QJR85569.1	601	.....G	720
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QJS54106.1	601	.....G	720
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QJX45007.1	601	.....G	720
QJT43704.1	601	.....G	720
QJR87465.1	601	.....G	720
QJA17524.1	601	.....X	720
QJR88497.1	601	.....G	720
QKE50930.1	601	.....G	720
QKU32765.1	601	.....G	720
QKU33389.1	601	.....G	720
QJX68658.1	601	.....G	720
QKJ68497.1	601	.....HG	720
QIZ13765.1	601	.....GF	720
QKU31721.1	601	.....G	720
QKX47945.1	601	.....G	720
QJD23273.1	601	.....G	720
QJR86313.1	601	.....G	720
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QJR87957.1	601	.....G	720
QJX68418.1	601	.....G	720
QJR93333.1	601	.....G	720

QKU32429.1	601	.....G	720
QKJ68737.1	601	.....G	720
QIZ15585.1	601	.....G	720
QJX69134.1	601	.....G	720
QJG65954.1	601	.....G	720
QKO25674.1	601	.....G	720
QJS53386.1	601	.....G	720
QRN19911.1	601	.....G	720
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QKV38988.1	601	.....G	720
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QJY40061.1	601	.....G	720
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QKE50894.1	601	.....G	720
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QKV35279.1	601	.....G	720
QJR87897.1	601	.....G	720
QKE61684.1	601	.....G	720
QJR87321.1	601	.....G	720
QRN61217.1	601	.....W	720
QJX70327.1	601	.....G	720
QJX70251.1	601	.....G	720
QKO25770.1	601	.....G	720
QKU31445.1	601	.....G	720
QKG86786.1	601	.....G	720
QJQ27854.1	601	.....G	720
QKG89558.1	601	.....G	720
QKV38532.1	601	.....G	720
QLA47679.1	601	.....G	720
QJR84729.1	601	.....XX	720
QKX47933.1	601	.....G	720
QKU30329.1	601	.....G	720
QJC20343.1	601	.....G	720
QRN20943.1	601	.....G	720
QKC05236.1	601	.....G	720
QKV25225.1	601	.....X	720
QRN19995.1	601	.....G	720
BCG44664.1	601	.....G	720
QJY39881.1	601	.....G	720
QJQ83680.1	601	.....G	720
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QLC47920.1	601	.....G	720
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QJX45307.1	601	.....G	720
QKV37584.1	601	.....G	720
QKU37501.1	601	.....G	720
QJS54286.1	601	.....G	720
QJG65952.1	601	.....G	720
QRN19551.1	601	.....G	720
QJR86781.1	601	.....G	720
QJG65958.1	601	.....G	720
QKQ63760.1	601	.....G	720
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QKE51026.1	601	.....G	720
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QJI53943.1	601	.....G	720
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QJY40469.1	601	.....G	720
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QIU80949.1	601	.....G	720
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QKU31505.1	601	.....G	720
QJR90981.1	601	.....G	720
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QKU32273.1	601	.....G	720
QKG86870.1	601	.....G	720
QJR86997.1	601	.....G	720
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QJQ83764.1	601	.....G	720
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QKS89843.1	601	.....G	720
QJY40517.1	601	.....G	720
QJZ28203.1	601	.....G	720
QJX45344.1	601	.....G	720
QJU11577.1	601	.....X	720
QJQ84280.1	601	.....G	720
QJT72614.1	601	.....I	720
QLC46853.1	601	.....G	720
QJC19935.1	601	.....G	720



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QJF75455.1	601	.....G				720
QJR95097.1	601	.....				720
QJD47130.1	601	.....G				720
QJA16640.1	601	.....G				720
QJS54742.1	597	.....				716
QRU31961.1	601	.....G				720
QRR86269.1	601	.....G				720
QRV37308.1	601	.....				720
QKE49364.1	601	.....				720
QRV37284.1	601	.....G				720
QRU53985.1	601	.....				720
QJR88737.1	601	.....G				720
QJR89181.1	601	.....G				720
QJI54098.1	601	.....				720
QJD47658.1	601	.....G				720
QJR90753.1	601	.....		X		720
QJQ39944.1	601	.....G				720
QJR84561.1	601	.....XXXXXX				720
QIS30525.1	601	.....				720
QJW00459.1	601	.....G				720
QRV37236.1	601	.....G				720
QKE44989.1	601	.....XXXXXX				720
QLC47621.1	601	.....G				720
QRV38725.1	601	.....G				720
QRR84745.1	601	.....G				720
QRX65088.1	601	.....G				720
QLC47704.1	601	.....G				720
QRX65100.1	601	.....G			H	720
QLC46361.1	601	.....				720
QJR93357.1	601	.....				720
QKR84420.1	601	.....X				720
QJQ39068.1	601	.....G				720
QKR84697.1	601	.....G				720
QKE46004.1	601	.....		XXXXXX		720
QJD49071.1	601	.....				720
KQG87086.1	601	.....G				720
QJQ39812.1	601	.....G				720
QJR85497.1	601	.....G				720
QJY51780.1	601	.....G				720
QKE49172.1	601	.....				720
QRU28426.1	601	.....				720
QJS57231.1	601	.....				720
QJW69139.1	601	.....G				720
QJZ28359.1	601	.....G				720
QJR89229.1	601	.....G				720
QJA16508.1	601	.....G				720
QRV38028.1	601	.....G				720
QJF76414.1	601	.....G				720
QJR89157.1	601	.....G				720
QJR84945.1	601	.....XXXXXXXX				720
QKE45740.1	601	.....		XXXXXXXXXX		720
QRV35843.1	601	.....G				720
QJQ82804.1	601	.....G				720
QKG88730.1	601	.....G				720
QKG91130.1	601	.....				720
QJF76163.1	601	.....		H		720
QJR89337.1	601	.....G				720
QJQ38624.1	601	.....	X			720
QJR88425.1	601	.....G				720
QJR93081.1	601	.....G				720
QRV37464.1	601	.....G				720
QJC20415.1	601	.....				720
QRV37452.1	601	.....				720
QRU54477.1	601	.....G				720
QJD48099.1	601	.....				720
QKE45025.1	601	.....G				720
QJX69507.1	601	.....G				720
QJQ83164.1	601	.....		XXXXXXXXXX		720
QJR93561.1	601	.....G	X			720
QRU37477.1	601	.....		XXXXXXXXXX		720
QIQ50102.1	601	.....				720
QRU53709.1	601	.....		X		720
QJD48759.1	601	.....				720
QJR89313.1	601	.....	X			720
QRV38761.1	601	.....G				720
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QIU81213.1	601	.....G				720
QRV38544.1	601	.....G				720
QJF75419.1	601	.....G				720
QKE45037.1	601	.....G				720
QJX44490.1	589	.....G				708
QLB39320.1	601	.....G				720
QJX44454.1	588	.....G				707
QIZ14917.1	601	.....				720
QKR86449.1	601	.....G				720
QJX69627.1	601	.....G				720
QRN19575.1	601	.....G				720
QJC19995.1	601	.....G				720
QRV37512.1	601	.....G				720
QIS60558.1	601	.....				720
QJE39109.1	601	.....				720
QRV39252.1	601	.....				720
QJR95349.1	601	.....G				720
QJR87645.1	601	.....G				720
QKS67443.1	601	.....G				710
QIS30645.1	601	.....				720
QJD25442.1	588	.....G				707
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QJY51804.1	601	.....G				720
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QRV07399.1	601	.....				720

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QKV37908.1	601	.....G	720
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QKV38617.1	601	.....	720
QJQ83512.1	601	.....G	720
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QJX70119.1	601	.....G	720
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QKV06403.1	601	.....	720
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