

Supplementary Data:**Supplementary Table S1. List of target gene predicted by miRDB.**

Mature miRNA	Gene Symbol	Description	Gene ID
SARS-CoV-2-MD135 5P	FAM104A	family with sequence similarity 104 member A	84923
	GRAP2	GRB2 related adaptor protein 2	9402
	TMEM167B	transmembrane protein 167B	56900
	NEUROD1	neuronal differentiation 1	4760
	ABCA1	ATP binding cassette subfamily A member 1	19
	NCOA4	nuclear receptor coactivator 4	8031
	C17orf102	chromosome 17 open reading frame 102	400591
	ACTL6A	actin like 6A	86
	PCGF5	polycomb group ring finger 5	84333
	LTV1	LTV1 ribosome biogenesis factor	84946
	LIFR	LIF receptor alpha	3977
	RAB10	RAB10, member RAS oncogene family	10890
	WDR20	WD repeat domain 20	91833
	THAP2	THAP domain containing 2	83591
	PARPBP	PARP1 binding protein	55010
	STK17A	serine/threonine kinase 17a	9263
	PAX6	paired box 6	5080
	FNIP1	folliculin interacting protein 1	96459
	SPTLC1	serine palmitoyltransferase long chain base subunit 1	10558
	PRMT3	protein arginine methyltransferase 3	10196
	KIF27	kinesin family member 27	55582
	RNF38	ring finger protein 38	152006
	C5orf34	chromosome 5 open reading frame 34	375444
	CKMT1A	creatine kinase, mitochondrial 1A	548596
	PAPSS1	3'-phosphoadenosine 5'-phosphosulfate synthase 1	9061
	POLR3G	RNA polymerase III subunit G	10622
	UPF3A	UPF3A, regulator of nonsense mediated mRNA decay	65110
	CRADD	CASP2 and RIPK1 domain containing adaptor with death domain	8738
	TNS3	tensin 3	64759
	ZCRB1	zinc finger CCHC-type and RNA binding motif containing 1	85437
	MMP16	matrix metalloproteinase 16	4325
	SBSPON	somatomedin B and thrombospondin type 1 domain containing	157869
	TRIP12	thyroid hormone receptor interactor 12	9320
	SLFN13	schlafen family member 13	146857
	CYFIP2	cytoplasmic FMR1 interacting protein 2	26999
	TMEM206	transmembrane protein 206	55248

	NBEA	neurobeachin	26960
SARS-CoV-2-MD135 3P	GNRHR	gonadotropin releasing hormone receptor	2798
	HIVEP1	human immunodeficiency virus type I enhancer binding protein 1	3096
	RNF11	ring finger protein 11	26994
	CPEB4	cytoplasmic polyadenylation element binding protein 4	80315
	TBL1XR1	transducin beta like 1 X-linked receptor 1	79718
	NANP	N-acetylneuraminic acid phosphatase	140838
	PDHX	pyruvate dehydrogenase complex component X	8050
	SRGAP2B	SLIT-ROBO Rho GTPase activating protein 2B	647135
	KLF6	Kruppel like factor 6	1316
	TENM1	teneurin transmembrane protein 1	10178
	NEGR1	neuronal growth regulator 1	257194
	C14orf39	chromosome 14 open reading frame 39	317761
	MCTP1	multiple C2 and transmembrane domain containing 1	79772
	ERBB2	erb-b2 receptor tyrosine kinase 2	2064
	GDF10	growth differentiation factor 10	2662
	SMCO1	single-pass membrane protein with coiled-coil domains 1	255798
	PIGC	phosphatidylinositol glycan anchor biosynthesis class C	5279
	ZNF214	zinc finger protein 214	7761
	PAK4	p21 (RAC1) activated kinase 4	10298
	SMYD4	SET and MYND domain containing 4	114826
	TMEM168	transmembrane protein 168	64418
	ZNF529	zinc finger protein 529	57711
	LRP1	LDL receptor related protein 1	4035
	GPR85	G protein-coupled receptor 85	54329
	CCDC126	coiled-coil domain containing 126	90693
	NEBL	nebullette	10529
	CPE	carboxypeptidase E	1363
	ARL5A	ADP ribosylation factor like GTPase 5A	26225
	PMP22	peripheral myelin protein 22	5376
	STEAP4	STEAP4 metalloreductase	79689
SARS-CoV-2-MD241 5P	HOMER1	homer scaffold protein 1	9456
	HECW1	HECT, C2 and WW domain containing E3 ubiquitin protein ligase 1	23072
	ZBTB39	zinc finger and BTB domain containing 39	9880
	RABEPK	Rab9 effector protein with kelch motifs	10244
	EIF2AK3	eukaryotic translation initiation factor 2 alpha kinase 3	9451
	SCAI	suppressor of cancer cell invasion	286205
	SERTAD2	SERTA domain containing 2	9792
	NECTIN4	nectin cell adhesion molecule 4	81607

AMER2	APC membrane recruitment protein 2	219287
FICD	FIC domain containing	11153
RELCH	RAB11 binding and LisH domain, coiled-coil and HEAT repeat containing	57614
STARD4	StAR related lipid transfer domain containing 4	134429
SLC16A14	solute carrier family 16 member 14	151473
SMARCD1	SWI/SNF-related, matrix-associated actin-dependent regulator of chromatin, subfamily a, containing DEAD/H box 1	56916
VEPH1	ventricular zone expressed PH domain containing 1	79674
STOX2	storkhead box 2	56977
LAMA1	laminin subunit alpha 1	284217
ST3GAL1	ST3 beta-galactoside alpha-2,3-sialyltransferase 1	6482
PDGFB	platelet derived growth factor subunit B	5155
ABHD13	abhydrolase domain containing 13	84945
CAMK1D	calcium/calmodulin dependent protein kinase ID	57118
APPBP2	amyloid beta precursor protein binding protein 2	10513
BIN3	bridging integrator 3	55909
AP1S1	adaptor related protein complex 1 subunit sigma 1	1174
FUBP3	far upstream element binding protein 3	8939
TFCP2L1	transcription factor CP2 like 1	29842
ARL10	ADP ribosylation factor like GTPase 10	285598
C2CD5	C2 calcium dependent domain containing 5	9847
PIK3C2B	phosphatidylinositol-4-phosphate 3-kinase catalytic subunit type 2 beta	5287
NUP98	nucleoporin 98	4928
SLC16A10	solute carrier family 16 member 10	117247
GLP1R	glucagon like peptide 1 receptor	2740
NLK	nemo like kinase	51701
CAPN6	calpain 6	827
SLC41A2	solute carrier family 41 member 2	84102
ADAMTS9	ADAM metalloproteinase with thrombospondin type 1 motif 9	56999
NRP2	neuropilin 2	8828
PBX1	PBX homeobox 1	5087
ELP1	elongator complex protein 1	8518
ESPL1	extra spindle pole bodies like 1, separase	9700
KAT7	lysine acetyltransferase 7	11143
PSG1	pregnancy specific beta-1-glycoprotein 1	5669
BTBD7	BTB domain containing 7	55727
TBKBP1	TBK1 binding protein 1	9755
MPZ	myelin protein zero	4359
ZIC5	Zic family member 5	85416
MTMR12	myotubularin related protein 12	54545
ZNF773	zinc finger protein 773	374928

	BCAM	basal cell adhesion molecule (Lutheran blood group)	4059
	RND3	Rho family GTPase 3	390
	TENT2	terminal nucleotidyltransferase 2	167153
	RHOQ	ras homolog family member Q	23433
SARS-CoV-2-MD241 3P	ZNF438	zinc finger protein 438	220929
	OCLN	occludin	100506658
	ABCC9	ATP binding cassette subfamily C member 9	10060
	PDE7A	phosphodiesterase 7A	5150
	BMPR2	bone morphogenetic protein receptor type 2	659
	THEG5	testis highly expressed protein 5	100507527
	PIP5K1B	phosphatidylinositol-4-phosphate 5-kinase type 1 beta	8395
	FBXO3	F-box protein 3	26273
	TRIM66	tripartite motif containing 66	9866
	ABCA6	ATP binding cassette subfamily A member 6	23460
	FCGR2B	Fc fragment of IgG receptor IIb	2213
	TANK	TRAF family member associated NFkB activator	10010
	PTPRE	protein tyrosine phosphatase, receptor type E	5791
	ORC5	origin recognition complex subunit 5	5001
	GOLPH3L	golgi phosphoprotein 3 like	55204
	C1orf109	chromosome 1 open reading frame 109	54955
	ZSCAN18	zinc finger and SCAN domain containing 18	65982
	IGFBP7	insulin like growth factor binding protein 7	3490
	GGT6	gamma-glutamyltransferase 6	124975
	TBC1D31	TBC1 domain family member 31	93594
	ZDHHC6	zinc finger DHHC-type containing 6	64429
	CDH13	cadherin 13	1012
	FXR1	FMR1 autosomal homolog 1	8087
	TRAF3	TNF receptor associated factor 3	7187
	CEP104	centrosomal protein 104	9731
	KPRP	keratinocyte proline rich protein	448834
	FBXO9	F-box protein 9	26268
	TBC1D19	TBC1 domain family member 19	55296
	ROGDI	rogdi atypical leucine zipper	79641
	PHF20L1	PHD finger protein 20 like 1	51105
	SULF1	sulfatase 1	23213
	ATL3	atlastin GTPase 3	25923
	DUSP26	dual specificity phosphatase 26	78986
	WWC3	WWC family member 3	55841
	SHROOM3	shroom family member 3	57619
	KLHL20	kelch like family member 20	27252
	MIA3	MIA SH3 domain ER export factor 3	375056

	CDC40	cell division cycle 40	51362
	BMP2K	BMP2 inducible kinase	55589
	GTF3C3	general transcription factor IIIc subunit 3	9330
	TMEM19	transmembrane protein 19	55266
	ZMIZ1	zinc finger MIZ-type containing 1	57178
	VCL	vinculin	7414
	BCAT1	branched chain amino acid transaminase 1	586
	NCOA3	nuclear receptor coactivator 3	8202
	MORC4	MORC family CW-type zinc finger 4	79710
	ADAMDEC1	ADAM like decysin 1	27299
	SHANK2	SH3 and multiple ankyrin repeat domains 2	22941
	ANKRD18A	ankyrin repeat domain 18A	5783
SARS-CoV-2-MR243 5P	CPEB2	cytoplasmic polyadenylation element binding protein 2	132864
	UNC80	unc-80 homolog, NALCN channel complex subunit	285175
	TXNL1	thioredoxin like 1	9352
	HDHD2	haloacid dehalogenase like hydrolase domain containing 2	84064
	QKI	QKI, KH domain containing RNA binding	9444
	HAO1	hydroxyacid oxidase 1	54363
	UBE2W	ubiquitin conjugating enzyme E2 W	55284
	KIAA0040	KIAA0040	9674
	FAM219A	family with sequence similarity 219 member A	203259
	RYR2	ryanodine receptor 2	6262
	CPEB3	cytoplasmic polyadenylation element binding protein 3	22849
	FSTL5	folliculin like 5	56884
	TNKS	tankyrase	8658
	PRMT6	protein arginine methyltransferase 6	55170
	TSC22D1	TSC22 domain family member 1	8848
	ZSCAN2	zinc finger and SCAN domain containing 2	54993
	SEMA3A	semaphorin 3A	10371
	PLEKHA7	pleckstrin homology domain containing A7	144100
	KBTD7	kelch repeat and BTB domain containing 7	84078
	CBFB	core-binding factor subunit beta	865
	MMS22L	MMS22 like, DNA repair protein	253714
	TMEM50B	transmembrane protein 50B	757
	CDCP1	CUB domain containing protein 1	64866
	ZFAND6	zinc finger AN1-type containing 6	54469
	CADPS	calcium dependent secretion activator	8618
	PPP2CA	protein phosphatase 2 catalytic subunit alpha	5515
	EPC2	enhancer of polycomb homolog 2	26122

	R3HDM1	R3H domain containing 1	23518
	KIAA1143	KIAA1143	57456
	KPNB1	karyopherin subunit beta 1	3837
	RAI1	retinoic acid induced 1	10743
	DCAF12L1	DDB1 and CUL4 associated factor 12 like 1	139170
	ZNF551	zinc finger protein 551	90233
	NDNF	neuron derived neurotrophic factor	79625
	DIP2A	disco interacting protein 2 homolog A	23181
	UBR1	ubiquitin protein ligase E3 component n-recognin 1	197131
	ELSPBP1	epididymal sperm binding protein 1	64100
	KCNJ10	potassium voltage-gated channel subfamily J member 10	3766
	GJA1	gap junction protein alpha 1	2697
	PEX2	peroxisomal biogenesis factor 2	5828
	SLC35A3	solute carrier family 35 member A3	23443
	GABRB2	gamma-aminobutyric acid type A receptor beta2 subunit	2561
	SORBS1	sorbin and SH3 domain containing 1	10580
	CPSF6	cleavage and polyadenylation specific factor 6	11052
	TET1	tet methylcytosine dioxygenase 1	80312
	PMS1	PMS1 homolog 1, mismatch repair system component	5378
	ADGRB3	adhesion G protein-coupled receptor B3	577
	DPPA4	developmental pluripotency associated 4	55211
	MAN2A1	mannosidase alpha class 2A member 1	4124
	GPR158	G protein-coupled receptor 158	57512
	ZNF655	zinc finger protein 655	79027
SARS-CoV-2-MR243 3P	ATP11C	ATPase phospholipid transporting 11C	286410
	EFCAB3	EF-hand calcium binding domain 3	146779
	ZNF208	zinc finger protein 208	7757
	FAM171B	family with sequence similarity 171 member B	165215
	PCDH10	protocadherin 10	57575
	MYT1L	myelin transcription factor 1 like	23040
	COL12A1	collagen type XII alpha 1 chain	1303
	NFIB	nuclear factor I B	4781
	ADAM9	ADAM metallopeptidase domain 9	8754
	FOXG1	forkhead box G1	2290
	ZNF75D	zinc finger protein 75D	7626
	MANEA	mannosidase endo-alpha	79694
	SRR	serine racemase	63826
	SNAPC2	small nuclear RNA activating complex polypeptide 2	6618
	EDEM3	ER degradation enhancing alpha-mannosidase like protein 3	80267
	ARHGAP27	Rho GTPase activating protein 27	201176

	DYNAP	dynactin associated protein	284254
	BRWD3	bromodomain and WD repeat domain containing 3	254065
	FBXW7	F-box and WD repeat domain containing 7	55294
	ZNF510	zinc finger protein 510	22869
	Mar-06	membrane associated ring-CH-type finger 6	10299
	SLC4A4	solute carrier family 4 member 4	8671
	STAG1	stromal antigen 1	10274
	ZSCAN16	zinc finger and SCAN domain containing 16	80345
	ZNF195	zinc finger protein 195	7748
	UEVLD	UEV and lactate/malate dehydrogenase domains	55293
	TRA2B	transformer 2 beta homolog	6434
	IREB2	iron responsive element binding protein 2	3658
	PLCH1	phospholipase C eta 1	23007
	USP54	ubiquitin specific peptidase 54	159195
	N4BP2L2	NEDD4 binding protein 2 like 2	10443
	SRI	sorcin	6717
	CCNB1	cyclin B1	891
	RBM39	RNA binding motif protein 39	9584
	OPA1	OPA1, mitochondrial dynamin like GTPase	4976
	NDUFS1	NADH:ubiquinone oxidoreductase core subunit S1	4719
	HTR4	5-hydroxytryptamine receptor 4	3360
	KPNA4	karyopherin subunit alpha 4	3840
	MARF1	meiosis regulator and mRNA stability factor 1	9665
	EEA1	early endosome antigen 1	8411
	GPR15	G protein-coupled receptor 15	2838
	C14orf28	chromosome 14 open reading frame 28	122525
	TMBIM6	transmembrane BAX inhibitor motif containing 6	7009
	ZNF275	zinc finger protein 275	10838
SARS-CoV-2-MR304 5P	DNMT3A	DNA methyltransferase 3 alpha	1788
	PSMB2	proteasome subunit beta 2	5690
	FAM217A	family with sequence similarity 217 member A	222826
	SORBS2	sorbin and SH3 domain containing 2	8470
	RNASE11	ribonuclease A family member 11 (inactive)	122651
	MED31	mediator complex subunit 31	51003
	HPCAL4	hippocalcin like 4	51440
	TMPRSS15	transmembrane serine protease 15	5651
	SYNCRIP	synaptotagmin binding cytoplasmic RNA interacting protein	10492
	CSMD3	CUB and Sushi multiple domains 3	114788
	MS4A2	membrane spanning 4-domains A2	2206
	PIAS2	protein inhibitor of activated STAT 2	9063
	BLMH	bleomycin hydrolase	642

	CSDE1	cold shock domain containing E1	7812
	RAB23	RAB23, member RAS oncogene family	51715
	MAP4K2	mitogen-activated protein kinase kinase kinase 2	5871
	STEAP2	STEAP2 metalloredutase	261729
	NPR3	natriuretic peptide receptor 3	4883
	AKAP12	A-kinase anchoring protein 12	9590
	GUCY1A2	guanylate cyclase 1 soluble subunit alpha 2	2977
	PTGS2	prostaglandin-endoperoxide synthase 2	5743
	ATG14	autophagy related 14	22863
	IWS1	IWS1, SUPT6H interacting protein	55677
	CENPK	centromere protein K	64105
	XPO4	exportin 4	64328
	PPFIA2	PTPRF interacting protein alpha 2	8499
	CD8B	CD8b molecule	926
	SPTB	spectrin beta, erythrocytic	6710
	ADH5	alcohol dehydrogenase 5 (class III), chi polypeptide	128
	NRG3	neuregulin 3	10718
	P2RY13	purinergic receptor P2Y13	53829
	THAP9	THAP domain containing 9	79725
	IDH1	isocitrate dehydrogenase (NADP(+)) 1, cytosolic	3417
SARS-CoV-2-MR304 3P	TULP3	tubby like protein 3	7289
	GRHL1	grainyhead like transcription factor 1	29841
	SLC24A2	solute carrier family 24 member 2	25769
	ROCK2	Rho associated coiled-coil containing protein kinase 2	9475
	PRDM11	PR/SET domain 11	56981
	FAM122B	family with sequence similarity 122B	159090
	PPIL4	peptidylprolyl isomerase like 4	85313
	IQSEC1	IQ motif and Sec7 domain 1	9922
	AHR	aryl hydrocarbon receptor	196
	SETD3	SET domain containing 3, actin histidine methyltransferase	84193
	BCL6	BCL6, transcription repressor	604
	PRRC2C	proline rich coiled-coil 2C	23215
	CACNB4	calcium voltage-gated channel auxiliary subunit beta 4	785
	SPEN	spen family transcriptional repressor	23013
	ACKR3	atypical chemokine receptor 3	57007
	ACBD5	acyl-CoA binding domain containing 5	91452
	PCDH8	protocadherin 8	5100
	L3MBTL3	L3MBTL3, histone methyl-lysine binding protein	84456
	TMEM178 B	transmembrane protein 178B	100507421

	SLC4A7	solute carrier family 4 member 7	9497
	LEMD3	LEM domain containing 3	23592
	KIAA1109	KIAA1109	84162
	TBX4	T-box 4	9496
	VEGFA	vascular endothelial growth factor A	7422
	BCL9L	BCL9 like	283149
	RUFY3	RUN and FYVE domain containing 3	22902
	NAA15	N(alpha)-acetyltransferase 15, NatA auxiliary subunit	80155
	ATL2	atlastin GTPase 2	64225
	SNX1	sorting nexin 1	6642
	GRIA2	glutamate ionotropic receptor AMPA type subunit 2	2891
	PLPP3	phospholipid phosphatase 3	8613
	PMEPA1	prostate transmembrane protein, androgen induced 1	56937
	TNRC18	trinucleotide repeat containing 18	84629
	ARHGEF11	Rho guanine nucleotide exchange factor 11	9826
	RAB11FIP2	RAB11 family interacting protein 2	22841
	ERO1A	endoplasmic reticulum oxidoreductase 1 alpha	30001
SARS-CoV-2-MR155_5P	MIPOL1	mirror-image polydactyly 1	145282
	ATF7IP	activating transcription factor 7 interacting protein	55729
	PYROXD1	pyridine nucleotide-disulphide oxidoreductase domain 1	79912
	FAM214A	family with sequence similarity 214 member A	56204
	TBCA	tubulin folding cofactor A	6902
	CXXC4	CXXC finger protein 4	80319
	RASA2	RAS p21 protein activator 2	5922
	KBTD4	kelch repeat and BTB domain containing 4	55709
	SPICE1	spindle and centriole associated protein 1	152185
	HSPB1	heat shock protein family B (small) member 1	3315
	WNT5A	Wnt family member 5A	7474
	GALK2	galactokinase 2	2585
	NFRKB	nuclear factor related to kappaB binding protein	4798
	ROBO1	roundabout guidance receptor 1	6091
	CFI	complement factor I	3426
	PLPPR5	phospholipid phosphatase related 5	163404
	KCNA4	potassium voltage-gated channel subfamily A member 4	3739
	XYLB	xylulokinase	9942
	CLINT1	clathrin interactor 1	9685
	CCNYL1	cyclin Y like 1	151195
	WAPL	WAPL cohesin release factor	23063
	SLC26A7	solute carrier family 26 member 7	115111
	DGKH	diacylglycerol kinase eta	160851

	CDR2	cerebellar degeneration related protein 2	1039
	LOC102723360	uncharacterized LOC102723360	102723360
	LOC102724843	uncharacterized LOC102724843	102724843
	LOC102724219	uncharacterized LOC102724219	102724219
	LOC102724951	uncharacterized LOC102724951	102724951
	FBLN7	fibulin 7	129804
	DEFA6	defensin alpha 6	1671
	HLA-A	major histocompatibility complex, class I, A	3105
	ATG4A	autophagy related 4A cysteine peptidase	115201
	ARSD	arylsulfatase D	414
	NCAM2	neural cell adhesion molecule 2	4685
	SLC9C2	solute carrier family 9 member C2 (putative)	284525
	ZNF678	zinc finger protein 678	339500
	DEFA3	defensin alpha 3	1668
	EPHA7	EPH receptor A7	2045
	SPEG	striated muscle enriched protein kinase	10290
	BTAF1	B-TFIID TATA-box binding protein associated factor 1	9044
	HDAC9	histone deacetylase 9	9734
	ZNF391	zinc finger protein 391	346157
	TCERG1	transcription elongation regulator 1	10915
	PLIN2	perilipin 2	123
	COG6	component of oligomeric golgi complex 6	57511
	WNK1	WNK lysine deficient protein kinase 1	65125
	KCNMB2	potassium calcium-activated channel subfamily M regulatory beta subunit 2	10242
SARS-CoV-2-MR155 3P	DYNC1LI2	dynein cytoplasmic 1 light intermediate chain 2	1783
	ZNFX1	zinc finger NFX1-type containing 1	57169
	FYCO1	FYVE and coiled-coil domain containing 1	79443
	ENPP5	ectonucleotide pyrophosphatase/phosphodiesterase 5 (putative)	59084
	SLC40A1	solute carrier family 40 member 1	30061
	PKD2	polycystin 2, transient receptor potential cation channel	5311
	GPR137C	G protein-coupled receptor 137C	283554
	ZFYVE26	zinc finger FYVE-type containing 26	23503
	MED12L	mediator complex subunit 12 like	116931
	NAPEPLD	N-acyl phosphatidylethanolamine phospholipase D	222236
	ANKRD52	ankyrin repeat domain 52	283373
	MAP3K2	mitogen-activated protein kinase kinase kinase 2	10746
	RUFY2	RUN and FYVE domain containing 2	55680
	ARHGAP12	Rho GTPase activating protein 12	94134

	STK17B	serine/threonine kinase 17b	9262
	CLOCK	clock circadian regulator	9575
	TXNIP	thioredoxin interacting protein	10628
	TBC1D9	TBC1 domain family member 9	23158
	RAB22A	RAB22A, member RAS oncogene family	57403
	VLDLR	very low density lipoprotein receptor	7436
	TBC1D20	TBC1 domain family member 20	128637
	NPAS2	neuronal PAS domain protein 2	4862
	ZNF800	zinc finger protein 800	168850
	ZNF827	zinc finger protein 827	152485
	SAR1B	secretion associated Ras related GTPase 1B	51128
	PDCD1LG2	programmed cell death 1 ligand 2	80380
	RRAGD	Ras related GTP binding D	58528
	KCNB1	potassium voltage-gated channel subfamily B member 1	3745
	REEP3	receptor accessory protein 3	221035
	ARID4B	AT-rich interaction domain 4B	51742
	BRMS1L	BRMS1 like transcriptional repressor	84312
	CFL2	cofilin 2	1073
	NPAT	nuclear protein, coactivator of histone transcription	4863
SARS-CoV-2-MD20 5P	NEXMIF	neurite extension and migration factor	340533
	ZC3H6	zinc finger CCCH-type containing 6	376940
	TMEM106B	transmembrane protein 106B	54664
	BTG3	BTG anti-proliferation factor 3	10950
	BECN1	beclin 1	8678
	SVBP	small vasohibin binding protein	374969
	C2orf49	chromosome 2 open reading frame 49	79074
	ABHD18	abhydrolase domain containing 18	80167
	SUSD5	sushi domain containing 5	26032
	EXOC5	exocyst complex component 5	10640
	SS18	SS18, nBAF chromatin remodeling complex subunit	6760
	MAPRE1	microtubule associated protein RP/EB family member 1	22919
	TMEM33	transmembrane protein 33	55161
	RPS6KA2	ribosomal protein S6 kinase A2	6196
	FAM129A	family with sequence similarity 129 member A	116496
	ANKS1B	ankyrin repeat and sterile alpha motif domain containing 1B	56899
	MAP3K1	mitogen-activated protein kinase kinase kinase 1	4214
	NGRN	neugrin, neurite outgrowth associated	51335
	STK4	serine/threonine kinase 4	6789
	CSK	C-terminal Src kinase	1445
	SH3BGRL2	SH3 domain binding glutamate rich protein like 2	83699

	FAR2	fatty acyl-CoA reductase 2	55711
	BCLAF3	BCLAF1 and THRAP3 family member 3	256643
	PARG	poly(ADP-ribose) glycohydrolase	8505
	SYCP2L	synaptonemal complex protein 2 like	221711
	TEAD1	TEA domain transcription factor 1	7003
	SCN9A	sodium voltage-gated channel alpha subunit 9	6335
	HSPA13	heat shock protein family A (Hsp70) member 13	6782
	KANSL2	KAT8 regulatory NSL complex subunit 2	54934
	MSL3	MSL complex subunit 3	10943
	EML4	EMAP like 4	27436
	ANKUB1	ankyrin repeat and ubiquitin domain containing 1	389161
	CTNNA3	catenin alpha 3	29119
	SMAP1	small ArfGAP 1	60682
	PHTF2	putative homeodomain transcription factor 2	57157
	CELF1	CUGBP Elav-like family member 1	10658
	BAG5	BCL2 associated athanogene 5	9529
SARS-CoV-2-MD20 3P	POU2AF1	POU class 2 associating factor 1	5450
	DPYSL2	dihydropyrimidinase like 2	1808
	AMMECR1	Alport syndrome, mental retardation, midface hypoplasia and elliptocytosis chromosomal region gene 1	9949
	DDX46	DEAD-box helicase 46	9879
	AAK1	AP2 associated kinase 1	22848
	LAMP2	lysosomal associated membrane protein 2	3920
	ENTPD7	ectonucleoside triphosphate diphosphohydrolase 7	57089
	VWA2	von Willebrand factor A domain containing 2	340706
	PRPS1	phosphoribosyl pyrophosphate synthetase 1	5631
	OSBP	oxysterol binding protein	5007
	DLG1	discs large MAGUK scaffold protein 1	1739
	CNGA3	cyclic nucleotide gated channel alpha 3	1261
	MPRIIP	myosin phosphatase Rho interacting protein	23164
	ADGRF2	adhesion G protein-coupled receptor F2	222611
	RTKN2	rhotekin 2	219790
	RAPGEF6	Rap guanine nucleotide exchange factor 6	51735
	MAGOHB	mago homolog B, exon junction complex subunit	55110
	SETBP1	SET binding protein 1	26040
	NEUROD4	neuronal differentiation 4	58158
	RAPGEF2	Rap guanine nucleotide exchange factor 2	9693
	KMT2A	lysine methyltransferase 2A	4297
	NOTCH2	notch 2	4853
	C9orf152	chromosome 9 open reading frame 152	401546
	PHYHIPL	phytanoyl-CoA 2-hydroxylase interacting protein like	84457

	HTR2C	5-hydroxytryptamine receptor 2C	3358
	ADIPOQ	adiponectin, C1Q and collagen domain containing	9370
	TRPS1	transcriptional repressor GATA binding 1	7227
	ACKR2	atypical chemokine receptor 2	1238
	PATL1	PAT1 homolog 1, processing body mRNA decay factor	219988
	CD209	CD209 molecule	30835
	MYSM1	Myb like, SWIRM and MPN domains 1	114803
	CNST	consortin, connexin sorting protein	163882
	PDS5A	PDS5 cohesin associated factor A	23244
	HOXA10	homeobox A10	3206
	GTF2A1	general transcription factor IIA subunit 1	2957
	ZBTB20	zinc finger and BTB domain containing 20	26137
	PPP2R5E	protein phosphatase 2 regulatory subunit B'epsilon	5529
	PARP11	poly(ADP-ribose) polymerase family member 11	57097
	SLC7A11	solute carrier family 7 member 11	23657
SARS-CoV-2-MD110 5P	TMEM45A	transmembrane protein 45A	55076
	RORA	RAR related orphan receptor A	6095
	ZNF468	zinc finger protein 468	90333
	GRSF1	G-rich RNA sequence binding factor 1	2926
	ERICH3	glutamate rich 3	127254
	USP8	ubiquitin specific peptidase 8	9101
	C2orf42	chromosome 2 open reading frame 42	54980
	CCL20	C-C motif chemokine ligand 20	6364
	OGT	O-linked N-acetylglucosamine (GlcNAc) transferase	8473
	IGSF10	immunoglobulin superfamily member 10	285313
	DACH1	dachshund family transcription factor 1	1602
	ADD3	adducin 3	120
	UBN1	ubiquitin 1	29855
	RAB8B	RAB8B, member RAS oncogene family	51762
	NFATC2IP	nuclear factor of activated T cells 2 interacting protein	84901
	SENP1	SUMO specific peptidase 1	29843
	MPHOSPH9	M-phase phosphoprotein 9	10198
	CASK	calcium/calmodulin dependent serine protein kinase	8573
	TPD52	tumor protein D52	7163
	SGK1	serum/glucocorticoid regulated kinase 1	6446
	KCNK9	potassium two pore domain channel subfamily K member 9	51305
	DLG2	discs large MAGUK scaffold protein 2	1740
	FRZB	frizzled related protein	2487
	RPS6KB1	ribosomal protein S6 kinase B1	6198
	ZBTB46	zinc finger and BTB domain containing 46	140685

	ZNF780B	zinc finger protein 780B	163131
	SLC8A1	solute carrier family 8 member A1	6546
	KCNA3	potassium voltage-gated channel subfamily A member 3	3738
	TFEC	transcription factor EC	22797
	ZFP36L1	ZFP36 ring finger protein like 1	677
	ETS1	ETS proto-oncogene 1, transcription factor	2113
	SGPP1	sphingosine-1-phosphate phosphatase 1	81537
	CLIP4	CAP-Gly domain containing linker protein family member 4	79745
	CHIC1	cysteine rich hydrophobic domain 1	53344
	KLLN	killin, p53 regulated DNA replication inhibitor	100144748
	VTI1A	vesicle transport through interaction with t-SNAREs 1A	143187
	MAGI2	membrane associated guanylate kinase, WW and PDZ domain containing 2	9863
	WASF3	WAS protein family member 3	10810
	RFTN1	raftlin, lipid raft linker 1	23180
	SLC49A4	solute carrier family 49 member 4	84925
	RPP14	ribonuclease P/MRP subunit p14	11102
	EDARADD	EDAR associated death domain	128178
	GASK1B	golgi associated kinase 1B	51313
	LOC388813	uncharacterized protein ENSP00000383407-like	388813
	TTC38	tetratricopeptide repeat domain 38	55020
SARS-CoV-2-MD110 3P	ZNF512	zinc finger protein 512	84450
	NDUFAF4	NADH:ubiquinone oxidoreductase complex assembly factor 4	29078
	KDEL2	KDEL motif containing 2	143888
	BMP7	bone morphogenetic protein 7	655
	RNPC3	RNA binding region (RNP1, RRM) containing 3	55599
SARS-CoV-2-MD3 5P	SACM1L	SAC1 like phosphatidylinositide phosphatase	22908
	AGO3	argonaute RISC catalytic component 3	192669
	POLR1C	RNA polymerase I and III subunit C	9533
	IGF2R	insulin like growth factor 2 receptor	3482
	SHC2	SHC adaptor protein 2	25759
	PIK3C2A	phosphatidylinositol-4-phosphate 3-kinase catalytic subunit type 2 alpha	5286
	MTHFD2	methylenetetrahydrofolate dehydrogenase (NADP+ dependent) 2, methenyltetrahydrofolate cyclohydrolase	10797
	ZNF107	zinc finger protein 107	51427
	BHLHE40	basic helix-loop-helix family member e40	8553
	FAM98A	family with sequence similarity 98 member A	25940
	RFC1	replication factor C subunit 1	5981
	ZNF737	zinc finger protein 737	100129842
	PTBP3	polypyrimidine tract binding protein 3	9991
	RHOBTB1	Rho related BTB domain containing 1	9886

	UBE2E3	ubiquitin conjugating enzyme E2 E3	10477
	ARPC3	actin related protein 2/3 complex subunit 3	10094
	CNOT4	CCR4-NOT transcription complex subunit 4	4850
	RPA1	replication protein A1	6117
	PHC3	polyhomeotic homolog 3	80012
	XYLT1	xylosyltransferase 1	64131
	ZNF117	zinc finger protein 117	51351
	SNX30	sorting nexin family member 30	401548
	USP37	ubiquitin specific peptidase 37	57695
	DAG1	dystroglycan 1	1605
	PTCH2	patched 2	8643
	RRAGA	Ras related GTP binding A	10670
	TAF4	TATA-box binding protein associated factor 4	6874
	SYNJ2BP	synaptojanin 2 binding protein	55333
SARS-CoV-2-MD3 3P	FBN2	fibrillin 2	2201
	ORC4	origin recognition complex subunit 4	5000
	TMEM41B	transmembrane protein 41B	440026
	FGGY	FGGY carbohydrate kinase domain containing	55277
	TAB2	TGF-beta activated kinase 1 (MAP3K7) binding protein 2	23118
	RGS7	regulator of G protein signaling 7	6000
	CYP3A43	cytochrome P450 family 3 subfamily A member 43	64816
	PDE3A	phosphodiesterase 3A	5139
	RAD51B	RAD51 paralog B	5890
	CDCP2	CUB domain containing protein 2	200008
	MEOX2	mesenchyme homeobox 2	4223
	AHSA2P	activator of HSP90 ATPase homolog 2, pseudogene	130872
	MATR3	matrin 3	9782
	KIAA1549 L	KIAA1549 like	25758
	COQ6	coenzyme Q6, monooxygenase	51004
	SLC38A4	solute carrier family 38 member 4	55089
	SLCO3A1	solute carrier organic anion transporter family member 3A1	28232
	TCHP	trichoplein keratin filament binding	84260
	COPS8	COP9 signalosome subunit 8	10920
	TRIO	trio Rho guanine nucleotide exchange factor	7204
	HEY1	hes related family bHLH transcription factor with YRPW motif 1	23462
	TRPV3	transient receptor potential cation channel subfamily V member 3	162514
	ASCL1	achaete-scute family bHLH transcription factor 1	429
	FAM19A1	family with sequence similarity 19 member A1, C-C motif chemokine like	407738
	KHSRP	KH-type splicing regulatory protein	8570
	TUB	tubby bipartite transcription factor	7275

	ZFAND5	zinc finger AN1-type containing 5	7763
	TP53	tumor protein p53	7157
	TMEM220	transmembrane protein 220	388335
	IPMK	inositol polyphosphate multikinase	253430
	CFAP52	cilia and flagella associated protein 52	146845
	TTC26	tetratricopeptide repeat domain 26	79989
	KCNH5	potassium voltage-gated channel subfamily H member 5	27133
	ZCCHC7	zinc finger CCHC-type containing 7	84186
	MAPK9	mitogen-activated protein kinase 9	5601
	RREB1	ras responsive element binding protein 1	6239
	MFSD4B	major facilitator superfamily domain containing 4B	91749
	SLC45A4	solute carrier family 45 member 4	57210
	SLC25A39	solute carrier family 25 member 39	51629
	CD70	CD70 molecule	970
	MYF5	myogenic factor 5	4617
	ZC3H8	zinc finger CCCH-type containing 8	84524
	IPO8	importin 8	10526
	BMP2	bone morphogenetic protein 2	650
	C5orf30	chromosome 5 open reading frame 30	90355
	PHF14	PHD finger protein 14	9678
	TRMT13	tRNA methyltransferase 13 homolog	54482
SARS-CoV-2-MD85 5P	TBX1	T-box 1	6899
	CADM2	cell adhesion molecule 2	253559
	EYA1	EYA transcriptional coactivator and phosphatase 1	2138
	PRDM1	PR/SET domain 1	639
	RORB	RAR related orphan receptor B	6096
	UNC50	unc-50 inner nuclear membrane RNA binding protein	25972
	MLLT10	MLLT10, histone lysine methyltransferase DOT1L cofactor	8028
	ATP2B1	ATPase plasma membrane Ca ²⁺ transporting 1	490
	PCNA	proliferating cell nuclear antigen	5111
	ATXN2	ataxin 2	6311
	CDC42BPB	CDC42 binding protein kinase beta	9578
	MFSD14A	major facilitator superfamily domain containing 14A	64645
	EYA4	EYA transcriptional coactivator and phosphatase 4	2070
	RIMKLB	ribosomal modification protein rimK like family member B	57494
	RECK	reversion inducing cysteine rich protein with kazal motifs	8434
	TMEM170A	transmembrane protein 170A	124491
	FZD5	frizzled class receptor 5	7855
	PRKCA	protein kinase C alpha	5578
	AZIN1	antizyme inhibitor 1	51582

	GPM6B	glycoprotein M6B	2824
	MACF1	microtubule-actin crosslinking factor 1	23499
	SOSTDC1	sclerostin domain containing 1	25928
	BEND2	BEN domain containing 2	139105
	MAP4K3	mitogen-activated protein kinase kinase kinase 3	8491
	IMPAD1	inositol monophosphatase domain containing 1	54928
	MRTFB	myocardin related transcription factor B	57496
	VAPA	VAMP associated protein A	9218
	WDR61	WD repeat domain 61	80349
	PKNOX1	PBX/knotted 1 homeobox 1	5316
	NPPA	natriuretic peptide A	4878
	CREBRF	CREB3 regulatory factor	153222
	SHOC2	SHOC2, leucine rich repeat scaffold protein	8036
	ASAP2	ArfGAP with SH3 domain, ankyrin repeat and PH domain 2	8853
	OSR2	odd-skipped related transcription factor 2	116039
	ATP11A	ATPase phospholipid transporting 11A	23250
	OCIAD1	OCIA domain containing 1	54940
	ZNF345	zinc finger protein 345	25850
	SH2D1A	SH2 domain containing 1A	4068
	MAN1A2	mannosidase alpha class 1A member 2	10905
	RHPN2	rhophilin Rho GTPase binding protein 2	85415
	TRDN	triadin	10345
	DNAJC6	DnaJ heat shock protein family (Hsp40) member C6	9829
	PPP4C	protein phosphatase 4 catalytic subunit	5531
	HNMT	histamine N-methyltransferase	3176
	KHDRBS2	KH RNA binding domain containing, signal transduction associated 2	202559
	HMGB1	high mobility group box 1	3146
	PALLD	palladin, cytoskeletal associated protein	23022
SARS-CoV-2-MD85 3P	NUS1	NUS1, dehydrodolichyl diphosphate synthase subunit	116150
	MTRNR2L5	MT-RNR2 like 5	100463289
	GRIK2	glutamate ionotropic receptor kainate type subunit 2	2898
	STAG2	stromal antigen 2	10735
	SULT1C3	sulfotransferase family 1C member 3	442038
	CNTN4	contactin 4	152330
	UBE2V2	ubiquitin conjugating enzyme E2 V2	7336
	IL1A	interleukin 1 alpha	3552
	RBMS3	RNA binding motif single stranded interacting protein 3	27303
	UBR3	ubiquitin protein ligase E3 component n-recogin 3	130507
	ACYP2	acylphosphatase 2	98

	MTERF4	mitochondrial transcription termination factor 4	130916
	ARHGAP1 1A	Rho GTPase activating protein 11A	9824
	PRKAB1	protein kinase AMP-activated non-catalytic subunit beta 1	5564
	PPP2R2B	protein phosphatase 2 regulatory subunit Bbeta	5521
	FAM120A	family with sequence similarity 120A	23196
	ARL17A	ADP ribosylation factor like GTPase 17A	51326
	DPH6	diphthamine biosynthesis 6	89978
	MYO5A	myosin VA	4644
	CREBZF	CREB/ATF bZIP transcription factor	58487
	SOX5	SRY-box 5	6660
	ALOX12B	arachidonate 12-lipoxygenase, 12R type	242
	PCNX1	pecanex 1	22990
	CLGN	calmegin	1047
	EBF3	EBF transcription factor 3	253738
	SP4	Sp4 transcription factor	6671
	SIPA1L1	signal induced proliferation associated 1 like 1	26037
	RAB11A	RAB11A, member RAS oncogene family	8766
	FPGT	fucose-1-phosphate guanylyltransferase	8790
	LSM8	LSM8 homolog, U6 small nuclear RNA associated	51691
	PARP16	poly(ADP-ribose) polymerase family member 16	54956
	UNK	unk zinc finger	85451
	DDX6	DEAD-box helicase 6	1656
	MTRNR2L 10	MT-RNR2 like 10	100463488
	SERAC1	serine active site containing 1	84947
	ELOC	elongin C	6921
	ZSWIM6	zinc finger SWIM-type containing 6	57688
	MRPL35	mitochondrial ribosomal protein L35	51318
SARS-CoV- 2-MD308 5P	GABRA1	gamma-aminobutyric acid type A receptor alpha1 subunit	2554
	RIMS3	regulating synaptic membrane exocytosis 3	9783
	CDKN1B	cyclin dependent kinase inhibitor 1B	1027
	PAIP1	poly(A) binding protein interacting protein 1	10605
	TCF12	transcription factor 12	6938
	HECTD2	HECT domain E3 ubiquitin protein ligase 2	143279
	RGS6	regulator of G protein signaling 6	9628
	HMBOX1	homeobox containing 1	79618
	PANK3	pantothenate kinase 3	79646
	EIF5A2	eukaryotic translation initiation factor 5A2	56648
	RFX7	regulatory factor X7	64864
	TGS1	trimethylguanosine synthase 1	96764

KIT	KIT proto-oncogene receptor tyrosine kinase	3815
MIDN	midnolin	90007
CLVS2	clavesin 2	134829
ARHGEF38	Rho guanine nucleotide exchange factor 38	54848
GRB10	growth factor receptor bound protein 10	2887
ADAM22	ADAM metallopeptidase domain 22	53616
VAPB	VAMP associated protein B and C	9217
EML6	EMAP like 6	400954
DENND1B	DENN domain containing 1B	163486
MIER3	MIER family member 3	166968
GNAI3	G protein subunit alpha i3	2773
SEC62	SEC62 homolog, preprotein translocation factor	7095
FNDC3A	fibronectin type III domain containing 3A	22862
FNIP2	folliculin interacting protein 2	57600
DCUN1D1	defective in cullin neddylation 1 domain containing 1	54165
TP53BP2	tumor protein p53 binding protein 2	7159
RAB18	RAB18, member RAS oncogene family	22931
WDR35	WD repeat domain 35	57539
MYLIP	myosin regulatory light chain interacting protein	29116
ARF4	ADP ribosylation factor 4	378
PCMTD1	protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1	115294
RIT2	Ras like without CAAX 2	6014
LOC100506388	uncharacterized LOC100506388	100506388
C3orf70	chromosome 3 open reading frame 70	285382
ZNF91	zinc finger protein 91	7644
GALNT3	polypeptide N-acetylgalactosaminyltransferase 3	2591
TFG	TRK-fused gene	10342
PHACTR4	phosphatase and actin regulator 4	65979
HNRNPH3	heterogeneous nuclear ribonucleoprotein H3	3189
SUN2	Sad1 and UNC84 domain containing 2	25777
DMRT3	doublesex and mab-3 related transcription factor 3	58524
NAA25	N(alpha)-acetyltransferase 25, NatB auxiliary subunit	80018
NRK	Nik related kinase	203447
AGTPBP1	ATP/GTP binding protein 1	23287
MRAP2	melanocortin 2 receptor accessory protein 2	112609
CDH2	cadherin 2	1000
ERBB4	erb-b2 receptor tyrosine kinase 4	2066
APOLD1	apolipoprotein L domain containing 1	81575
SYT10	synaptotagmin 10	341359
PPP3R1	protein phosphatase 3 regulatory subunit B, alpha	5534

	FMR1	fragile X mental retardation 1	2332
	FOXP2	forkhead box N2	3344
	FERMT2	fermitin family member 2	10979
SARS-CoV-2-MD308 3P	USP1	ubiquitin specific peptidase 1	7398
	SLC35A1	solute carrier family 35 member A1	10559
	HSD17B12	hydroxysteroid 17-beta dehydrogenase 12	51144
	LMO4	LIM domain only 4	8543
	RAPGEF5	Rap guanine nucleotide exchange factor 5	9771
	TECTB	tectorin beta	6975
	RRAS2	RAS related 2	22800
	TAF5	TATA-box binding protein associated factor 5	6877
	WEE1	WEE1 G2 checkpoint kinase	7465
SARS-CoV-2-MD229 5P	PHACTR2	phosphatase and actin regulator 2	9749
	SDR9C7	short chain dehydrogenase/reductase family 9C member 7	121214
	FBXO11	F-box protein 11	80204
	ALDH2	aldehyde dehydrogenase 2 family member	217
	MTRR	5-methyltetrahydrofolate-homocysteine methyltransferase reductase	4552
	JAG1	jagged 1	182
	CCDC178	coiled-coil domain containing 178	374864
	ZNF24	zinc finger protein 24	7572
	GCNT1	glucosaminyl (N-acetyl) transferase 1	2650
	CLEC12B	C-type lectin domain family 12 member B	387837
	PAPOLB	poly(A) polymerase beta	56903
	ATP5MC1	ATP synthase membrane subunit c locus 1	516
	PPP1R3A	protein phosphatase 1 regulatory subunit 3A	5506
	DCAF10	DDB1 and CUL4 associated factor 10	79269
	ABO	ABO, alpha 1-3-N-acetylgalactosaminyltransferase and alpha 1-3-galactosyltransferase	28
	DPY30	dpy-30, histone methyltransferase complex regulatory subunit	84661
	PHIP	pleckstrin homology domain interacting protein	55023
	SLC25A40	solute carrier family 25 member 40	55972
	ADIPOR2	adiponectin receptor 2	79602
	LTBP1	latent transforming growth factor beta binding protein 1	4052
	CADM4	cell adhesion molecule 4	199731
	SRGAP1	SLIT-ROBO Rho GTPase activating protein 1	57522
	NMD3	NMD3 ribosome export adaptor	51068
	VEGFD	vascular endothelial growth factor D	2277
	MAT2A	methionine adenosyltransferase 2A	4144
	ERCC6	ERCC excision repair 6, chromatin remodeling factor	2074
	RCSD1	RCSD domain containing 1	92241

	WDR77	WD repeat domain 77	79084
	ZNF750	zinc finger protein 750	79755
	PRH2	proline rich protein HaeIII subfamily 2	5555
	RP2	RP2, ARL3 GTPase activating protein	6102
	CD96	CD96 molecule	10225
	EBPL	EBP like	84650
	MRPL19	mitochondrial ribosomal protein L19	9801
	TRDMT1	tRNA aspartic acid methyltransferase 1	1787
	GIGYF2	GRB10 interacting GYF protein 2	26058
	JMY	junction mediating and regulatory protein, p53 cofactor	133746
	ATP8A1	ATPase phospholipid transporting 8A1	10396
	DNAI1	dynein axonemal intermediate chain 1	27019
	UBFD1	ubiquitin family domain containing 1	56061
	UVSSA	UV stimulated scaffold protein A	57654
SARS-CoV-2-MD229 3P	PDZRN4	PDZ domain containing ring finger 4	29951
	ACSL4	acyl-CoA synthetase long chain family member 4	2182
	TAOK1	TAO kinase 1	57551
	PLCB1	phospholipase C beta 1	23236
	NR4A1	nuclear receptor subfamily 4 group A member 1	3164
	ITCH	itchy E3 ubiquitin protein ligase	83737
	GAB1	GRB2 associated binding protein 1	2549
	AGFG1	ArfGAP with FG repeats 1	3267
	DSTYK	dual serine/threonine and tyrosine protein kinase	25778
	RNF39	ring finger protein 39	80352
	SLCO4C1	solute carrier organic anion transporter family member 4C1	353189
	KMT2C	lysine methyltransferase 2C	58508
	STAM	signal transducing adaptor molecule	8027
	FNDC3B	fibronectin type III domain containing 3B	64778
	ZBTB10	zinc finger and BTB domain containing 10	65986
	SIPA1L2	signal induced proliferation associated 1 like 2	57568
	GALNT7	polypeptide N-acetylgalactosaminyltransferase 7	51809
	ZNF407	zinc finger protein 407	55628
	DNAJC5B	DnaJ heat shock protein family (Hsp40) member C5 beta	85479
	YY1	YY1 transcription factor	7528
	F3	coagulation factor III, tissue factor	2152
	RMND5A	required for meiotic nuclear division 5 homolog A	64795
	MCCC2	methylcrotonoyl-CoA carboxylase 2	64087
	TRAPPC6B	trafficking protein particle complex 6B	122553
	SLC2A2	solute carrier family 2 member 2	6514
	SLC11A2	solute carrier family 11 member 2	4891

	INPP5B	inositol polyphosphate-5-phosphatase B	3633
	ST6GAL2	ST6 beta-galactoside alpha-2,6-sialyltransferase 2	84620
	TRERF1	transcriptional regulating factor 1	55809
	FAM120A OS	family with sequence similarity 120A opposite strand	158293
	RAB14	RAB14, member RAS oncogene family	51552
	RINL	Ras and Rab interactor like	126432
	LOXHD1	lipoxygenase homology domains 1	125336
	RSBN1	round spermatid basic protein 1	54665
	ATF7	activating transcription factor 7	11016
	PCDH17	protocadherin 17	27253
	DNAJB6	DnaJ heat shock protein family (Hsp40) member B6	10049
	NRXN1	neurexin 1	9378
	CNTLN	centlein	54875
	RAB6D	RAB6D, member RAS oncogene family	150786
	GABPB1	GA binding protein transcription factor subunit beta 1	2553
	EPHA6	EPH receptor A6	285220
	CXADR	CXADR, Ig-like cell adhesion molecule	1525
SARS-CoV-2-MD30 5P	LIN7A	lin-7 homolog A, crumbs cell polarity complex component	8825
	BPY2	basic charge Y-linked 2	9083
	BPY2C	basic charge Y-linked 2C	442868
	BPY2B	basic charge Y-linked 2B	442867
	FCGR1B	Fc fragment of IgG receptor 1b	2210
	ADAMTSL1	ADAMTS like 1	92949
	YTHDF3	YTH N6-methyladenosine RNA binding protein 3	253943
	ATG10	autophagy related 10	83734
	SLC35F2	solute carrier family 35 member F2	54733
	GSK3B	glycogen synthase kinase 3 beta	2932
	IMP4	IMP4, U3 small nucleolar ribonucleoprotein	92856
	SNIP1	Smad nuclear interacting protein 1	79753
	PCDH19	protocadherin 19	57526
	FURIN	furin, paired basic amino acid cleaving enzyme	5045
	STC1	stanniocalcin 1	6781
	LRFN3	leucine rich repeat and fibronectin type III domain containing 3	79414
	PLA2G4A	phospholipase A2 group IVA	5321
	EPHB1	EPH receptor B1	2047
	PDE4D	phosphodiesterase 4D	5144
	NAV1	neuron navigator 1	89796
	FGB	fibrinogen beta chain	2244
	TRAT1	T cell receptor associated transmembrane adaptor 1	50852

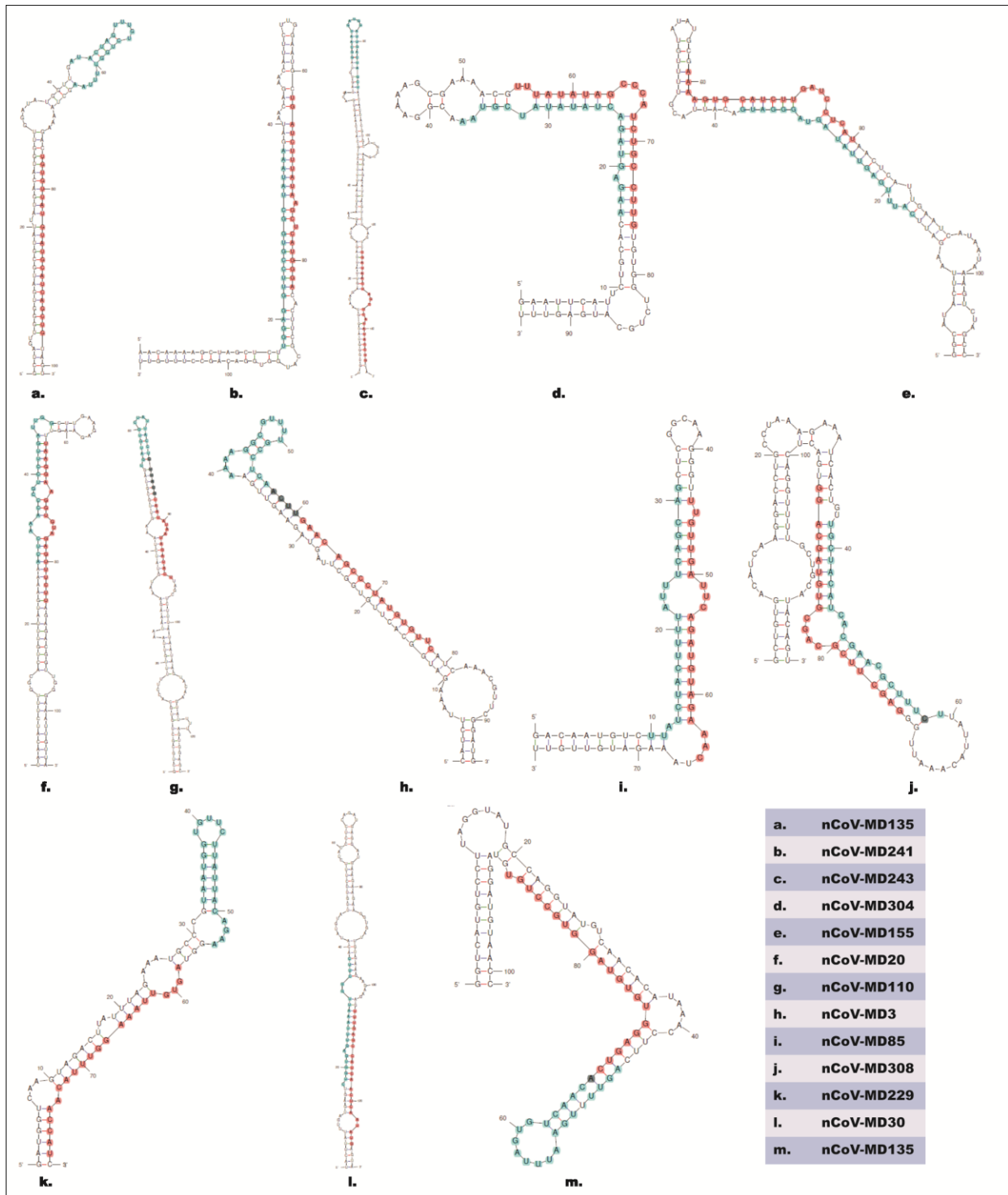
	KLHL14	kelch like family member 14	57565
	DPP3	dipeptidyl peptidase 3	10072
	NANOGNB	NANOG neighbor homeobox	360030
	PPP2R5D	protein phosphatase 2 regulatory subunit B'delta	5528
	TTC30A	tetratricopeptide repeat domain 30A	92104
	VPS50	VPS50, EARP/GARPII complex subunit	55610
	VPS39	VPS39, HOPS complex subunit	23339
	SYNJ2	synaptojanin 2	8871
	CBLB	Cbl proto-oncogene B	868
	MYPN	myopalladin	84665
	GOLPH3	golgi phosphoprotein 3	64083
	PCGF6	polycomb group ring finger 6	84108
	PTGFRN	prostaglandin F2 receptor inhibitor	5738
	G2E3	G2/M-phase specific E3 ubiquitin protein ligase	55632
	TMSB15A	thymosin beta 15a	11013
	ZNF316	zinc finger protein 316	100131017
	SLC5A9	solute carrier family 5 member 9	200010
	PRIM2	DNA primase subunit 2	5558
	C17orf97	chromosome 17 open reading frame 97	400566
	ZSWIM5	zinc finger SWIM-type containing 5	57643
	LPP	LIM domain containing preferred translocation partner in lipoma	4026
	GPLD1	glycosylphosphatidylinositol specific phospholipase D1	2822
	BNC2	basonuclin 2	54796
SARS-CoV-2-MD30 3P	BBS10	Bardet-Biedl syndrome 10	79738
	CDY1	chromodomain Y-linked 1	9085
	CDY1B	chromodomain Y-linked 1B	253175
	HSPA9	heat shock protein family A (Hsp70) member 9	3313
	CSRP1	cysteine and glycine rich protein 1	1465
	ZNF566	zinc finger protein 566	84924
	SLC7A6	solute carrier family 7 member 6	9057
	SLITRK4	SLIT and NTRK like family member 4	139065
	IKZF2	IKAROS family zinc finger 2	22807
	MIA2	MIA SH3 domain ER export factor 2	4253
	MMP12	matrix metalloproteinase 12	4321
	TCHHL1	trichohyalin like 1	126637
	ERI1	exoribonuclease 1	90459
	ADGRF5	adhesion G protein-coupled receptor F5	221395
	CYP7B1	cytochrome P450 family 7 subfamily B member 1	9420
	HSPH1	heat shock protein family H (Hsp110) member 1	10808
	GREM2	gremlin 2, DAN family BMP antagonist	64388

	TMOD1	tropomodulin 1	7111
	MORF4L1	mortality factor 4 like 1	10933
	KLHL29	kelch like family member 29	114818
	CMTR2	cap methyltransferase 2	55783
	07-Mar	membrane associated ring-CH-type finger 7	64844
	RNF2	ring finger protein 2	6045
	CASP3	caspase 3	836
	FAM81A	family with sequence similarity 81 member A	145773
	ASF1A	anti-silencing function 1A histone chaperone	25842
	ZNF675	zinc finger protein 675	171392
	APOA5	apolipoprotein A5	116519
	TNF	tumor necrosis factor	7124
	GEM	GTP binding protein overexpressed in skeletal muscle	2669
	GABRA3	gamma-aminobutyric acid type A receptor alpha3 subunit	2556
	PARP9	poly(ADP-ribose) polymerase family member 9	83666
	STIMATE	STIM activating enhancer	375346
	PSD3	pleckstrin and Sec7 domain containing 3	23362
	OTUD4	OTU deubiquitinase 4	54726
	RERG	RAS like estrogen regulated growth inhibitor	85004
	ZNF449	zinc finger protein 449	203523
	TRMT10C	tRNA methyltransferase 10C, mitochondrial RNase P subunit	54931
	METTL15	methyltransferase like 15	196074
	C16orf70	chromosome 16 open reading frame 70	80262
	ANKS1A	ankyrin repeat and sterile alpha motif domain containing 1A	23294
	PTPN7	protein tyrosine phosphatase, non-receptor type 7	5778
	TXNL4B	thioredoxin like 4B	54957
	ATP5MC3	ATP synthase membrane subunit c locus 3	518
	EPB41L4B	erythrocyte membrane protein band 4.1 like 4B	54566
	NAA30	N(alpha)-acetyltransferase 30, NatC catalytic subunit	122830
	C20orf203	chromosome 20 open reading frame 203	284805
	YEATS2	YEATS domain containing 2	55689
	HSD11B2	hydroxysteroid 11-beta dehydrogenase 2	3291
	HEY2	hes related family bHLH transcription factor with YRPW motif 2	23493
SARS-CoV-2-MR186 5P	BBX	BBX, HMG-box containing	56987
	MOSMO	modulator of smoothened	730094
	PLXDC2	plexin domain containing 2	84898
	SGIP1	SH3 domain GRB2 like endophilin interacting protein 1	84251
	FKBP5	FKBP prolyl isomerase 5	2289
	EDNRB	endothelin receptor type B	1910
	ELOVL7	ELOVL fatty acid elongase 7	79993

LRRTM3	leucine rich repeat transmembrane neuronal 3	347731
HNRNPR	heterogeneous nuclear ribonucleoprotein R	10236
SCAMP1	secretory carrier membrane protein 1	9522
AFG1L	AFG1 like ATPase	246269
SLC44A1	solute carrier family 44 member 1	23446
CNOT7	CCR4-NOT transcription complex subunit 7	29883
CCN2	cellular communication network factor 2	1490
OR2L13	olfactory receptor family 2 subfamily L member 13	284521
RNASEL	ribonuclease L	6041
CC2D1B	coiled-coil and C2 domain containing 1B	200014
TNPO1	transportin 1	3842
SMYD3	SET and MYND domain containing 3	64754
SLC39A9	solute carrier family 39 member 9	55334
PMPCB	peptidase, mitochondrial processing beta subunit	9512
ARHGEF38	Rho guanine nucleotide exchange factor 38	54848
PPARGC1A	PPARG coactivator 1 alpha	10891
CSRNP2	cysteine and serine rich nuclear protein 2	81566
C7	complement C7	730
SNX9	sorting nexin 9	51429
EXOSC8	exosome component 8	11340
LCORL	ligand dependent nuclear receptor corepressor like	254251
RAD51AP2	RAD51 associated protein 2	729475
KLHL15	kelch like family member 15	80311
RFX3	regulatory factor X3	5991
LDAH	lipid droplet associated hydrolase	60526
XPR1	xenotropic and polytropic retrovirus receptor 1	9213
NEDD9	neural precursor cell expressed, developmentally down-regulated 9	4739
MCMDC2	minichromosome maintenance domain containing 2	157777
MBNL1	muscleblind like splicing regulator 1	4154
HCN1	hyperpolarization activated cyclic nucleotide gated potassium channel 1	348980
TNFSF13B	TNF superfamily member 13b	10673
SCLT1	sodium channel and clathrin linker 1	132320
CYP4V2	cytochrome P450 family 4 subfamily V member 2	285440
PHACTR1	phosphatase and actin regulator 1	221692
FYTTD1	forty-two-three domain containing 1	84248
RYBP	RING1 and YY1 binding protein	23429
BRIP1	BRCA1 interacting protein C-terminal helicase 1	83990
ATF6	activating transcription factor 6	22926
AJAP1	adherens junctions associated protein 1	55966
RFXAP	regulatory factor X associated protein	5994

	VWC2	von Willebrand factor C domain containing 2	375567
	SYNJ1	synaptojanin 1	8867
	UBE3A	ubiquitin protein ligase E3A	7337
	SPART	spartin	23111
	CARF	calcium responsive transcription factor	79800
	ARL6IP6	ADP ribosylation factor like GTPase 6 interacting protein 6	151188
	APOPT1	apoptogenic 1, mitochondrial	84334
	CLEC2B	C-type lectin domain family 2 member B	9976
	TM6SF1	transmembrane 6 superfamily member 1	53346
	PLCXD3	phosphatidylinositol specific phospholipase C X domain containing 3	345557
	SEMA5A	semaphorin 5A	9037
	ONECUT2	one cut homeobox 2	9480
	PEAK1	pseudopodium enriched atypical kinase 1	79834
	NDUFA5	NADH:ubiquinone oxidoreductase subunit A5	4698
	XKR6	XK related 6	286046
	CDKN2C	cyclin dependent kinase inhibitor 2C	1031
	LHX8	LIM homeobox 8	431707
	FOXF1	forkhead box F1	2294
	ATMIN	ATM interactor	23300
SARS-CoV-2-MR186 3P	ARID3B	AT-rich interaction domain 3B	10620
	UGGT1	UDP-glucose glycoprotein glucosyltransferase 1	56886
	DICER1	dicer 1, ribonuclease III	23405
	ACVR2A	activin A receptor type 2A	92
	ABL2	ABL proto-oncogene 2, non-receptor tyrosine kinase	27
	CCND2	cyclin D2	894
	VAV3	vav guanine nucleotide exchange factor 3	10451
	RBFOX1	RNA binding fox-1 homolog 1	54715
	PPARGC1B	PPARG coactivator 1 beta	133522
	CEP164	centrosomal protein 164	22897
	GALNT2	polypeptide N-acetylgalactosaminyltransferase 2	2590
	PDSS2	decaprenyl diphosphate synthase subunit 2	57107
	SPECC1	sperm antigen with calponin homology and coiled-coil domains 1	92521
	MFHAS1	malignant fibrous histiocytoma amplified sequence 1	9258
	IKZF3	IKAROS family zinc finger 3	22806
	ACVR2B	activin A receptor type 2B	93
	SH2B3	SH2B adaptor protein 3	10019
	DLC1	DLC1 Rho GTPase activating protein	10395
	IRGQ	immunity related GTPase Q	126298
	SYT2	synaptotagmin 2	127833
	TAB2	TGF-beta activated kinase 1 (MAP3K7) binding protein 2	23118

FIGNL2	fidgetin like 2	401720
COL4A2	collagen type IV alpha 2 chain	1284
ANKRA2	ankyrin repeat family A member 2	57763
MSI2	musashi RNA binding protein 2	124540
CCDC81	coiled-coil domain containing 81	60494
IGF2BP2	insulin like growth factor 2 mRNA binding protein 2	10644
UTRN	utrophin	7402
GALNT4	polypeptide N-acetylgalactosaminyltransferase 4	8693
POC1B-GALNT4	POC1B-GALNT4 readthrough	100528030
CEBPD	CCAAT enhancer binding protein delta	1052
RCN1	reticulocalbin 1	5954
SPRED3	sprouty related EVH1 domain containing 3	399473
SYT1	synaptotagmin 1	6857
BEGAIN	brain enriched guanylate kinase associated	57596
PRTG	protogenin	283659
RASGRP1	RAS guanyl releasing protein 1	10125
MIOS	meiosis regulator for oocyte development	54468
LRIG2	leucine rich repeats and immunoglobulin like domains 2	9860
SH3RF3	SH3 domain containing ring finger 3	344558
RB1	RB transcriptional corepressor 1	5925
CABLES2	Cdk5 and Abl enzyme substrate 2	81928
B3GNT7	UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 7	93010
ANGPTL2	angiopoietin like 2	23452
TET3	tet methylcytosine dioxygenase 3	200424
RGS19	regulator of G protein signaling 19	10287
CACNA1I	calcium voltage-gated channel subunit alpha1 I	8911
MMP1	matrix metallopeptidase 1	4312
USP3	ubiquitin specific peptidase 3	9960
GALNT1	polypeptide N-acetylgalactosaminyltransferase 1	2589
MED6	mediator complex subunit 6	10001
MFAP3L	microfibril associated protein 3 like	9848



Supplementary Figure S1. pre miRNAs secondary structures predicted by Mfold. 5' arm of mature miRNAs is shown by blue, the 3' arm by red whereas the dark grey show overlapping region.