Shortlist of human of prospective genetic determinants of COVID19

1. Entry, infectivity, spread

ACE2 Entry receptor (1-3)

CD147 Presumtive entry receptor, interacts with S (4)

TMPRSS2 Proteolitically priming of S for membrane fusion, mediates infectivity/ spread (1, 5-7)

ZDHHC5 GOLGA7-ZDHHC5 acyl-transferase complex interacts with S, could facilitate membrane fusion, mediating infectivity and spread (5, 8)

2. Replication (ER vesicle trafficking, ERQC)

ERO1B ER Quality Control and UPR mediator, interactor of viral protein Orf8 (5)

SIGMAR1 ER stress/ UPR/autophagy regulator resident in ER membranes that support viral replication (HCV, human coronavirus 229E), interacts with viral replicase protein Nsp6 (replication machinery complex) (5)

ATP6AP1 V1-ATPase subunit that mediates late autophagy and endosomal trafficking and interacts with Nsp6 and M, could mediate trafficking needed for viral replication/ infectious virion assembly/maturation in cellular membranes (5)

3. Antiviral response

RAE1 NUP98-RAE1 complex, known restriction factor for Influenza and other viruses, hijacked by conserved binding motifs in many viruses as an immune evasion strategy, interacts with viral Orf6 protein (5)

RNF41 E3 Ub-ligase mediating antiviral response via IRF3/TBK1. Interactor of viral protein Nsp15, possibly hijacking of antiviral response (5)

MBL Polymorphisms on MBL (mannose-binding lectin), antigen presentation, linked to risk of SARS (9)

HLA HLA-A, B, DR polymorphisms that correlate with susceptibility to SARS-CoV and MERS-CoV (9, 10)

4. Disease predisposing factors

DPP4 Functional receptor in MERS-CoV in immune cells and mediator of immune response dysregulation in Type II diabetes, disease that poses a major risk of complications in COVID19 (11, 12)

TERT Predisposing factor for lung fibrosis in interstitial fibrosis related to hypersensitivity pneumonitis and collagen vascular disease (13, 14)

variants associated to covid19 severity, interactor, druggable (approved drug available), covid19 (treatment currently being tested in COVID19 patients), cov (similar mechanism in human coronavirus)

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