

Pathophysiology of acute respiratory syndrome coronavirus 2 infection: a systematic literature review to inform EULAR points to consider

Online Supplementary Material

Table of Contents

	Page
Online Supplementary Text S1: Online Supplementary Text S1: Population, Intervention, Comparator and Outcome (PICO) approach.	2
Online Supplementary Text S2: Search strategy for pathophysiology of COVID-19	3
Online Supplementary Text S3: Search strategy for COVID-19 treatment	14
Online Supplementary Text S4: Search strategy for COVID-19 and rheumatic and musculoskeletal diseases.	28
Online supplementary Text S5: Question specific eligibility criteria	36
Online supplementary Text S6: Risk of Bias evaluation tools.	38
Online supplementary Table S1: Flowchart of the 3 searches	52
Online supplementary Table S2: Flowchart of the 3 searches (Part 2)	54
Online supplementary Table S3: Gut and SARS-CoV-2 infection	55
Online supplementary Table S4: Histological lesions related to SARS-CoV-2 infections	57
Online supplementary Table S5: Comorbidities and SARS-CoV-2 infection	59
Online supplementary Table S6: Immunosenescence and SARS-CoV-2 infection.	60
Online supplementary Table S7: Consequences of immune-modulatory drugs on viral load and host anti-viral immune response.	61
References	62

Online Supplementary Text S1: Population, Intervention, Comparator and Outcome (PICO) approach.

Search 1 (pathophysiology of COVID-19): P (population): patients with SARS CoV2 infection; I (intervention): any intervention/no intervention; C (comparator): any comparator; O (outcome) any clinical or serological outcome including, but not limited to, immune cell phenotype and function and serum cytokine concentration.

Search 2 (COVID-19 and therapy): P (population): patients with SARS CoV2 infection; I (intervention): any immunomodulator agent/strategy; C (comparator): any comparator; O (outcome) any clinical outcome including but not limited to mortality, admission to intensive care unit and clinical improvement.

Search 3: (COVID-19 and rheumatic and musculoskeletal diseases): P (population): patients with SARS CoV2 infection and no diagnosis of RMDs; I (intervention): any immunomodulator agent/strategy; C (comparator): any comparator; O (outcome) new onset autoimmune disease and/or autoantibodies).

Online Supplementary Text S1: Search strategy for pathophysiology of COVID-19**Medline**

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <2016 to October 7, 2020>

Search Strategy: Covid & Pathophysiology

- 1 exp t-Lymphocytes/ (45024)
- 2 ((T adj2 lymphocyte*) or (T adj2 cell*) or Thymus Dependent Lymphocyte*).mp(106985)
- 3 exp B-Lymphocytes/ (10564)
- 4 ((b adj2 cell*) or (b adj2 lymphocyte*)).mp(50718)
- 5 B10.mp(463)
- 6 exp Biomarkers/ (176995)
- 7 (((biological or biochemical or biologic or immune or immunologic* or laboratory or surrogate or viral) adj3 marker*) or biomarker*).mp(250594)
- 8 exp Biopsy/ (40157)
- 9 (biopsy or biopsies).mp(114651)
- 10 B-Lymphocytes, Regulatory/ (374)
- 11 (breg* or "regulatory b cell*" or "regulatory b lymphocyte*").mp(1099)
- 12 exp Bronchoalveolar Lavage/ (3837)
- 13 ((Bronchoalveolar or bronchial or bronchopulmonary or Bronchioalveolar or lung or pulmonary) adj2 (lavage or wash*)).mp(8720)
- 14 (CD16 or FCgammaRIII or (IgG adj receptor*)).mp(1978)
- 15 Receptors, IgG/ (1403)
- 16 Antigens, CD19/ (882)
- 17 CD19.mp(3752)
- 18 CD4 Antigens/ (930)
- 19 CD4.mp(38856)
- 20 CD8 Antigens/ (525)
- 21 CD8.mp(24487)
- 22 exp Chemokines/ (13572)
- 23 (chemokine* or chemotactic* or intercrine*).mp(30771)
- 24 exp Complement System Proteins/ (4896)
- 25 complement.mp(31082)
- 26 exp Cytokines/ (120609)
- 27 (cytokine* or interleukin*).mp(171683)
- 28 exp Dendritic Cells/ (8077)
- 29 (((dendritic or interdigitating) adj2 cell*) or DC).mp(34118)
- 30 exp Endothelial Cells/ (18959)
- 31 ((endothelial or endothelium) adj2 cell*).mp(45902)
- 32 ((endothelial or endothelium) adj3 microparticle*).mp(291)
- 33 exp Endothelium/ (9505)
- 34 endothelium.mp(18957)
- 35 Eosinophils/ (2610)
- 36 eosinophil*.mp(17889)
- 37 exp T-Lymphocytes, Helper-Inducer/ (8679)
- 38 "T helper cell*".mp(2113)
- 39 exp Fibroblasts/ (27166)
- 40 fibroblast*.mp(53774)
- 41 exp Genes/ (100804)
- 42 (gene or genes).mp(755066)
- 43 exp Genome/ (155426)

44 genome*.mp(188459)
45 Genome-Wide Association Study/ (13155)
46 (GWAS or "GWA stud*" or "genome wide association stud*").mp(21707)
47 exp Hemostasis/ (9820)
48 (hemostasis or haemostasis).mp(10313)
49 exp Histology/ (33687)
50 (histology or histologic*).mp(167555)
51 ((immune or immunocompetent or immunocompetent) adj2 cell*).mp(40241)
52 exp Immune System/ (138423)
53 "immune system*".mp(44449)
54 exp Immunoglobulins/ (106188)
55 (Immunoglobulin* or "gamma-globulin*" or gammaglobulin* or tegeline or veinoglobulin*
or venoglobulin*).mp(50150)
56 Immunosenescence/ (275)
57 (Immunosenescence or immunosenescence or immunosenescence).mp(1099)
58 exp Interferon Type I/ (6119)
59 Interferon-gamma/ (7582)
60 exp Interferons/ (15621)
61 interferon*.mp(40965)
62 exp Lymphocytes/ (63730)
63 lymphocyte*.mp(97245)
64 exp Macrophages/ (32803)
65 (macrophage* or histiocyte*).mp(71015)
66 Mast Cells/ (2767)
67 ("mast cell*" or mastocyte*).mp(7573)
68 exp MicroRNAs/ (41135)
69 (microRNA* or "micro RNA*" or miRNA* or mi-RNA* or miRs).mp(71821)
70 exp Monocytes/ (8102)
71 monocyte*.mp(27872)
72 exp Nasal Lavage/ (237)
73 ((nasal or nasopharyngeal or nasopharyngeal or nose or nasopharynx) adj3 (lavage or irrigation
or aspirate* or swab* or wash* or smear* or mucosa)).mp(7261)
74 exp Killer Cells, Natural/ (5220)
75 ("natural killer*" or "NK cell*" or NK).mp(16729)
76 Neutrophils/ (10439)
77 (neutrophil* or granulocyte*).mp(47471)
78 (oropharyngeal adj3 swab*).mp(438)
79 exp Leukocytes, Mononuclear/ (74463)
80 ("peripheral blood mononuclear cell*" or PBMC or (mononuclear adj2
leukocyte*).mp(15035)
81 exp Plasma/ (4915)
82 (plasma or plasm).mp(193969)
83 Blood Platelets/ (7226)
84 (platelet* or thrombocyte*).mp(55469)
85 B-Lymphocytes, Regulatory/ (374)
86 T-Lymphocytes, Regulatory/ (6849)
87 Saliva/ (6472)
88 (saliva or spittle).mp(15463)
89 exp Serum/ (3019)
90 serum.mp(232308)
91 Sputum/ (2801)

- 92 (sputum or expectorate).mp(8692)
 93 exp Feces/ (16049)
 94 (stool* or faeces or feces).mp(32801)
 95 exp Superantigens/ (258)
 96 Superantigen*.mp(670)
 97 exp T-Lymphocytes, Helper-Inducer/ (8679)
 98 ("t helper*" or "helper cell*").mp(7829)
 99 Th1 Cells/ (2976)
 100 Th1.mp(11045)
 101 Th17 Cells/ (3538)
 102 Th17.mp(8665)
 103 Th2 Cells/ (2677)
 104 Th2.mp(9688)
 105 Th22.mp(356)
 106 Th9.mp(429)
 107 exp Thrombosis/ (15110)
 108 (thrombosis or thrombus or "blood clot*" or thrombotic).mp(54227)
 109 T-Lymphocytes, Regulatory/ (6849)
 110 (Treg or "t reg*" or (regulatory adj3 (lymphocyte* or cell*))).mp(20216)
 111 Urine/ (2116)
 112 urine.mp(55328)
 113 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75 or 76 or 77 or 78 or 79 or 80 or 81 or 82 or 83 or 84 or 85 or 86 or 87 or 88 or 89 or 90 or 91 or 92 or 93 or 94 or 95 or 96 or 97 or 98 or 99 or 100 or 101 or 102 or 103 or 104 or 105 or 106 or 107 or 108 or 109 or 110 or 111 or 112 (2075821)
 114 exp Coronavirus/ (19595)
 115 exp Coronavirus Infections/ (20991)
 116 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARS-CoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARSCoronavirus2* or "SARS-coronavirus-2*" or "SARSCoronavirus 2*" or "SARS coronavirus2*" or SARSCoronavirus2* or "SARS-coronavirus-2*" or "SARSCoronavirus 2*" or "SARS coronavirus2*" or covid).ti,ab,kw,kf. (38713)
 117 "severe acute respiratory syndrome*".ti,ab,kw,kf. (6855)
 118 ((corona* or corono*) adj1 (virus* or viral* or virinae*)).ti,ab,kw,kf. (1388)
 119 (coronavirus* or coronovirus* or coronavirinae* or CoV).ti,ab,kw,kf. (28750)
 120 114 or 115 or 116 or 117 or 118 or 119 (51103)
 121 113 and 120 (12309)
 122 limit 121 to yr="2019 -Current" (7539)

Embase

Database: Embase <1996 to October 7, 2020>

Search Strategy: Covid & Pathogenesis

1 exp t lymphocyte/ (456309)

- 2 ((T adj2 lymphocyte*) or (T adj2 cell*) or Thymus Dependent Lymphocyte*).mp. (591269)
- 3 exp b lymphocyte/ (147673)
- 4 ((b adj2 cell*) or (b adj2 lymphocyte*)).mp. (249121)
- 5 B10.mp. (2059)
- 6 biological marker/ (307140)
- 7 (((biological or biochemical or biologic or immune or immunologic* or laboratory or surrogate or viral) adj3 marker*) or biomarker*).mp. (578923)
- 8 exp biopsy/ (669360)
- 9 (biopsy or biopsies).mp. (771743)
- 10 regulatory b lymphocyte/ (960)
- 11 (breg* or "regulatory b cell*" or "regulatory b lymphocyte*").mp. (3888)
- 12 lung lavage/ (45132)
- 13 ((Bronchoalveolar or bronchial or bronchopulmonary or Bronchioalveolar or lung or pulmonary) adj2 (lavage or wash*)).mp. (58261)
- 14 CD16 antigen/ (8740)
- 15 (CD16 or FCgammaRIII or (IgG adj receptor*)).mp. (15723)
- 16 CD19 antigen/ (15516)
- 17 CD19.mp. (28635)
- 18 CD4 antigen/ (112927)
- 19 CD4.mp. (254302)
- 20 CD8.mp. (153758)
- 21 CD8 antigen/ (67128)
- 22 exp chemokine/ (215856)
- 23 (chemokine* or chemotactic* or intercrine*).mp. (193870)
- 24 exp complement/ (45769)
- 25 complement.mp. (140206)
- 26 exp cytokine/ (1380226)
- 27 (cytokine* or interleukin*).mp. (919536)
- 28 exp dendritic cell/ (100167)
- 29 (((dendritic or interdigitating) adj2 cell*) or DC).mp. (173804)
- 30 exp endothelium cell/ (170061)
- 31 ((endothelial or endothelium) adj2 cell*).mp. (238200)
- 32 endothelial microparticle/ (1283)
- 33 ((endothelial or endothelium) adj3 microparticle*).mp. (1755)
- 34 endothelial progenitor cell/ (9075)
- 35 exp endothelium/ (110181)
- 36 endothelium.mp. (243355)
- 37 eosinophil/ (40827)
- 38 Eosinophil*.mp. (104859)
- 39 exp helper cell/ (90736)
- 40 "T helper cell*".mp. (10123)
- 41 exp fibroblast/ (123146)
- 42 fibroblast*.mp. (266122)
- 43 exp gene/ (961112)
- 44 (gene or genes).mp. (3400074)
- 45 exp genome/ (273762)
- 46 genome*.mp. (548669)
- 47 genome-wide association study/ (24143)
- 48 (GWAS or "GWA stud*" or "genome wide association stud*").mp. (52611)
- 49 hemostasis/ (63878)
- 50 (hemostasis or haemostasis).mp. (80520)

- 51 exp histology/ (886402)
- 52 (histology or histologic*).mp. (771484)
- 53 immunocompetent cell/ (66110)
- 54 ((immune or immunocompetent or immunocompetent) adj2 cell*).mp. (148896)
- 55 exp immune system/ (1684358)
- 56 "immune system*.mp. (165426)
- 57 exp immunoglobulin/ (373027)
- 58 (Immunoglobulin* or "gamma-globulin*" or gammaglobulin* or tegeline or veinoglobulin* or venoglobulin*).mp. (568468)
- 59 immunosenescence/ (1384)
- 60 (Immunosenescence or immunosenescence or immunosenescence).mp. (3342)
- 61 exp interferon/ (499113)
- 62 interferon*.mp. (339214)
- 63 exp lymphocyte/ (674815)
- 64 lymphocyte*.mp. (753344)
- 65 exp macrophage/ (224069)
- 66 (macrophage* or histiocyte*).mp. (362232)
- 67 exp mast cell/ (33055)
- 68 ("mast cell*" or mastocyte*).mp. (44865)
- 69 exp microRNA/ (160021)
- 70 (microRNA* or "micro RNA*" or miRNA* or mi-RNA* or miRs).mp. (170200)
- 71 exp monocyte/ (96637)
- 72 monocyte*.mp. (177960)
- 73 nose smear/ (6102)
- 74 ((nasal or nasopharyngeal or nasopharyngeal or nose or nasopharynx) adj3 (lavage or irrigation or aspirate* or swab* or wash* or smear* or mucosa)).mp. (29983)
- 75 natural killer cell/ (63740)
- 76 ("natural killer*" or "NK cell*" or NK).mp. (98324)
- 77 neutrophil/ (109021)
- 78 (neutrophil* or granulocyte*).mp. (328852)
- 79 (oropharyngeal adj3 swab*).mp. (1038)
- 80 peripheral blood mononuclear cell/ (67396)
- 81 ("peripheral blood mononuclear cell*" or PBMC or (mononuclear adj2 leukocyte*)).mp. (87892)
- 82 exp plasma/ (142187)
- 83 (plasma or plasm).mp. (893214)
- 84 platelet microparticle/ (1568)
- 85 exp thrombocyte/ (79775)
- 86 (platelet* or thrombocyte*).mp. (331188)
- 87 regulatory b lymphocyte/ (960)
- 88 regulatory t lymphocyte/ (65724)
- 89 saliva/ (25032)
- 90 (saliva or spittle).mp. (55943)
- 91 exp serum/ (158337)
- 92 serum.mp. (1046723)
- 93 sputum/ (19808)
- 94 (sputum or expectorate).mp. (53160)
- 95 feces/ (43635)
- 96 (stool* or faeces or feces).mp. (154107)
- 97 superantigen/ (3561)
- 98 superantigen*.mp. (5363)

- 99 exp helper cell/ (90736)
 100 ("t helper*" or "helper cell*").mp. (46692)
 101 Th1.mp. (68879)
 102 Th17.mp. (34832)
 103 Th2.mp. (61592)
 104 Th22.mp. (1216)
 105 Th9.mp. (1345)
 106 exp thrombosis/ (276774)
 107 (thrombosis or thrombus or "blood clot*" or thrombotic).mp. (482680)
 108 regulatory t lymphocyte/ (65724)
 109 (Treg or "t reg*" or (regulatory adj3 (lymphocyte* or cell*))).mp. (92424)
 110 urine/ (65124)
 111 urine.mp. (352699)
 112 nasal lavage/ (1514)
 113 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75 or 76 or 77 or 78 or 79 or 80 or 81 or 82 or 83 or 84 or 85 or 86 or 87 or 88 or 89 or 90 or 91 or 92 or 93 or 94 or 95 or 96 or 97 or 98 or 99 or 100 or 101 or 102 or 103 or 104 or 105 or 106 or 107 or 108 or 109 or 110 or 111 or 112 (9203624)
 114 exp Coronavirinae/ (16754)
 115 exp Coronavirus infection/ (17958)
 116 ("coronavirus disease 2019" or "severe acute respiratory syndrome coronavirus 2").sh,dj. (35694)
 117 ((corona* or corono*) adj1 (virus* or viral* or virinae*)).ti,ab,kw. (1168)
 118 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARS-CoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or covid).ti,ab,kw. (37658)
 119 "severe acute respiratory syndrome*".ti,ab,kw. (9296)
 120 (coronavirus* or coronavirus* or coronavirinae* or CoV).ti,ab,kw. (33830)
 121 114 or 115 or 116 or 117 or 118 or 119 or 120 (64189)
 122 113 and 121 (20125)
 123 limit 122 to yr="2019 -Current" (10224)

CINAHL

7/10/2020

S106 S96 AND S104 S105 S96 AND S104 S104 S103 S97 OR S98 OR S99 OR S100 OR S101 OR S102 OR S103 (MH "Coronavirus+") S102 S101 "severe acute respiratory syndrome*" ("2019nCoV*" or 2019nCoV* or "19nCoV*" or 19nCoV* or nCoV2019* or "nCoV2019*" or nCoV19* or "nCoV-19*" or "COVID19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "ncov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARSCoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARSCov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or

SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARScoronavirus2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus2*" or "SARS coronavirus2*" or covid)
S100 (coronavirus* or coronovirus* or coronavirinae* or CoV)
S99 ((corona* or corono*) N1 (virus* or viral* or virinae*)).
S98 ("coronavirus disease 2019" or "severe acute respiratory syndrome coronavirus 2").
S97 (MH "Coronavirus Infections+")
S96 S1 OR S12 OR S23 OR S34 OR S45 OR S56 OR S67 OR S78 OR S89 OR S12 OR S23 OR S34 OR S45 OR S56 OR S67 OR S78 OR S89 OR S10 OR S11 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21 OR S22 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44 OR S46 OR S47 OR S48 OR S49 OR S50 OR S51 OR S52 OR S53 OR S54 OR S55 OR S57 OR S58 OR S59 OR S60 OR S61 OR S62 OR S63 OR S64 OR S65 OR S66 OR S68 OR S69 OR S70 OR S71 OR S72 OR S73 OR S74 OR S75 OR S76 OR S77 OR S79 OR S80 OR S81 OR S82 OR S83 OR S84 OR S85 OR S86 OR S87 OR S88 OR S90 OR S91 OR S92 OR S93 OR S94 OR S95
S95 neutrophil* or granulocyte*
S94 urine
S93 TH9
S92 sputum or expectorate
S91 "mast cell*" or mastocyte"
S90 macrophage* or histiocyte*
S89 (MH "Eosinophils")
S88 ((dendritic or interdigitating) N2 cell*) or DC
S87 (MH "Chemokines+")
S86 (MH "Urine")
S85 Treg or "t reg*" or (regulatory N3 (lymphocyte* or cell*))
S84 thrombosis or thrombus or "blood clot*" or thrombotic
S83 (MH "Thrombosis+")
S82 Th22
S81 Th17
S80 Th2
S79 Th1
S78 (MH "Bronchoalveolar Lavage")
S77 "t helper*" or "helper cell*"
S76 (MH "Dendritic Cells")
S75 Superantigen*
S74 CD8
S73 (stool* or faeces or feces)
S72 (MH "Feces")
S71 (MH "Sputum")
S70 serum
S69 (MH "Serum")
S68 saliva or spittle
S67 endothelium
S66 (MH "Saliva")
S65 platelet* or thrombocyte*
S64 cytokine* or interleukin*
S63 (MH "Blood Platelets")
S62 plasma or plasm
S61 CD4

S60 (MH "Plasma")
S59 "peripheral blood mononuclear cell*" or PBMC or (mononuclear N2 leukocyte*)
S58 (MH "Leukocytes, Mononuclear+")
S57 oropharyngeal N3 swab*
S56 (MH "Endothelium")
S55 (MH "Neutrophils")
S54 "natural killer*" or "NK cell*" or NK
S53 (MH "Killer Cells, Natural")
S52 (MH "Cytokines")
S51 (nasal or nasopharyngeal or nasopharyngeal or nose or nasopharynx) N3 (lavage or irrigation or aspirate* or swab* or wash* or smear* or mucosa)
S50 (MH "Nasal Lavage")
S49 monocyte*
S48 CD19
S47 (MH "Monocytes")
S46 microRNA* or "micro RNA*" or miRNA* or mi-RNA* or miRs
S45 (endothelial or endothelium) N3 microparticle*
S44 (MH "MicroRNA")
S43 (MH "Mast Cells")
S42 (MH "Macrophages+")
S41 lymphocyte*
S40 complement
S39 (MH "Lymphocytes+")
S38 Interferon*
S37 (MH "Interferons")
S36 Immunosenescence or immunosenescence or immunosenescence
S35 CD16 or FCgammaRIII or (IgG N receptor*)
S34 chemokine* or chemotactic* or intercrine*
S33 Immunoglobulin* or "gamma-globulin*" or gammaglobulin* or tegeline or veinoglobulin* or venoglobulin*
S32 (MH "Immunoglobulins+")
S31 "immune system*"
S30 (MH "Immune System+")
S29 (immune or immunocompetent or immunocompetent) N2 cell*
S28 breg* or "regulatory b cell*" or "regulatory b lymphocyte*"
S27 histology or histologic*
S26 (MH "Histology")
S25 hemostasis or haemostasis
S24 (MH "Hemostasis+")
S23 (endothelial or endothelium) N2 cell*
S22 GWAS or "GWA stud*" or "genome wide association stud*"
S21 (Bronchoalveolar or bronchial or bronchopulmonary or Bronchioalveolar or lung or pulmonary)
N2 (lavage or wash*)
S20 (MH "Genome Wide Association Study")
S19 genome*
S18 (MH "Genome+")
S17 gene or genes
S16 (MH "Complement")
S15 (MH "Genes+")
S14 fibroblast*

S13 (MH "Fibroblasts+")
 S12 (MH "Endothelial Cells")
 S11 "T helper cell*"
 S10 eosinophil*
 S9 biopsy or biopsies
 S8 (MH "Biopsy")
 S7 ((biological or biochemical or biologic or immune or immunologic* or laboratory or surrogate or viral) N3 marker*) or biomarker*
 S6 (MH "Biological Markers+")
 S5 B10
 S4 (b N2 cell*) or (b N2 lymphocyte*)
 S3 (MH "B Lymphocytes")
 S2 (T N2 lymphocyte*) or (T N2 cell*) or (Thymus Dependent Lymphocyte*)
 S1 (MH "T Lymphocytes+")

The Cochrane Library

October 7, 2020

ID	Search Hits	
#1	MeSH descriptor: [T-Lymphocytes] explode all trees	3317
#2	((T near/2 lymphocyte*) or (T near/2 cell*) or (Thymus Dependent Lymphocyte*)):ti,ab,kw	13935
#3	MeSH descriptor: [B-Lymphocytes] explode all trees	491
#4	((b near/2 cell*) or (b near/2 lymphocyte*)):ti,ab,kw	6336
#5	(B10):ti,ab,kw	56
#6	MeSH descriptor: [Biomarkers] explode all trees	19928
#7	((((biological or biochemical or biologic or immune or immunologic or laboratory or surrogate or viral) near/3 marker*) or biomarker*)):ti,ab,kw	43143
#8	MeSH descriptor: [Biopsy] explode all trees	5629
#9	(biopsy or biopsies):ti,ab,kw	28898
#10	MeSH descriptor: [B-Lymphocytes, Regulatory] explode all trees	3
#11	(breg* or "regulatory b cell*" or "regulatory b lymphocyte*"):ti,ab,kw	63
#12	MeSH descriptor: [Bronchoalveolar Lavage] explode all trees	543
#13	((Bronchoalveolar or bronchial or bronchopulmonary or Bronchioalveolar or lung or pulmonary) near/2 (lavage or wash*)):ti,ab,kw	1429
#14	(CD16 or FCgammaRIII or (IgG adj receptor*)):ti,ab,kw	510
#15	MeSH descriptor: [Receptors, IgG] explode all trees	101
#16	(CD19):ti,ab,kw	766
#17	MeSH descriptor: [Antigens, CD19] explode all trees	34
#18	MeSH descriptor: [CD4 Antigens] explode all trees	169
#19	(CD4):ti,ab,kw	10970
#20	MeSH descriptor: [CD8 Antigens] explode all trees	69
#21	(CD8):ti,ab,kw	4437
#22	MeSH descriptor: [Chemokines] explode all trees	1598
#23	(chemokine* or chemotactic* or intercrine*):ti,ab,kw	2610
#24	MeSH descriptor: [Complement System Proteins] explode all trees	699
#25	(complement):ti,ab,kw	4639
#26	MeSH descriptor: [Cytokines] explode all trees	20089
#27	(cytokine* or interleukin*):ti,ab,kw	29474
#28	MeSH descriptor: [Dendritic Cells] explode all trees	268
#29	((((dendritic or interdigitating) near/2 cell*) or DC):ti,ab,kw	4416
#30	MeSH descriptor: [Endothelial Cells] explode all trees	379

#31	((endothelial or endothelium) near/2 cell*):ti,ab,kw	3779
#32	((endothelial or endothelium) near/3 microparticle*):ti,ab,kw	105
#33	MeSH descriptor: [Endothelial Progenitor Cells] explode all trees	78
#34	MeSH descriptor: [Endothelium] explode all trees	3109
#35	(endothelium):ti,ab,kw	6396
#36	MeSH descriptor: [Eosinophils] explode all trees	783
#37	(Eosinophil*):ti,ab,kw	4818
#38	MeSH descriptor: [T-Lymphocytes, Helper-Inducer] explode all trees	468
#39	("T helper cell*"):ti,ab,kw	129
#40	MeSH descriptor: [Fibroblasts] explode all trees	253
#41	(fibroblast*):ti,ab,kw	2526
#42	MeSH descriptor: [Genes] explode all trees	1581
#43	(gene*):ti,ab,kw	212810
#44	MeSH descriptor: [Genome] explode all trees	1944
#45	(genome*):ti,ab,kw	2427
#46	MeSH descriptor: [Genome-Wide Association Study] explode all trees	129
#47	(GWAS or "GWA stud*" or "genome wide association stud*"):ti,ab,kw	313
#48	MeSH descriptor: [Hemostasis] explode all trees	4848
#49	(hemostasis or haemostasis):ti,ab,kw	5675
#50	MeSH descriptor: [Histology] explode all trees	1337
#51	(histology or histologic*):ti,ab,kw	28746
#52	((immune or immunocompetent) near/2 cell*):ti,ab,kw	3654
#53	MeSH descriptor: [Immune System] explode all trees	11878
#54	("immune system*"):ti,ab,kw	5140
#55	MeSH descriptor: [Immunoglobulins] explode all trees	25489
#56	(Immunoglobulin* or "gamma-globulin*" or gammaglobulin* or tegeline or veinoglobulin* or venoglobulin*):ti,ab,kw	13773
#57	MeSH descriptor: [Immunosenescence] explode all trees	2
#58	(Immunosenescence or immunosenescence or immunosenesence):ti,ab,kw	104
#59	MeSH descriptor: [Interferon Type I] explode all trees	4393
#60	MeSH descriptor: [Interferon-gamma] explode all trees	1074
#61	MeSH descriptor: [Interferons] explode all trees	5775
#62	(interferon*):ti,ab,kw	15371
#63	MeSH descriptor: [Lymphocytes] explode all trees	5186
#64	(Lymphocyte*):ti,ab,kw	19255
#65	MeSH descriptor: [Macrophages] explode all trees	492
#66	(macrophage* or histiocyte*):ti,ab,kw	4190
#67	MeSH descriptor: [Mast Cells] explode all trees	207
#68	("mast cell*" or mastocyte*):ti,ab,kw	809
#69	MeSH descriptor: [MicroRNAs] explode all trees	153
#70	(microRNA* or "micro RNA*" or miRNA* or mi-RNA* or miRs):ti,ab,kw	972
#71	MeSH descriptor: [Monocytes] explode all trees	748
#72	(monocyte*):ti,ab,kw	4118
#73	MeSH descriptor: [Nasal Lavage] explode all trees	255
#74	((nasal or nasopharyngeal or nasopharyngeal or nose or nasopharynx) near/3 (lavage or irrigation or aspirate* or swab* or wash* or smear* or mucosa)):ti,ab,kw	3181
#75	MeSH descriptor: [Killer Cells, Natural] explode all trees	764
#76	("natural killer*" or "NK cell*" or NK):ti,ab,kw	3035
#77	MeSH descriptor: [Neutrophils] explode all trees	1367
#78	(neutrophil* or granulocyte*):ti,ab,kw	15333
#79	(oropharyngeal near/3 swab*):ti,ab,kw	80

- #80 MeSH descriptor: [Leukocytes, Mononuclear] explode all trees 6605
- #81 ("peripheral blood mononuclear cell*" or PBMC or (mononuclear near/2 leukocyte*)):ti,ab,kw 2901
- #82 MeSH descriptor: [Plasma] explode all trees 972
- #83 (plasma or plasm):ti,ab,kw 96931
- #84 MeSH descriptor: [Blood Platelets] explode all trees 1961
- #85 (platelet* or thrombocyte*):ti,ab,kw 28701
- #86 MeSH descriptor: [B-Lymphocytes, Regulatory] explode all trees 3
- #87 MeSH descriptor: [T-Lymphocytes, Regulatory] explode all trees 274
- #88 MeSH descriptor: [Saliva] explode all trees 2652
- #89 (saliva or spittle):ti,ab,kw 7069
- #90 MeSH descriptor: [Serum] explode all trees 868
- #91 (serum):ti,ab,kw 98631
- #92 MeSH descriptor: [Sputum] explode all trees 1262
- #93 (sputum or expectorate):ti,ab,kw 5882
- #94 MeSH descriptor: [Feces] explode all trees 2833
- #95 ((stool* or faeces or feces)):ti,ab,kw 13931
- #96 MeSH descriptor: [Superantigens] explode all trees 11
- #97 (Superantigen*):ti,ab,kw 41
- #98 ("t helper*" or "helper cell*"):ti,ab,kw 902
- #99 (Th1):ti,ab,kw 1310
- #100 (Th17):ti,ab,kw 486
- #101 (Th2):ti,ab,kw 1353
- #102 (Th22):ti,ab,kw 50
- #103 (Th9):ti,ab,kw 23
- #104 MeSH descriptor: [Thrombosis] explode all trees 4754
- #105 (thrombosis or thrombus or "blood clot*" or thrombotic):ti,ab,kw 21776
- #106 MeSH descriptor: [T-Lymphocytes, Regulatory] explode all trees 274
- #107 (Treg or "t reg*" or (regulatory near/3 (lymphocyte* or cell*))) :ti,ab,kw 1663
- #108 MeSH descriptor: [Urine] explode all trees 641
- #109 (Urine):ti,ab,kw 40231
- #110 {or #1-#109} 549437
- #111 MeSH descriptor: [Coronavirus] explode all trees 35
- #112 MeSH descriptor: [Coronavirus Infections] explode all trees 297
- #113 (((corona* or corono*) near/1 (virus* or viral* or virinae*))) :ti,ab,kw 52
- #114 ((coronavirus* or coronovirus* or coronavirinae* or CoV)):ti,ab,kw 727
- #115 (("2019 nCoV" or 2019nCoV* or "19 nCoV" or 19nCoV* or nCoV2019* or "nCoV 2019" or nCoV19* or "nCoV 19" or "COVID 19" or COVID19* or "COVID 2019" or COVID2019* or "HCoV 19" or HCoV19* or "HCoV 2019" or HCoV2019* or "2019 novel" or Ncov* or "n cov" or "SARS CoV 2" or "SARSCoV 2" or "SARSCoV2" or "SARS CoV2" or SARSCov19* or "SARS Cov19" or "SARSCov 19" or "SARS Cov 19" or SARSCov2019* or "SARS Cov2019" or "SARSCov 2019" or "SARS Cov 2019" or SARS2* or "SARS 2" or SARScoronavirus2* or "SARS coronavirus 2" or "SARScoronavirus 2" or "SARS coronavirus2" or SARScoronavirus2* or "SARS coronavirus 2" or "SARScoronavirus 2" or "SARS coronavirus2" or covid)):ti,ab,kw 1106
- #116 ("severe acute respiratory syndrome" or "severe acute respiratory syndromes") 373
- #117 {or #111-#116} 1345
- #118 #110 and #117 619
- #119 #118 with Publication Year from 2019 to present, in Trials 499

Online Supplementary Text S2: Search strategy for COVID-19 treatment**Medline**

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <2016 to week 50>

Search Strategy: Covid & Therapy

-
- 1 Abatacept/ (579)
 - 2 (Abatacept or "CTLA4 Ig" or "CTLA4 immunoglobulin" or orenzia).mp. (1197)
 - 3 ABX464.mp. dentifier, synonyms] (7)
 - 4 Adalimumab/ (2026)
 - 5 (Adalimumab or adaly or amgevita or amjevita or humira or imraldi or trudexa).mp. dentifier, synonyms] (4179)
 - 6 Interleukin 1 Receptor Antagonist Protein/ (863)
 - 7 (Anakinra or kineret or "recombinant interleukin 1 receptor antagonist" or "recombinant interleukin 1 receptor blocker" or "recombinant interleukin 1 receptor blocking agent").mp. dentifier, synonyms] (882)
 - 8 ARGX-117.mp. dentifier, synonyms] (0)
 - 9 avdoralimab.mp. dentifier, synonyms] (0)
 - 10 Azathioprine/ (1087)
 - 11 (Azathioprine or arathioprin or arathioprine or immurel or imurel).mp. dentifier, synonyms] (3327)
 - 12 (Baricitinib or olumiant).mp. dentifier, synonyms] (356)
 - 13 BDB-001.mp. dentifier, synonyms] (0)
 - 14 Bevacizumab/ (3553)
 - 15 (Bevacizumab or avastin).mp. dentifier, synonyms] (7906)
 - 16 Brensocatib.mp. dentifier, synonyms] (0)
 - 17 (Canakinumab or ilaris).mp. dentifier, synonyms] (492)
 - 18 exp "Cell- and Tissue-Based Therapy"/ (42360)
 - 19 ("cell based therapy" or "cell based therapies" or "cell therapy" or "cell therapies" or "cellular therapy" or "cellular therapies").mp. dentifier, synonyms] (17559)
 - 20 Certolizumab.mp. dentifier, synonyms] (714)
 - 21 exp Chloroquine/ (2273)
 - 22 Chloroquin*.mp. dentifier, synonyms] (4346)
 - 23 CIGB-258.mp. dentifier, synonyms] (0)
 - 24 CMAB806.mp. dentifier, synonyms] (0)
 - 25 exp Colchicine/ (886)
 - 26 Colchicine.mp. dentifier, synonyms] (2730)
 - 27 exp Adrenal Cortex Hormones/ (38366)
 - 28 (corticosteroid* or "adrenal cortex hormone*" or "cortical steroid*" or "cortico steroid*" or corticoid* or "corticosteroid agent*").mp. dentifier, synonyms] (29383)
 - 29 exp Cyclosporins/ (2310)
 - 30 Cyclosporin*.mp. dentifier, synonyms] (6643)
 - 31 CYT-107.mp. dentifier, synonyms] (0)
 - 32 exp Dexamethasone/ (5326)
 - 33 Dexamethasone.mp. dentifier, synonyms] (12801)
 - 34 DFV890.mp. dentifier, synonyms] (0)
 - 35 Ebastine.mp. dentifier, synonyms] (72)
 - 36 Eculizumab.mp. dentifier, synonyms] (1052)
 - 37 Etanercept/ (1273)
 - 38 (Etanercept or benepali or embrel or enbrel or "tumor necrosis factor receptor Fc fusion protein" or "tumour necrosis factor receptor Fc fusion protein").mp. dentifier, synonyms] (2787)

- 39 Fedratinib.mp. dentifier, synonyms] (61)
40 Filgotinib.mp. dentifier, synonyms] (87)
41 Fingolimod Hydrochloride/ (720)
42 (Fingolimod or gilenia or gilenya).mp. dentifier, synonyms] (1398)
43 (Golimumab or simponi).mp. dentifier, synonyms] (805)
44 (Guselkumab or tremfya).mp. dentifier, synonyms] (234)
45 exp Glucocorticoids/ (21083)
46 glucocorticoid*.mp. dentifier, synonyms] (22665)
47 HCR040.mp. dentifier, synonyms] (0)
48 Hydroxychloroquine/ (1171)
49 (Hydroxychloroquine or plaquenil).mp. dentifier, synonyms] (3003)
50 IFX-1.mp. dentifier, synonyms] (14)
51 Imatinib Mesylate/ (1814)
52 (Imatinib or gleevac or gleevec or glivec).mp. dentifier, synonyms] (4620)
53 exp Immunoglobulins/ (106188)
54 (Immunoglobulin* or "gamma-globulin*" or gammaglobulin* or tegeline or veinoglobulin* or venoglobulin*).mp. dentifier, synonyms] (50150)
55 exp Immunotherapy/ (44172)
56 (Immunotherap* or "biologic response modifier therap*" or "biological response modifier therap*" or "BRM therap*" or "immune therap*" or "immunoglobulin therap*" or "immunological therap*" or "immunological treatment*" or "immunomodulatory intervention*").mp. dentifier, synonyms] (48544)
57 IMU-838.mp. dentifier, synonyms] (2)
58 Infliximab/ (2440)
59 (Infliximab or flixabi or inflectra or remicade or remsima or renflexis).mp. dentifier, synonyms] (5286)
60 exp Interferons/ (15621)
61 Interferon*.mp. dentifier, synonyms] (40965)
62 Itolizumab.mp. dentifier, synonyms] (28)
63 Immunoglobulins, Intravenous/ (2436)
64 IVIG.mp. dentifier, synonyms] (2567)
65 (Ixekizumab or taltz).mp. dentifier, synonyms] (510)
66 Jakotinib.mp. dentifier, synonyms] (0)
67 Leflunomide/ (240)
68 (Leflunomide or arava).mp. dentifier, synonyms] (695)
69 Masitinib.mp. dentifier, synonyms] (63)
70 Mast Cells/ (2767)
71 ((mast adj cell*) or mastocyte*).mp. dentifier, synonyms] (7573)
72 Mavrilimumab.mp. dentifier, synonyms] (19)
73 Methotrexate/ (4535)
74 (Methotrexate or metoject or nordimet or novatrex).mp. dentifier, synonyms] (10851)
75 exp Methylprednisolone/ (2121)
76 Methylprednisolone.mp. dentifier, synonyms] (4915)
77 Mycophenolic Acid/ (1248)
78 (Mycophenolate or (mycophenolic adj acid) or myfortic or (mycophenolate adj mofetil)).mp. dentifier, synonyms] (3724)
79 (Nintedanib or intedanib).mp. dentifier, synonyms] (766)
80 exp Anti-Inflammatory Agents, Non-Steroidal/ (24544)
81 (NSAID* or "non steroid anti inflammatory agent*" or "non steroid anti inflammatory drug*" or "non steroidal anti inflammatory agent*" or "non steroidal anti inflammatory drug*" or "nonsteroid antiinflammatory agent*" or "nonsteroid antiinflammatory drug*" or "nonsteroidal

antiinflammatory agent*" or "nonsteroidal antiinflammatory drug*" or "non steroid antiinflammatory agent*" or "non steroid antiinflammatory drug*" or "non steroidal antiinflammatory agent*" or "non steroidal antiinflammatory drug*" or "nonsteroid anti inflammatory agent*" or "nonsteroid anti inflammatory drug*" or "nonsteroidal anti inflammatory agent*" or "nonsteroidal anti inflammatory drug*").mp. dentifier, synonyms] (12245)

82 (Ocrelizumab or ocrevus).mp. dentifier, synonyms] (285)

83 Otilimab.mp. dentifier, synonyms] (2)

84 Programmed Cell Death 1 Receptor/ (4857)

85 (PD-1 or Gilvetmab or "programmed cell death 1 receptor").mp. dentifier, synonyms] (13078)

86 (Pembrolizumab or keytruda or lambrolizumab).mp. dentifier, synonyms] (4063)

87 exp Prednisolone/ (4716)

88 Prednisolone.mp. dentifier, synonyms] (7040)

89 Prednisone/ (3337)

90 Prednisone.mp. dentifier, synonyms] (7442)

91 (Ravulizumab or ultomiris).mp. dentifier, synonyms] (29)

92 ((recombinant adj2 "interleukin 2") or lymphocult).mp. dentifier, synonyms] (92)

93 (recombinant adj2 "interleukin 7").mp. dentifier, synonyms] (18)

94 Rituximab/ (4433)

95 (Rituximab or mabthera or truxima).mp. dentifier, synonyms] (10152)

96 (Ruxolitinib or jakafi or jakavi).mp. dentifier, synonyms] (1043)

97 (Sarilumab or kevzara).mp. dentifier, synonyms] (133)

98 (Secukinumab or cosentyx).mp. dentifier, synonyms] (1013)

99 Selinexor.mp. dentifier, synonyms] (163)

100 Siltuximab.mp. dentifier, synonyms] (88)

101 exp Stem Cells/ (56740)

102 "stem cell*".mp. dentifier, synonyms] (126152)

103 Sulfasalazine/ (376)

104 (Sulphasalazine or salazopyrine or sulfasalazine or salazosulfapyridine).mp. dentifier, synonyms] (1086)

105 TD-0903.mp. dentifier, synonyms] (0)

106 (Tocilizumab or roactemra).mp. dentifier, synonyms] (2307)

107 (Tranilast or rizaben).mp. dentifier, synonyms] (144)

108 ("tumor necrosis factor alpha inhibitor*" or "tumour necrosis factor alpha inhibitor*").mp. dentifier, synonyms] (517)

109 ("anti TNF agent*" or "anti TNF alpha agent*").mp. dentifier, synonyms] (834)

110 ("anti tumor necrosis factor agent*" or "anti tumour necrosis factor agent*").mp. dentifier, synonyms] (181)

111 ("TNF alpha inhibitor*" or "TNF inhibitor*").mp. dentifier, synonyms] (1775)

112 ("tumor necrosis factor inhibitor*" or "tumour necrosis factor inhibitor*").mp. dentifier, synonyms] (257)

113 (Upadacitinib or rinvoq).mp. dentifier, synonyms] (116)

114 (Ustekinumab or stelara).mp. dentifier, synonyms] (1401)

115 Ustekinumab/ (605)

116 Vafidemstat.mp. dentifier, synonyms] (1)

117 vMIP.mp. dentifier, synonyms] (20)

118 zilucoplan.mp. dentifier, synonyms] (4)

119 (acalabrutinib or "acp 196" or acp196 or calquence).mp. dentifier, synonyms] (141)

120 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or

- 70 or 71 or 72 or 73 or 74 or 75 or 76 or 77 or 78 or 79 or 80 or 81 or 82 or 83 or 84 or 85 or 86 or 87 or 88 or 89 or 90 or 91 or 92 or 93 or 94 or 95 or 96 or 97 or 98 or 99 or 100 or 101 or 102 or 103 or 104 or 105 or 106 or 107 or 108 or 109 or 110 or 111 or 112 or 113 or 114 or 115 or 116 or 117 or 118 or 119 (506357)
- 121 exp Coronavirus/ (19595)
- 122 exp Coronavirus Infections/ (20991)
- 123 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARS-CoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or covid).ti,ab,kw,kf. (38713)
- 124 "severe acute respiratory syndrome*".ti,ab,kw,kf. (6855)
- 125 ((corona* or coronov*) adj1 (virus* or viral* or virinae*).ti,ab,kw,kf. (1388)
- 126 (coronavirus* or coronovirus* or coronavirinae* or CoV).ti,ab,kw,kf. (28750)
- 127 121 or 122 or 123 or 124 or 125 or 126 (51103)
- 128 120 and 127 (5416)
- 129 limit 128 to yr="2019 -Current" (3615)

Embase

Database: Embase <1996 to 11/12/2020>

Search Strategy: Covid & Therapy

-
- 1 abatacept/ (9193)
- 2 (Abatacept or "CTLA4 Ig" or "CTLA4 immunoglobulin" or orenicia).mp. (9964)
- 3 ABX464.mp. (17)
- 4 acalabrutinib/ (534)
- 5 (Acalabrutinib or "acp 196" or acp196 or calquence).mp. (569)
- 6 adalimumab/ (33496)
- 7 (Adalimumab or adaly or amgevita or amjevita or humira or imraldi or trudexa).mp. (34253)
- 8 anakinra/ (2412)
- 9 (Anakinra or kineret or "recombinant interleukin 1 receptor antagonist" or "recombinant interleukin 1 receptor blocker" or "recombinant interleukin 1 receptor blocking agent").mp. (8661)
- 10 ARGX-117.mp. (1)
- 11 avdoralimab.mp. (1)
- 12 azathioprine/ (71856)
- 13 (Azathioprine or arathioprin or arathioprine or immurel or imurel).mp. (73616)
- 14 baricitinib/ (1171)
- 15 (Baricitinib or olumiant).mp. (1215)
- 16 BDB-001.mp. (1)
- 17 bevacizumab/ (58063)
- 18 (Bevacizumab or avastin).mp. (59931)
- 19 brensocatib/ (2)
- 20 Brensocatib.mp. (2)
- 21 canakinumab/ (3040)
- 22 (Canakinumab or ilaris).mp. (3139)
- 23 exp cell therapy/ (202065)

- 24 ("cell based therapy" or "cell based therapies" or "cell therapy" or "cell therapies" or "cellular therapy" or "cellular therapies").mp. (68705)
- 25 Certolizumab.mp. (7209)
- 26 chloroquine/ (24968)
- 27 Chloroquin*.mp. (28360)
- 28 CIGB-258.mp. (0)
- 29 CMAB806.mp. (0)
- 30 exp colchicine/ (20097)
- 31 Colchicine.mp. (21834)
- 32 exp corticosteroid/ (713138)
- 33 (corticosteroid* or "adrenal cortex hormone*" or "cortical steroid*" or "cortico steroid*" or corticoid* or "corticosteroid agent*").mp. (254142)
- 34 cyclosporine/ (12119)
- 35 Cyclosporin*.mp. (128632)
- 36 CYT-107.mp. (25)
- 37 dexamethasone/ (116542)
- 38 Dexamethasone.mp. (125934)
- 39 DFV890.mp. (0)
- 40 ebastine/ (1148)
- 41 Ebastine.mp. (1181)
- 42 eculizumab/ (5141)
- 43 Eculizumab.mp. (5371)
- 44 etanercept/ (31276)
- 45 (Etanercept or benepali or embrel or enbrel or "tumor necrosis factor receptor Fc fusion protein" or "tumour necrosis factor receptor Fc fusion protein").mp. (32234)
- 46 fedratinib/ (398)
- 47 Fedratinib.mp. (413)
- 48 filgotinib/ (383)
- 49 Filgotinib.mp. (389)
- 50 fingolimod/ (9700)
- 51 (Fingolimod or gilenia or gilenya).mp. (9947)
- 52 golimumab/ (6880)
- 53 (Golimumab or simponi).mp. (7051)
- 54 guselkumab/ (692)
- 55 (Guselkumab or tremfya).mp. (720)
- 56 exp glucocorticoid/ (547889)
- 57 glucocorticoid*.mp. (109216)
- 58 HCR040.mp. (0)
- 59 hydroxychloroquine/ (23249)
- 60 (Hydroxychloroquine or plaquenil).mp. (24266)
- 61 IFX-1.mp. (95)
- 62 imatinib/ (41910)
- 63 (Imatinib or gleevac or gleevec or glivec).mp. (43723)
- 64 exp immunoglobulin/ (373027)
- 65 (Immunoglobulin* or "gamma-globulin*" or gammaglobulin* or tegeline or veinoglobulin* or venoglobulin*).mp. (568468)
- 66 exp immunotherapy/ (191127)
- 67 (Immunotherap* or "biologic response modifier therap*" or "biological response modifier therap*" or "BRM therap*" or "immune therap*" or "immunoglobulin therap*" or "immunological therap*" or "immunological treatment*" or "immunomodulatory intervention*").mp. (182967)
- 68 IMU-838.mp. (8)

- 69 infliximab/ (50638)
- 70 (Infliximab or flixabi or inflectra or remicade or remsima or renflexis).mp. (51789)
- 71 exp interferon/ (499113)
- 72 Interferon*.mp. (339214)
- 73 itolizumab/ (77)
- 74 IVIG.mp. (16952)
- 75 ixekizumab/ (1706)
- 76 (Ixekizumab or taltz).mp. (1763)
- 77 Jakotinib.mp. (0)
- 78 leflunomide/ (11660)
- 79 (Leflunomide or arava).mp. (11973)
- 80 masitinib/ (507)
- 81 Masitinib.mp. (537)
- 82 mast cell/ (32134)
- 83 ((mast adj cell*) or mastocyte*).mp. (44865)
- 84 mavrilimumab/ (110)
- 85 Mavrilimumab.mp. (110)
- 86 methotrexate/ (138928)
- 87 (Methotrexate or metoject or nordimet or novatrex).mp. (142684)
- 88 methylprednisolone/ (78064)
- 89 Methylprednisolone.mp. (85801)
- 90 mycophenolic acid/ (17362)
- 91 (Mycophenolate or (mycophenolic adj acid) or myfortic or (mycophenolate adj mofetil)).mp. (68499)
- 92 nintedanib/ (3037)
- 93 (Nintedanib or intedanib).mp. (3252)
- 94 exp nonsteroid antiinflammatory agent/ (580879)
- 95 (NSAID* or "non steroid anti inflammatory agent*" or "non steroid anti inflammatory drug*" or "non steroidal anti inflammatory agent*" or "non steroidal anti inflammatory drug*" or "nonsteroid antiinflammatory agent*" or "nonsteroid antiinflammatory drug*" or "nonsteroidal antiinflammatory agent*" or "nonsteroidal antiinflammatory drug*" or "non steroid antiinflammatory agent*" or "non steroid antiinflammatory drug*" or "non steroidal antiinflammatory agent*" or "non steroidal antiinflammatory drug*" or "nonsteroid anti inflammatory agent*" or "nonsteroid anti inflammatory drug*" or "nonsteroidal anti inflammatory agent*" or "nonsteroidal anti inflammatory drug*").mp. (131423)
- 96 ocrelizumab/ (1735)
- 97 (Ocrelizumab or ocrevus).mp. (1805)
- 98 otilimab/ (17)
- 99 Otilimab.mp. (17)
- 100 gilvetmab/ (251)
- 101 (PD-1 or Gilvetmab).mp. (31251)
- 102 programmed cell death 1 receptor.mp. (221)
- 103 pembrolizumab/ (15300)
- 104 (Pembrolizumab or keytruda or lambrolizumab).mp. (16207)
- 105 prednisolone/ (97691)
- 106 Prednisolone.mp. (108112)
- 107 prednisone/ (127911)
- 108 Prednisone.mp. (132005)
- 109 ravulizumab/ (93)
- 110 (Ravulizumab or ultomiris).mp. (96)
- 111 exp recombinant interleukin 2/ (5784)

- 112 ((recombinant adj2 "interleukin 2") or lymphocult).mp. (4146)
113 exp recombinant interleukin 7/ (339)
114 (recombinant adj2 "interleukin 7").mp. (363)
115 rituximab/ (79475)
116 (Rituximab or mabthera or truxima).mp. (83435)
117 ruxolitinib/ (4756)
118 (Ruxolitinib or jakafi or jakavi).mp. (4910)
119 sarilumab/ (594)
120 (Sarilumab or kevzara).mp. (615)
121 secukinumab/ (3533)
122 (Secukinumab or cosentyx).mp. (3646)
123 selinexor/ (664)
124 Selinexor.mp. (699)
125 siltuximab/ (687)
126 Siltuximab.mp. (706)
127 exp stem cell/ (362533)
128 (Stem adj cell*).mp. (538786)
129 salazosulfapyridine/ (19864)
130 (Sulphasalazine or salazopyrine or sulfasalazine or salazosulfapyridine).mp. (20375)
131 TD-0903.mp. (1)
132 tocilizumab/ (12168)
133 (Tocilizumab or roactemra).mp. (12676)
134 tranilast/ (1181)
135 (Tranilast or rizaben).mp. (1222)
136 exp tumor necrosis factor inhibitor/ (90671)
137 ("tumor necrosis factor alpha inhibitor*" or "tumour necrosis factor alpha inhibitor*").mp. (6793)
138 ("anti TNF agent*" or "anti TNF alpha agent*").mp. (4699)
139 ("anti tumour necrosis factor agent*" or "anti tumor necrosis factor agent*").mp. (582)
140 ("TNF alpha inhibitor*" or "TNF inhibitor*").mp. (7426)
141 ("tumour necrosis factor inhibitor*" or "tumor necrosis factor inhibitor*").mp. (14939)
142 upadacitinib/ (408)
143 (Upadacitinib or rinvoq).mp. (417)
144 ustekinumab/ (7049)
145 (Ustekinumab or stelara).mp. (7247)
146 vafidemstat/ (6)
147 Vafidemstat.mp. (6)
148 vMIP.mp. (139)
149 zilucoplan/ (25)
150 zilucoplan.mp. (25)
151 itolizumab.mp. (81)
152 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 or 62 or 63 or 64 or 65 or 66 or 67 or 68 or 69 or 70 or 71 or 72 or 73 or 74 or 75 or 76 or 77 or 78 or 79 or 80 or 81 or 82 or 83 or 84 or 85 or 86 or 87 or 88 or 89 or 90 or 91 or 92 or 93 or 94 or 95 or 96 or 97 or 98 or 99 or 100 or 101 or 102 or 103 or 104 or 105 or 106 or 107 or 108 or 109 or 110 or 111 or 112 or 113 or 114 or 115 or 116 or 117 or 118 or 119 or 120 or 121 or 122 or 123 or 124 or 125 or 126 or 127 or 128 or 129 or 130 or 131 or 132 or 133 or 134 or 135 or 136 or 137 or 138 or 139 or 140 or 141 or 142 or 143 or 144 or 145 or 146 or 147 or 148 or 149 or 150 or 151 (3020762)

- 153 exp Coronavirinae/ (16754)
 154 exp Coronavirus infection/ (17958)
 155 ("coronavirus disease 2019" or "severe acute respiratory syndrome coronavirus 2").sh,dj. (35694)
 156 ((corona* or corono*) adj1 (virus* or viral* or virinae*)).ti,ab,kw. (1168)
 157 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARS-CoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or covid).ti,ab,kw. (37658)
 158 "severe acute respiratory syndrome*".ti,ab,kw. (9296)
 159 (coronavirus* or coronovirus* or coronavirinae* or CoV).ti,ab,kw. (33830)
 160 153 or 154 or 155 or 156 or 157 or 158 or 159 (64189)
 161 152 and 160 (9143)
 162 limit 161 to yr="2019 -Current" (5942)

CINAHL

11/12/2020

S125 S115 AND S123

S124 S115 AND S123

S123 S116 OR S117 OR S118 OR S119 OR S120 OR S121 OR S122

S122 (MH "Coronavirus+")

S121 "severe acute respiratory syndrome*"

S120 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARSCoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or covid)

S119 (coronavirus* or coronovirus* or coronavirinae* or CoV)

S118 ((corona* or corono*) N1 (virus* or viral* or virinae*)).

S117 ("coronavirus disease 2019" or "severe acute respiratory syndrome coronavirus 2").S116 (MH "Coronavirus Infections+")

S115 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR

S11 OR S12 OR S13 OR

S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR

S20 OR S21 OR S22 OR

S23 OR S24 OR S25 OR

S26 OR S27 OR S28 OR

S29 OR S30 OR S31 OR

S32 OR S33 OR S34 OR

S35 OR S36 OR S37 OR

S38 OR S39 OR S40 OR
S41 OR S42 OR S43 OR
S44 OR S45 OR S46 OR
S47 OR S48 OR S49 OR
S50 OR S51 OR S52 OR
S53 OR S54 OR S55 OR
S56 OR S57 OR S58 OR
S59 OR S60 OR S61 OR
S62 OR S63 OR S64 OR
S65 OR S66 OR S67 OR
S68 OR S69 OR S70 OR
S71 OR S72 OR S73 OR
S74 OR S75 OR S76 OR
S77 OR S78 OR S79 OR
S80 OR S81 OR S82 OR
S83 OR S84 OR S85 OR
S86 OR S87 OR S88 OR
S89 OR S90 OR S91 OR
S92 OR S93 OR S94 OR
S95 OR S96 OR S97 OR
S98 OR S99 OR S100
OR S101 OR S102 OR
S103 OR S104 OR S105
OR S106 OR S107 OR
S108 OR S109 OR S110 OR S111 OR S112 OR S113 OR S114

S114 vafidemstat
S113 secukinumab or cosentyx
S112 ustekinumab or stelara
S111 (MH "Stem Cells+")
S110 upadacitinib or rinvoq
S109 selinexor
S108 "anti tumor necrosis factor agent*" or "anti tumour necrosis factor agent*" or "TNF inhibitor*" or "tumor necrosis factor inhibitor*" or "tumour necrosis factor inhibitor*"
S107 "tumor necrosis factor alpha inhibitor*" or "tumour necrosis factor alpha inhibitor*" or "antiTNF Agent*" or "anti tnf alpha agent*"
S106 tranilast or rizaben
S105 siltuximab
S104 sulphasalazine or salazopyrine or sulfasalazine or salazosulfapyridine
S103 tocilizumab or roactemra
S102 (MH "Tocilizumab")
S101 zilucoplan
S100 vMIP
S99 "stem cell*"
S98 (MH "Azathioprine")
S97 sarilumab or kevsara
S96 ruxolitinib or jakafi or jakavi
S95 rituximab or mabthera or truxima
S94 (MH "Rituximab")
S93 (recombinant N2 "interleukin 7")
S92 (recombinant N2 "interleukin 2") or lymphocult

S91 ravulizumab or ultomiris
S90 prednisone
S89 (MH "Prednisone")
S88 prednisolone
S87 (MH "Prednisolone")
S86 pembrolizumab or keytruda or lambrolizumab
S85 PD-1 or gilvetmab or "programmed cell death 1 receptor"
S84 (MH "Programmed Cell Death Protein 1 Receptor")
S83 otilimab
S82 ocrelizumab or ocrevus
S81 ((nonsteroid* or "non steroid*") adj (antiinflammatory or "anti inflammatory") adj (drug* or agent*)) or NSAID*)
S80 (MH "Antiinflammatory Agents, Non-Steroidal")
S79 nintedanib or intedanib
S78 mycophenolate or "mycophenolic acid" or "mycophenolate mofetil" or myfortic
S77 (MH "Mycophenolic Acid") OR (MH "Mycophenolate Mofetil")
S76 methylprednisolone
S75 (MH "Methylprednisolone")
S74 methotrexate or metoject or nordimet or novatrex
S73 (MH "Methotrexate")
S72 mavrilimumab
S71 (MH "Mast Cells")
S70 "mast cell*" or mastocyte*
S69 mastinib
S68 leflunomide or arava
S67 (MH "Leflunomide")
S66 jakotinib
S65 ixekizumab or taltz
S64 IVIG
S63 (MH "Immunoglobulins intravenous")
S62 itolizumab
S61 Interferon*
S60 (MH "Interferons")
S59 "infliximab or flixabi or inflectra or remicade or remsima or renflexis
S58 (MH "Infliximab")
S57 IMU-838
S56 immunotherap* or "biologic response modifier therap*" or "biological response modifier therap*" or BRM therap*" or "immune therap*" or "immunoglobulin therap*" or "immunological therap*" or "immunological treatment*" or "immunological intervention*"
S55 (MH "Immunotherapy")
S54 immunoglobulin* or "gamma-globulin*" or gammaglobulin* or tegeline or veinoglobulin* or venoglobulin*
S53 (MH "Immunoglobulins")
S52 imatinib or gleevac or gleevec or glivec
S51 (MH "Imatinib")
S50 IFX-1
S49 hydroxychloroquine or plaquenil
S48 (MH "Hydroxychloroquine")
S47 HCR040
S46 glucocorticoid*
S45 (MH "Glucocorticoids+")

S44 guselkumab or tremfya
S43 golimumab or simponi
S42 (MH "Golimumab")
S41 fingolimod or gilenia or gilenya
S40 filgotinib
S39 fedratinib
S38 etanercept or benepali or embrel or enbrel or "tumor necrosis factor receptor fc fusion protein" or "tumour necrosis factor receptor fc fusion protein"
S37 (MH "Etanercept")
S36 eculizumab
S35 ebastine
S34 DFV890
S33 dexamethasone
S32 (MH "Dexamethasone")
S31 CYT-107
S30 cyclosporin
S29 (MH "Cyclosporine")
S28 corticosteroid* or "adrenal cortex hormone*" or "cortical steroid*" or "corticosteroid*" or corticoid* or "corticosteroid agent*"
S27 (MH "Adrenal Cortex Hormones+")
S26 colchicine
S25 (MH "Colchicine")
S24 CMAB806
S23 CIGB-258
S22 chloroquin*
S21 (MH "Chloroquine+")
S20 certolizumab
S19 (MH "Cell Therapy")
S18 "cell based therap*" or "cell therap*" or "cellular therapy**"
S17 canakinumab or ilaris
S16 brensocatic
S15 bevacizumab or avastin
S14 (MH "Bevacizumab")
S13 BDB-001
S12 baricitinib or olumiant
S11 azathioprine or arathioprin or arathioprine or immurel or imurel
S10 TD-0903
S9 advoralimab
S8 ARGX-117
S7 anakinra or kineret of "recombinant interleukin 1 receptor antagonist" or "recombinant interleukin 1 receptor blocker" or recombinant interleukin 1 receptor blocking agent"
S6 adalimumab or adaly or amgevita or amjevita or humira or imraldi or trudexaS5 (MH "Adalimumab")
S4 acalabrutinib or "acp196" or acp196 or calquence
S3 (ABX464
S2 (MH "Abatacept")
S1 abatacept or "CTLA4 Ig" or "CTLA4 immunoglobulin" or orenicia

The Cochrane Library

Search Name: Covid & Therapy

Date Run: Last update 11/12/2020

Comment: Cochrane - CENTRAL

ID	Search Hits
#1	MeSH descriptor: [Abatacept] explode all trees 273
#2	(Abatacept or "CTLA4 Ig" or "CTLA4 immunoglobulin" or orenicia):ti,ab,kw 755
#3	(ABX464):ti,ab,kw 20
#4	(Acalabrutinib or "acp 196" or acp196 or calquence):ti,ab,kw 74
#5	MeSH descriptor: [Adalimumab] explode all trees 737
#6	(Adalimumab or adaly or amgevita or amjevita or humira or imraldi or trudexa):ti,ab,kw 2977
#7	MeSH descriptor: [Interleukin 1 Receptor Antagonist Protein] explode all trees 305
#8	(Anakinra or kineret or "recombinant interleukin 1 receptor antagonist" or "recombinant interleukin 1 receptor blocker" or "recombinant interleukin 1 receptor blocking agent"):ti,ab,kw 360
#9	(ARGX-117):ti,ab,kw 0
#10	(avdoralimab):ti,ab,kw 1
#11	MeSH descriptor: [Azathioprine] explode all trees 1215
#12	(Azathioprine or arathioprin or arathioprine or immurel or imurel):ti,ab,kw 3186
#13	(Baricitinib or olumiant):ti,ab,kw 355
#14	(BDB-001):ti,ab,kw 1
#15	MeSH descriptor: [Bevacizumab] explode all trees 1896
#16	(Bevacizumab or avastin):ti,ab,kw 6112
#17	(Brensocatib):ti,ab,kw 0
#18	(Canakinumab or ilaris):ti,ab,kw 280
#19	MeSH descriptor: [Cell- and Tissue-Based Therapy] explode all trees 6100
#20	("cell based therapy" or "cell based therapies" or "cell therapy" or "cell therapies" or "cellular therapy" or "cellular therapies"):ti,ab,kw 1713
#21	(Certolizumab):ti,ab,kw 650
#22	MeSH descriptor: [Chloroquine] explode all trees 1160
#23	(Chloroquin*):ti,ab,kw 1503
#24	(CIGB-258):ti,ab,kw 0
#25	(CMAB806):ti,ab,kw 0
#26	MeSH descriptor: [Colchicine] explode all trees 335
#27	(Colchicine):ti,ab,kw 826
#28	MeSH descriptor: [Adrenal Cortex Hormones] explode all trees 14272
#29	(corticosteroid* or "adrenal cortex hormone*" or "cortical steroid*" or "cortico steroid*" or corticoid* or "corticosteroid agent*"):ti,ab,kw 21772
#30	MeSH descriptor: [Cyclosporins] explode all trees 3157
#31	(Cyclosporin*):ti,ab,kw 7107
#32	(CYT-107):ti,ab,kw 4
#33	MeSH descriptor: [Dexamethasone] explode all trees 4489
#34	(Dexamethasone):ti,ab,kw 11427
#35	(DFV890):ti,ab,kw 1
#36	(Ebastine):ti,ab,kw 142
#37	(Eculizumab):ti,ab,kw 221
#38	MeSH descriptor: [Etanercept] explode all trees 754
#39	(Etanercept or benepali or embrel or enbrel or "tumor necrosis factor receptor Fc fusion protein" or "tumour necrosis factor receptor Fc fusion protein"):ti,ab,kw 2197
#40	(Fedratinib):ti,ab,kw 15

- #41 (Filgotinib):ti,ab,kw 132
- #42 MeSH descriptor: [Fingolimod Hydrochloride] explode all trees 146
- #43 (Fingolimod or gilenia or gilenya):ti,ab,kw 548
- #44 (Golimumab or simponi):ti,ab,kw 662
- #45 (Guselkumab or tremfya):ti,ab,kw 186
- #46 MeSH descriptor: [Glucocorticoids] explode all trees 4492
- #47 (glucocorticoid*):ti,ab,kw 8445
- #48 (HCR040):ti,ab,kw 1
- #49 MeSH descriptor: [Hydroxychloroquine] explode all trees 463
- #50 (Hydroxychloroquine or plaquenil):ti,ab,kw 1168
- #51 (IFX-1):ti,ab,kw 17
- #52 MeSH descriptor: [Imatinib Mesylate] explode all trees 399
- #53 (Imatinib or gleevac or gleevec or glivec):ti,ab,kw 1396
- #54 MeSH descriptor: [Immunoglobulins] explode all trees 25489
- #55 (Immunoglobulin* or "gamma-globulin*" or gammaglobulin* or tegeline or veinoglobulin* or venoglobulin*):ti,ab,kw 13773
- #56 MeSH descriptor: [Immunotherapy] explode all trees 7883
- #57 (Immunotherap* or "biologic response modifier therap*" or "biological response modifier therap*" or "BRM therap*" or "immune therap*" or "immunoglobulin therap*" or "immunological therap*" or "immunological treatment*" or "immunomodulatory intervention*"):ti,ab,kw 9839
- #58 (IMU-838):ti,ab,kw 4
- #59 MeSH descriptor: [Infliximab] explode all trees 720
- #60 (Infliximab or flixabi or inflectra or remicade or remsima or renflexis):ti,ab,kw 2290
- #61 MeSH descriptor: [Interferons] explode all trees 5775
- #62 (Interferon*):ti,ab,kw 15371
- #63 (Itolizumab):ti,ab,kw 18
- #64 MeSH descriptor: [Immunoglobulins, Intravenous] explode all trees 837
- #65 (IVIG):ti,ab,kw 1322
- #66 (Ixezumab or taltz):ti,ab,kw 407
- #67 (Jakotinib):ti,ab,kw 0
- #68 MeSH descriptor: [Leflunomide] explode all trees 149
- #69 (Leflunomide or arava):ti,ab,kw 625
- #70 (Masitinib):ti,ab,kw 88
- #71 MeSH descriptor: [Mast Cells] explode all trees 207
- #72 ("mast cell*" or mastocyte*):ti,ab,kw 809
- #73 (Mavrilimumab):ti,ab,kw 43
- #74 MeSH descriptor: [Methotrexate] explode all trees 4127
- #75 (Methotrexate or metoject or nordimet or novatrex):ti,ab,kw 11173
- #76 (Methylprednisolone):ti,ab,kw 5203
- #77 MeSH descriptor: [Methylprednisolone] explode all trees 2708
- #78 MeSH descriptor: [Mycophenolic Acid] explode all trees 1356
- #79 (Mycophenolate or (mycophenolic near acid) or myfortic or (mycophenolate near mofetil)):ti,ab,kw 4180
- #80 (Nintedanib or intedanib):ti,ab,kw 465
- #81 MeSH descriptor: [Anti-Inflammatory Agents, Non-Steroidal] explode all trees 7595
- #82 ((NSAID* or "non steroid anti inflammatory agent*" or "non steroid anti inflammatory drug*" or "non steroidal anti inflammatory agent*" or "non steroidal anti inflammatory drug*" or "nonsteroid antiinflammatory agent*" or "nonsteroid antiinflammatory drug*" or "nonsteroidal antiinflammatory agent*" or "nonsteroidal antiinflammatory drug*" or "non steroid

antiinflammatory agent*" or "non steroid antiinflammatory drug*" or "non steroidal antiinflammatory agent*" or "non steroidal antiinflammatory drug*" or "nonsteroid anti inflammatory agent*" or "nonsteroid anti inflammatory drug*" or "nonsteroidal anti inflammatory agent*" or "nonsteroidal anti inflammatory drug*")):ti,ab,kw 8525

#83 (Ocrelizumab or ocrevus):ti,ab,kw 196

#84 (Otilimab):ti,ab,kw 6

#85 MeSH descriptor: [Programmed Cell Death 1 Receptor] explode all trees 56

#86 (PD-1 or Gilvetmab or "programmed cell death 1 receptor"):ti,ab,kw 1714

#87 (Pembrolizumab or keytruda or lambrolizumab):ti,ab,kw 1417

#88 MeSH descriptor: [Prednisolone] explode all trees 4851

#89 (Prednisolone):ti,ab,kw 6988

#90 MeSH descriptor: [Prednisone] explode all trees 3951

#91 (Prednisone):ti,ab,kw 9425

#92 (Ravulizumab or ultomiris):ti,ab,kw 24

#93 ((recombinant near/2 "interleukin 2") or lymphocult):ti,ab,kw 195

#94 (recombinant near/2 "interleukin 7"):ti,ab,kw 17

#95 (recombinant near/2"interleukin 7"):ti,ab,kw 17

#96 MeSH descriptor: [Rituximab] explode all trees 1243

#97 (Rituximab or mabthera or truxima):ti,ab,kw 4625

#98 (Ruxolitinib or jakafi or jakavi):ti,ab,kw 378

#99 (Sarilumab or keczara):ti,ab,kw 215

#100 (Secukinumab or cosentyx):ti,ab,kw 786

#101 (Selinexor):ti,ab,kw 69

#102 (Siltuximab):ti,ab,kw 59

#103 MeSH descriptor: [Stem Cells] explode all trees 775

#104 ("Stem cell*"):ti,ab,kw 10459

#105 MeSH descriptor: [Sulfasalazine] explode all trees 476

#106 (Sulphasalazine or salazopyrine or sulfasalazine or salazosulfapyridine):ti,ab,kw 1400

#107 (TD-0903):ti,ab,kw 2

#108 (Tocilizumab or roactemra):ti,ab,kw 1047

#109 (Tranilast or rizaben):ti,ab,kw 78

#110 ("tumor necrosis factor alpha inhibitor*" or "anti TNF agent*" or "anti TNF alpha agent*" or "anti tumor necrosis factor agent*" or "anti tumour necrosis factor agent*" or "TNF alpha inhibitor*" or "TNF inhibitor*" or "tumor necrosis factor inhibitor*" or "tumour necrosis factor alpha inhibitor*" or "tumour necrosis factor inhibitor*"):ti,ab,kw 864

#111 (Upadacitinib or rinvoq):ti,ab,kw 196

#112 (Ustekinumab or stelara):ti,ab,kw 759

#113 (Vafidemstat):ti,ab,kw 0

#114 (vMIP):ti,ab,kw 1

#115 (zilucoplan):ti,ab,kw 10

#116 {or #1-#115} 162188

#117 MeSH descriptor: [Coronavirus] explode all trees 35

#118 MeSH descriptor: [Coronavirus Infections] explode all trees 297

#119 (((corona* or corono*) near/1 (virus* or viral* or virinae*))) :ti,ab,kw 52

#120 ((coronavirus* or coronovirus* or coronavirinae* or CoV)):ti,ab,kw 727

#121 ("2019 nCoV" or 2019nCoV* or "19 nCoV" or 19nCoV* or nCoV2019* or "nCoV 2019" or nCoV19* or "nCoV 19" or "COVID 19" or COVID19* or "COVID 2019" or COVID2019* or "HCoV 19" or HCoV19* or "HCoV 2019" or HCoV2019* or "2019 novel" or Ncov* or "n cov" or "SARS CoV 2" or "SARSCoV 2" or "SARSCoV2" or "SARS CoV2" or SARSCov19* or "SARS Cov19" or "SARSCov 19" or "SARS Cov 19" or SARSCov2019* or "SARS Cov2019" or "SARSCov 2019" or "SARS Cov 2019" or SARS2* or "SARS 2" or SARScoronavirus2* or "SARS

coronavirus 2" or "SARScoronavirus 2" or "SARS coronavirus2" or SARScoronavirus2* or "SARS coronavirus 2" or "SARScoronavirus 2" or "SARS coronavirus2" or covid)):ti,ab,kw 1106
 #122 ("severe acute respiratory syndrome" or "severe acute respiratory syndromes") 373
 #123 {or #117-#122} 1345
 #124 #116 and #123 444
 #125 #124 with Publication Year from 2019 to present, in Trials 401

Online Supplementary Text S3: Search strategy for COVID-19 and rheumatic and musculoskeletal diseases.

Medline

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily <2016 to October 7, 2020>

Search Strategy: Covid & RMD

- 1 exp Musculoskeletal Diseases/ (147749)
- 2 (musculoskeletal adj2 (disease* or disorder*)).mp. (6163)
- 3 exp Osteoarthritis/ (14140)
- 4 (degenerative adj2 arthritis).mp. dentifier, synonyms] (276)
- 5 osteoarthritis.mp. dentifier, synonyms] (29910)
- 6 exp Connective Tissue Diseases/ (38287)
- 7 (connective adj tissue adj2 (disease* or disorder*)).mp. dentifier, synonyms] (4407)
- 8 Rheumatic Diseases/ (1920)
- 9 (rheumatic adj2 (disease* or disorder*)).mp. dentifier, synonyms] (6738)
- 10 exp Lupus Erythematosus, Systemic/ (7514)
- 11 lupus.mp. dentifier, synonyms] (18771)
- 12 exp Antiphospholipid Syndrome/ (1225)
- 13 antiphospholipid.mp. dentifier, synonyms] (3162)
- 14 Sjogren's Syndrome/ (1816)
- 15 (sjogren* or sjoegren*).mp. dentifier, synonyms] (4095)
- 16 exp Scleroderma, Systemic/ (2839)
- 17 "systemic sclerosis".mp. dentifier, synonyms] (4615)
- 18 scleroderma.mp. dentifier, synonyms] (4808)
- 19 Scleroderma, Localized/ (461)
- 20 exp Arthritis, Rheumatoid/ (14699)
- 21 (rheumatoid adj2 arthritis).mp. dentifier, synonyms] (28128)
- 22 Arthritis, Psoriatic/ (1779)
- 23 (psoriatic adj2 arthritis).mp. dentifier, synonyms] (3993)
- 24 (psoriatic adj2 arthropathy).mp. dentifier, synonyms] (35)
- 25 Spondylitis, Ankylosing/ (2096)
- 26 (ankylosing adj2 spondylitis).mp. dentifier, synonyms] (4581)
- 27 (scleroderma adj2 (localised or localized)).mp. dentifier, synonyms] (606)
- 28 morphea.mp. dentifier, synonyms] (448)
- 29 Arthritis, Juvenile/ (1503)
- 30 (juvenile adj2 arthritis).mp. dentifier, synonyms] (2949)
- 31 exp Polymyositis/ (1237)
- 32 polymyositis.mp. dentifier, synonyms] (1163)
- 33 Dermatomyositis/ (1104)
- 34 dermatomyositis.mp. dentifier, synonyms] (2528)
- 35 dermatomyositides.mp. dentifier, synonyms] (0)
- 36 exp Spondylarthritis/ (4930)

- 37 (Spondyloarthritis or spondylarthritis or spondarthritis or (spinal adj2 arthritis)).mp. dentifier, synonyms] (2736)
- 38 Fibromyalgia/ (1486)
- 39 fibromyalgia.mp. dentifier, synonyms] (3589)
- 40 Gout/ (1564)
- 41 gout.mp. dentifier, synonyms] (4338)
- 42 exp Chondrocalcinosis/ (263)
- 43 chondrocalcinosis.mp. dentifier, synonyms] (325)
- 44 (calcium adj pyrophosphate adj2 disease*).mp. dentifier, synonyms] (107)
- 45 (calcium adj pyrophosphate adj2 deposition).mp. dentifier, synonyms] (184)
- 46 pseudogout.mp. dentifier, synonyms] (158)
- 47 exp Vasculitis/ (9001)
- 48 vasculitis.mp. dentifier, synonyms] (10442)
- 49 Angiitis.mp. dentifier, synonyms] (342)
- 50 Angiitides.mp. dentifier, synonyms] (0)
- 51 angitis.mp. dentifier, synonyms] (18)
- 52 (vascular adj2 inflammation).mp. dentifier, synonyms] (2473)
- 53 (vasculitic adj2 lesion*).mp. dentifier, synonyms] (43)
- 54 Angioitis.mp. dentifier, synonyms] (0)
- 55 exp Sarcoidosis/ (2191)
- 56 Sarcoid.mp. dentifier, synonyms] (739)
- 57 Sarcoidosis.mp. dentifier, synonyms] (5162)
- 58 ("Besnier Boeck" adj2 (disease or syndrome)).mp. dentifier, synonyms] (1)
- 59 ("Besnier Boeck Schaumann" adj2 (disease or syndrome)).mp. dentifier, synonyms] (1)
- 60 Sarcoidoses.mp. dentifier, synonyms] (1)
- 61 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 (238373)
- 62 exp Coronavirus/ (19595)
- 63 exp Coronavirus Infections/ (20991)
- 64 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARS-CoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARSCoronavirus2* or "SARS-coronavirus-2*" or "SARSCoronavirus 2*" or "SARS coronavirus2*" or SARSCoronavirus2* or "SARS-coronavirus-2*" or "SARSCoronavirus 2*" or "SARS coronavirus2*" or covid).ti,ab,kw,kf. (38713)
- 65 "severe acute respiratory syndrome*".ti,ab,kw,kf. (6855)
- 66 ((corona* or corono*) adj1 (virus* or viral* or virinae*)).ti,ab,kw,kf. (1388)
- 67 (coronavirus* or coronovirus* or coronavirinae* or CoV).ti,ab,kw,kf. (28750)
- 68 62 or 63 or 64 or 65 or 66 or 67 (51103)
- 69 61 and 68 (685)
- 70 limit 69 to yr="2019 -Current" (615)

Embase

Database: Embase <1996 to October 7, 2020>

Search Strategy: Covid & RMD

-
- 1 exp musculoskeletal disease/ (1805492)
 - 2 (musculoskeletal adj2 (disease* or disorder*)).mp. (39744)
 - 3 exp osteoarthritis/ (112778)
 - 4 osteoarthritis.mp. (125888)
 - 5 (degenerative adj2 arthritis).mp. (1182)
 - 6 exp connective tissue disease/ (342785)
 - 7 (connective adj tissue adj2 (disease* or disorder*)).mp. (25810)
 - 8 exp rheumatic disease/ (191065)
 - 9 (rheumatic adj2 (disease* or disorder*)).mp. (51642)
 - 10 exp systemic lupus erythematosus/ (71140)
 - 11 lupus.mp. (107596)
 - 12 antiphospholipid syndrome/ (15875)
 - 13 antiphospholipid.mp. (21828)
 - 14 Sjogren syndrome/ (17933)
 - 15 (sjogren* or sjogren*).mp. (24026)
 - 16 exp systemic sclerosis/ (25333)
 - 17 "systemic sclerosis".mp. (26622)
 - 18 scleroderma.mp. (20606)
 - 19 exp localized scleroderma/ (2942)
 - 20 exp rheumatoid arthritis/ (158914)
 - 21 (rheumatoid adj2 arthritis).mp. (173099)
 - 22 psoriatic arthritis/ (21021)
 - 23 (psoriatic adj2 arthritis).mp. (22500)
 - 24 (psoriatic adj2 arthropathy).mp. (278)
 - 25 ankylosing spondylitis/ (21379)
 - 26 (ankylosing adj2 spondylitis).mp. (25741)
 - 27 (scleroderma adj2 (localised or localized)).mp. (1585)
 - 28 morphea/ (1922)
 - 29 morphea.mp. (2328)
 - 30 exp juvenile rheumatoid arthritis/ (17280)
 - 31 (juvenile adj2 arthritis).mp. (18619)
 - 32 polymyositis/ (6533)
 - 33 polymyositis.mp. (8219)
 - 34 exp dermatomyositis/ (12670)
 - 35 dermatomyositis.mp. (13758)
 - 36 dermatomyositides.mp. (1)
 - 37 spondylarthritis/ (7587)
 - 38 spondylarthritis.mp. (7862)
 - 39 fibromyalgia/ (19185)
 - 40 fibromyalgia.mp. (20622)
 - 41 gout/ (16602)
 - 42 gout.mp. (18924)
 - 43 chondrocalcinosis/ (1061)
 - 44 chondrocalcinosis.mp. (1276)
 - 45 (calcium adj pyrophosphate adj2 disease*).mp. (296)
 - 46 (calcium adj pyrophosphate adj2 deposition).mp. (565)
 - 47 pseudogout.mp. (1055)

- 48 exp vasculitis/ (86672)
 49 vasculitis.mp. (63781)
 50 Angiitis.mp. (1563)
 51 Angiitides.mp. (4)
 52 angitis.mp. (184)
 53 (vascular adj2 inflammation).mp. (9818)
 54 (vasculitic adj2 lesion*).mp. (341)
 55 Angioitis.mp. (1)
 56 exp sarcoidosis/ (26462)
 57 Sarcoid.mp. (3644)
 58 Sarcoidosis.mp. (31208)
 59 ("Besnier Boeck" adj2 (disease or syndrome)).mp. (3)
 60 ("Besnier Boeck Schaumann" adj2 (disease or syndrome)).mp. (4)
 61 Sarcoidoses.mp. (21)
 62 1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33 or 34 or 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47 or 48 or 49 or 50 or 51 or 52 or 53 or 54 or 55 or 56 or 57 or 58 or 59 or 60 or 61 (2075430)
 63 exp Coronavirinae/ (16754)
 64 exp Coronavirus infection/ (17958)
 65 ("coronavirus disease 2019" or "severe acute respiratory syndrome coronavirus 2").sh,dj. (35694)
 66 ((corona* or corono*) adj1 (virus* or viral* or virinae*)).ti,ab,kw. (1168)
 67 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV-2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARS-CoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2* or "SARS-2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or "SARS coronavirus2*" or covid).ti,ab,kw. (37658)
 68 "severe acute respiratory syndrome".ti,ab,kw. (9296)
 69 (coronavirus* or coronavirus* or coronavirinae* or CoV).ti,ab,kw. (33830)
 70 63 or 64 or 65 or 66 or 67 or 68 or 69 (64189)
 71 62 and 70 (2467)
 72 limit 71 to yr="2019 -Current" (1776)

CINAHL

October, 7 2020

S71 S61 AND S69

S70 S61 AND S69

S69 S62 OR S63 OR S64 OR S65 OR S66 OR S67 OR S68

S68 (MH "Coronavirus+")

S67 "severe acute respiratory syndrome"

S66 ("2019-nCoV*" or 2019nCoV* or "19-nCoV*" or 19nCoV* or nCoV2019* or "nCoV- 2019*" or nCoV19* or "nCoV-19*" or "COVID-19*" or COVID19* or "COVID-2019*" or COVID2019* or "HCoV-19*" or HCoV19* or "HCoV-2019*" or HCoV2019* or "2019 novel*" or Ncov* or "n-cov" or "SARS-CoV-2*" or "SARSCoV-2*" or "SARSCoV2*" or "SARSCoV2*" or SARSCov19* or "SARS-Cov19*" or "SARSCov-19*" or "SARS-Cov-19*" or

SARSCov2019* or "SARS-Cov2019*" or "SARSCov-2019*" or "SARS-Cov-2019*" or SARS2*
or "SARS-2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus 2*" or
"SARS coronavirus2*" or SARScoronavirus2* or "SARS-coronavirus-2*" or "SARScoronavirus
2*" or "SARS coronavirus2*" or covid)
S65 (coronavirus* or coronavirus* or coronavirinae* or CoV)
S64 ((corona* or corono*) N1 (virus* or viral* or virinae*)).
S63 ("coronavirus disease 2019" or "severe acute respiratory syndrome coronavirus 2").S116 (MH
"Coronavirus Infections+")
S62 (MH "Coronavirus Infections+")
S61 S1 OR S2 OR S3 OR S4
OR S5 OR S6 OR S7 OR
S8 OR S9 OR S10 OR
S11 OR S12 OR S13 OR
S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR
S20 OR S21 OR S22 OR
S23 OR S24 OR S25 OR
S26 OR S27 OR S28 OR
S29 OR S30 OR S31 OR
S32 OR S33 OR S34 OR
S35 OR S36 OR S37 OR
S38 OR S39 OR S40 OR
S41 OR S42 OR S43 OR
S44 OR S45 OR S46 OR
S47 OR S48 OR S49 OR
S50 OR S51 OR S52 OR
S53 OR S54 OR S55 OR
S56 OR S57 OR S58 OR
S59 OR S60
S60 (MH "Spondylarthritis+")
S59 scleroderma
S58 (MH "Scleroderma, Systemic+")
S57 sjogren* or sjoegren*
S56 (MH "Sjogren's Syndrome")
S55 sarcoidoses
S54 sarcoidosis
S53 "besnier boeck schaumann" N2 (disease or syndrome)
S52 "besnier boeck" N2 (disease or syndrome)
S51 (MH "Sarcoidosis")
S50 sarcoid
S49 angioitis
S48 vasculitic N2 lesion*
S47 vascular N2 inflammation
S46 angitis
S45 antiphospholipid
S44 angiitides
S43 angiitis
S42 vasculitis
S41 (MH "Vasculitis+")
S40 pseudogout
S39 "calcium pyrophosphate" N2 deposition
S38 "calcium pyrophosphate" N2 disease*

S37 chondrocalcinosis
 S36 (MH "Chondrocalcinosis")
 S35 gout
 S34 (MH "Antiphospholipid Syndrome")
 S33 (MH "Gout")
 S32 fibromyalgia
 S31 (MH "Fibromyalgia")
 S30 Spondyloarthritis or spondylarthritis or spondarthritis or (spinal adj2 arthritis)
 S29 dermatomyositides
 S28 dermatomyositis
 S27 (MH "Dermatomyositis")
 S26 polymyositis
 S25 (MH "Polymyositis+")
 S24 juvenile N2 arthritis
 S23 lupus
 S22 (MH "Arthritis, Juvenile Rheumatoid")
 S21 "morphea"
 S20 scleroderma N2 (localised or localized)
 S19 ankylosing N2 spondylitis
 S18 (MH "Spondylitis, Ankylosing")
 S17 psoriatic N2 arthropathy
 S16 psoriatic N2 arthritis
 S15 (MH "Arthritis, Psoriatic")
 S14 rheumatoid N2 arthritis
 S13 (MH "Arthritis, Rheumatoid+")
 S12 (MH "Lupus Erythematosus, Systemic+")
 S11 (MH "Scleroderma, Circumscribed")
 S10 "systemic sclerosis"
 S9 rheumatic N2 (disease* or disorder*)
 S8 (MH "Rheumatic Diseases+")
 S7 "connective tissue" N2 (disease* or disorder*)
 S6 (MH "Connective Tissue Diseases+")
 S5 degenerative N2 arthritis
 S4 osteoarthritis
 S3 (MH "Osteoarthritis+")
 S2 (musculoskeletal N2 (disease* or disorder*))
 S1 (MH "Musculoskeletal Diseases+")

The Cochrane Library

October 7, 2020

ID	Search Hits
#1	MeSH descriptor: [Musculoskeletal Diseases] explode all trees 40204
#2	(musculoskeletal near/2 (disease* or disorder*)):ti,ab,kw 4971
#3	MeSH descriptor: [Osteoarthritis] explode all trees 7366
#4	(Osteoarthritis):ti,ab,kw 17270
#5	(degenerative near/2 arthritis):ti,ab,kw 78
#6	MeSH descriptor: [Connective Tissue Diseases] explode all trees 9484
#7	("connective tissue" near/2 disease*):ti,ab,kw 1697
#8	("connective tissue" near/2 disorder*):ti,ab,kw 608
#9	MeSH descriptor: [Rheumatic Diseases] explode all trees 15387

#10	(rheumatic near/2 (disease* or disorder*)):ti,ab,kw	2842	
#11	MeSH descriptor: [Lupus Erythematosus, Systemic] explode all trees		1025
#12	(lupus):ti,ab,kw	3035	
#13	MeSH descriptor: [Antiphospholipid Syndrome] explode all trees		90
#14	(antiphospholipid):ti,ab,kw	452	
#15	MeSH descriptor: [Sjogren's Syndrome] explode all trees		283
#16	(sjogren* or Sjoegren*):ti,ab,kw	764	
#17	MeSH descriptor: [Scleroderma, Systemic] explode all trees		541
#18	("systemic sclerosis"):ti,ab,kw	1099	
#19	(scleroderma):ti,ab,kw	1117	
#20	MeSH descriptor: [Scleroderma, Localized] explode all trees		82
#21	MeSH descriptor: [Arthritis, Rheumatoid] explode all trees		6056
#22	(rheumatoid near/2 arthritis):ti,ab,kw	15306	
#23	MeSH descriptor: [Arthritis, Psoriatic] explode all trees		431
#24	(psoriatic near/2 arthritis):ti,ab,kw	1946	
#25	psoriatic near/2 arthropathy	29	
#26	MeSH descriptor: [Spondylitis, Ankylosing] explode all trees		677
#27	(ankylosing near/2 spondylitis):ti,ab,kw	1982	
#28	(scleroderma near/2 (localised or localized)):ti,ab,kw		108
#29	(morphea):ti,ab,kw	35	
#30	MeSH descriptor: [Arthritis, Juvenile] explode all trees		294
#31	(juvenile near/2 arthritis):ti,ab,kw	849	
#32	MeSH descriptor: [Polymyositis] explode all trees		93
#33	(polymyositis):ti,ab,kw	177	
#34	MeSH descriptor: [Dermatomyositis] explode all trees		87
#35	(dermatomyositis):ti,ab,kw	295	
#36	(dermatomyositides):ti,ab,kw	0	
#37	MeSH descriptor: [Spondylarthritis] explode all trees		1289
#38	(Spondyloarthritis or spondylarthritis or spondarthritis or (spinal near/2 arthritis)):ti,ab,kw		893
#39	MeSH descriptor: [Fibromyalgia] explode all trees		1363
#40	(fibromyalgia):ti,ab,kw	2935	
#41	MeSH descriptor: [Gout] explode all trees		360
#42	(gout):ti,ab,kw	1391	
#43	MeSH descriptor: [Chondrocalcinosis] explode all trees		15
#44	(chondrocalcinosis):ti,ab,kw	19	
#45	("calcium pyrophosphate" near/2 disease*):ti,ab,kw		8
#46	("calcium pyrophosphate" near/2 deposition):ti,ab,kw		10
#47	(pseudogout):ti,ab,kw	13	
#48	MeSH descriptor: [Vasculitis] explode all trees		1978
#49	(vasculitis):ti,ab,kw	1240	
#50	(Angiitis):ti,ab,kw	19	
#51	(Angiitides):ti,ab,kw	0	
#52	(angitis):ti,ab,kw	2	
#53	(vascular near/2 inflammation):ti,ab,kw		609
#54	(vasculitic near/2 lesion*):ti,ab,kw		3
#55	(Angioitis):ti,ab,kw	0	
#56	(Sarcoid):ti,ab,kw	40	
#57	(Sarcoidosis):ti,ab,kw	611	
#58	MeSH descriptor: [Sarcoidosis] explode all trees		214
#59	("Besnier Boeck" near/2 (disease or syndrome)):ti,ab,kw		0

- #60 ("Besnier Boeck Schaumann" near/2 (disease or syndrome)):ti,ab,kw 0
- #61 (Sarcoidoses):ti,ab,kw 0
- #62 {or #1-#61} 76539
- #63 MeSH descriptor: [Coronavirus] explode all trees 35
- #64 MeSH descriptor: [Coronavirus Infections] explode all trees 297
- #65 (((corona* or corono*) near/1 (virus* or viral* or virinae*))) :ti,ab,kw 52
- #66 ((coronavirus* or coronavirus* or coronavirinae* or CoV)):ti,ab,kw 727
- #67 (("2019 nCoV" or 2019nCoV* or "19 nCoV" or 19nCoV* or nCoV2019* or "nCoV 2019" or nCoV19* or "nCoV 19" or "COVID 19" or COVID19* or "COVID 2019" or COVID2019* or "HCoV 19" or HCoV19* or "HCoV 2019" or HCoV2019* or "2019 novel" or Ncov* or "n cov" or "SARS CoV 2" or "SARSCoV 2" or "SARSCoV2" or "SARS CoV2" or SARSCov19* or "SARS Cov19" or "SARSCov 19" or "SARS Cov 19" or SARSCov2019* or "SARS Cov2019" or "SARSCov 2019" or "SARS Cov 2019" or SARS2* or "SARS 2" or SARScoronavirus2* or "SARS coronavirus 2" or "SARScoronavirus 2" or "SARS coronavirus2" or SARScoronavirus2* or "SARS coronavirus 2" or "SARScoronavirus 2" or "SARS coronavirus2" or covid)):ti,ab,kw 1106
- #68 ("severe acute respiratory syndrome" or "severe acute respiratory syndromes") 373
- #69 {or #63-#68} 1345
- #70 #62 and #69 38
- #71 #70 with Publication Year from 2019 to present, in Trials 32

On line supplementary Text S5: Eligibility criteria

Question specific eligibility criteria:

1) Cytokines and Cellular response to SARS-CoV-2 infection

- ✓ Cross sectional studies including two arms:
 - Severe COVID-19 vs Mild/moderate COVID-19
 - COVID-19 vs other viral pneumonia
- ✓ Retrospective studies including two arms
 - Severe COVID-19 vs Mild/moderate COVID-19
 - COVID-19 vs other viral pneumonia
- ✓ Prospective observational studies including one (comparison between timepoints) or more arms (comparison between timepoints within each arm and comparison between different arms at each timepoint)
- ✓ Unsupervised clustering (Mass cytometry, Multiplex-Luminex technologies, Single cell RNA seq...)

2) Humoral response to SARS-CoV-2 infection

- ✓ Observational longitudinal studies
- ✓ Index test= commercially available ELISA and/or CLIA to detect IgG, IgM, IgA.
- ✓ Testing at least both IgM and IgG
- ✓ +/- Neutralizing assay
- ✓ Cross sectional or observational longitudinal studies
- ✓ Mechanistic studies assessing the action of SARS-CoV2 antibodies on immune cells

3) Endothelial dysfunction and thrombosis in the context of SARS-CoV-2 infection

- ✓ Cross sectional or observational longitudinal studies
- ✓ Assessing platelet phenotype and/or function
- ✓ Assessing endothelial cells phenotype and/or function
- ✓ Assessing endothelial precursor cells phenotype and/or function

4) Genetic variants and SARS-CoV-2 infection severity

- ✓ Cross sectional studies including two arms:
 - Severe COVID-19 vs Mild/moderate COVID-19
 - COVID-19 vs other viral pneumonia
 - COVID-19 vs normal subjects

5) Multiparametric algorithms for prediction of disease outcome and progression

- ✓ Cross sectional studies including a ROC analysis
- ✓ Cross sectional studies including a Validation cohort

6) Difference in pathogenesis in adults and children COVID-19

- ✓ Any study design
- ✓ Including two groups (adult cohort and pediatric cohort)
- ✓ Comparison of clinical, serological and immunological features

7) Gut and SARS-CoV-2 infection

- ✓ Cross sectional studies including two arms:
 - Severe COVID-19 vs Mild/moderate COVID-19
 - COVID-19 vs other viral pneumonia
 - COVID-19 vs normal subjects
- ✓ Retrospective studies including two arms
 - Severe COVID-19 vs Mild/moderate COVID-19
 - COVID-19 vs other viral pneumonia
 - COVID-19 vs normal subjects
- ✓ Prospective observational studies including one (comparison between timepoints) and/or more arms (comparison between timepoints within each arm)

8) Histological lesions related to SARS-CoV-2 infection

- ✓ In vivo studies on human lung biopsy specimens
- ✓ Post-mortem human studies

9) Comorbidities and SARS-CoV-2 infection

- ✓ Any study design
- ✓ Including two groups (with and without the comorbidity)
- ✓ Comparison of serological and immunological features

Online supplementary Text S6: Risk of Bias evaluation tools.***Non-randomized studies of interventions: The Risk Of Bias In Non-randomized Studies – of Interventions (ROBINS-I) assessment tool*****Version 19 September 2016****ROBINS-I tool (Stage I): At protocol stage**

Specify the review question

Participants	
Experimental intervention	
Comparator	
Outcomes	

List the confounding domains relevant to all or most studies

--

List co-interventions that could be different between intervention groups and that could impact on outcomes

--

ROBINS-I tool (Stage II): For each study

Specify a target randomized trial specific to the study

Design	Individually randomized / Cluster randomized / Matched (e.g. cross-over)
Participants	
Experimental intervention	
Comparator	

Is your aim for this study...?

- to assess the effect of *assignment* to intervention
- to assess the effect of *starting and adhering* to intervention

Specify the outcome

Specify which outcome is being assessed for risk of bias (typically from among those earmarked for the Summary of Findings table). Specify whether this is a proposed benefit or harm of intervention.

Specify the numerical result being assessed

In case of multiple alternative analyses being presented, specify the numeric result (e.g. RR = 1.52 (95% CI 0.83 to 2.77) and/or a reference (e.g. to a table, figure or paragraph) that uniquely defines the result being assessed.

Preliminary consideration of confounders

Complete a row for each important confounding domain (i) listed in the review protocol; and (ii) relevant to the setting of this particular study, or which the study authors identified as potentially important.

“Important” confounding domains are those for which, in the context of this study, adjustment is expected to lead to a clinically important change in the estimated effect of the intervention. “Validity” refers to whether the confounding variable or variables fully measure the domain, while “reliability” refers to the precision of the measurement (more measurement error means less reliability).

(i) Confounding domains listed in the review protocol				
Confounding domain	Measured variable(s)	Is there evidence that controlling for this variable was unnecessary?*	Is the confounding domain measured validly and reliably by this variable (or these variables)?	OPTIONAL: Is failure to adjust for this variable (alone) expected to favour the experimental intervention or the comparator?
			Yes / No / No information	Favour experimental / Favour comparator / No information

(ii) Additional confounding domains relevant to the setting of this particular study, or which the study authors identified as important				
Confounding domain	Measured variable(s)	Is there evidence that controlling for this variable was unnecessary?*	Is the confounding domain measured validly and reliably by this variable (or these variables)?	OPTIONAL: Is failure to adjust for this variable (alone) expected to favour the experimental intervention or the comparator?

			Yes / No / No information	Favour experimental / Favour comparator / No information

* In the context of a particular study, variables can be demonstrated not to be confounders and so not included in the analysis: (a) if they are not predictive of the outcome; (b) if they are not predictive of intervention; or (c) because adjustment makes no or minimal difference to the estimated effect of the primary parameter. Note that “no statistically significant association” is not the same as “not predictive”.

Preliminary consideration of co-interventions

Complete a row for each important co-intervention (i) listed in the review protocol; and (ii) relevant to the setting of this particular study, or which the study authors identified as important.

“Important” co-interventions are those for which, in the context of this study, adjustment is expected to lead to a clinically important change in the estimated effect of the intervention.

(i) Co-interventions listed in the review protocol		
Co-intervention	Is there evidence that controlling for this co-intervention was unnecessary (e.g. because it was not administered)?	Is presence of this co-intervention likely to favour outcomes in the experimental intervention or the comparator
		Favour experimental / Favour comparator / No information
		Favour experimental / Favour comparator / No information
		Favour experimental / Favour comparator / No information
		Favour experimental / Favour comparator / No information

(ii) Additional co-interventions relevant to the setting of this particular study, or which the study authors identified as important		
Co-intervention	Is there evidence that controlling for this co-intervention was unnecessary (e.g. because it was not administered)?	Is presence of this co-intervention likely to favour outcomes in the experimental intervention or the comparator
		Favour experimental / Favour comparator / No information
		Favour experimental / Favour comparator / No information
		Favour experimental / Favour comparator / No information
		Favour experimental / Favour comparator / No information

Risk of bias assessment

Responses underlined in green are potential markers for low risk of bias, and responses in **red** are potential markers for a risk of bias. Where questions relate only to sign posts to other questions, no formatting is used.

Signalling questions	Description	Response options
Bias due to confounding		
1.1 Is there potential for confounding of the effect of intervention in this study? If <u>N/PN</u> to 1.1: the study can be considered to be at low risk of bias due to confounding and no further signalling questions need be considered If Y/PY to 1.1: determine whether there is a need to assess time-varying confounding:		Y / PY / <u>PN / N</u>
1.2. Was the analysis based on splitting participants' follow up time according to intervention received? If N/PN, answer questions relating to baseline confounding (1.4 to 1.6) If Y/PY, go to question 1.3.		NA / Y / PY / PN / N / NI
1.3. Were intervention discontinuations or switches likely to be related to factors that are prognostic for the outcome? If N/PN, answer questions relating to baseline confounding (1.4 to 1.6) If Y/PY, answer questions relating to both baseline and time-varying confounding (1.7 and 1.8)		NA / Y / PY / PN / N / NI

Questions relating to baseline confounding only		
1.4. Did the authors use an appropriate analysis method that controlled for all the important confounding domains?		NA / <u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
1.5. If <u>Y/PY</u> to 1.4: Were confounding domains that were controlled for measured validly and reliably by the variables available in this study?		NA / <u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
1.6. Did the authors control for any post-intervention variables that could have been affected by the intervention?		NA / <u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
Questions relating to baseline and time-varying confounding		
1.7. Did the authors use an appropriate analysis method that controlled for all the important confounding domains and for time-varying confounding?		NA / <u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
1.8. If <u>Y/PY</u> to 1.7: Were confounding domains that were controlled for measured validly and reliably by the variables available in this study?		NA / <u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
Risk of bias judgement		Low / Moderate / Serious / Critical / NI
Optional: What is the predicted direction of bias due to confounding?		Favours experimental / Favours comparator / Unpredictable

Bias in selection of participants into the study		
<p>2.1. Was selection of participants into the study (or into the analysis) based on participant characteristics observed after the start of intervention?</p> <p>If N/PN to 2.1: go to 2.4</p> <p>2.2. If Y/PY to 2.1: Were the post-intervention variables that influenced selection likely to be associated with intervention?</p> <p>2.3 If Y/PY to 2.2: Were the post-intervention variables that influenced selection likely to be influenced by the outcome or a cause of the outcome?</p>		<p>Y / PY / <u>PN / N</u> / NI</p> <p>NA / Y / PY / <u>PN / N</u> / NI</p> <p>NA / Y / PY / <u>PN / N</u> / NI</p>
2.4. Do start of follow-up and start of intervention coincide for most participants?		Y / PY / <u>PN / N</u> / NI
2.5. If Y/PY to 2.2 and 2.3, or N/PN to 2.4: Were adjustment techniques used that are likely to correct for the presence of selection biases?		NA / <u>Y / PY</u> / <u>PN / N</u> / NI
Risk of bias judgement		Low / Moderate / Serious / Critical / NI
Optional: What is the predicted direction of bias due to selection of participants into the study?		Favours experimental / Favours comparator / Towards null / Away from null / Unpredictable

Bias in classification of interventions		
3.1 Were intervention groups clearly defined?		<u>Y / PY</u> / <u>PN / N</u> / NI
3.2 Was the information used to define intervention groups recorded at the start of the intervention?		<u>Y / PY</u> / <u>PN / N</u> / NI
3.3 Could classification of intervention status have been affected by knowledge of the outcome or risk of the outcome?		Y / PY / <u>PN / N</u> / NI
Risk of bias judgement		Low / Moderate / Serious / Critical / NI
Optional: What is the predicted direction of bias due to classification of interventions?		Favours experimental / Favours comparator / Towards null / Away from null / Unpredictable

Bias due to deviations from intended interventions		
If your aim for this study is to assess the effect of assignment to intervention, answer questions 4.1 and 4.2		
4.1. Were there deviations from the intended intervention beyond what would be expected in usual practice?		Y / PY / <u>PN / N</u> / NI
4.2. If Y/PY to 4.1: Were these deviations from intended intervention unbalanced between groups <i>and</i> likely to have affected the outcome?		NA / Y / PY / <u>PN / N</u> / NI
If your aim for this study is to assess the effect of starting and adhering to intervention, answer questions 4.3 to 4.6		
4.3. Were important co-interventions balanced across intervention groups?		<u>Y / PY</u> / PN / N / NI
4.4. Was the intervention implemented successfully for most participants?		<u>Y / PY</u> / PN / N / NI
4.5. Did study participants adhere to the assigned intervention regimen?		<u>Y / PY</u> / PN / N / NI
4.6. If N/PN to 4.3, 4.4 or 4.5: Was an appropriate analysis used to estimate the effect of starting and adhering to the intervention?		NA / <u>Y / PY</u> / PN / N / NI
Risk of bias judgement		Low / Moderate / Serious / Critical / NI
Optional: What is the predicted direction of bias due to deviations from the intended interventions?		Favours experimental / Favours comparator / Towards null / Away from null / Unpredictable

Bias due to missing data		
5.1 Were outcome data available for all, or nearly all, participants?		<u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
5.2 Were participants excluded due to missing data on intervention status?		<u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
5.3 Were participants excluded due to missing data on other variables needed for the analysis?		<u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
5.4 If PN/N to 5.1, or Y/PY to 5.2 or 5.3: Are the proportion of participants and reasons for missing data similar across interventions?		NA / <u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
5.5 If PN/N to 5.1, or Y/PY to 5.2 or 5.3: Is there evidence that results were robust to the presence of missing data?		NA / <u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
Risk of bias judgement		Low / Moderate / Serious / Critical / NI
Optional: What is the predicted direction of bias due to missing data?		Favours experimental / Favours comparator / Towards null / Away from null / Unpredictable

Bias in measurement of outcomes		
6.1 Could the outcome measure have been influenced by knowledge of the intervention received?		<u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
6.2 Were outcome assessors aware of the intervention received by study participants?		<u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
6.3 Were the methods of outcome assessment comparable across intervention groups?		<u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
6.4 Were any systematic errors in measurement of the outcome related to intervention received?		<u>Y</u> / <u>PY</u> / <u>PN</u> / <u>N</u> / NI
Risk of bias judgement		Low / Moderate / Serious / Critical / NI
Optional: What is the predicted direction of bias due to measurement of outcomes?		Favours experimental / Favours comparator / Towards null / Away from null / Unpredictable

Bias in selection of the reported result		
Is the reported effect estimate likely to be selected, on the basis of the results, from... 7.1 ... multiple outcome <i>measurements</i> within the outcome domain?		Y / PY / <u>PN / N</u> / NI
7.2 ... multiple <i>analyses</i> of the intervention-outcome relationship?		Y / PY / <u>PN / N</u> / NI
7.3 ... different <i>subgroups</i> ?		Y / PY / <u>PN / N</u> / NI
Risk of bias judgement		Low / Moderate / Serious / Critical / NI
Optional: What is the predicted direction of bias due to selection of the reported result?		Favours experimental / Favours comparator / Towards null / Away from null / Unpredictable

Overall bias		
Risk of bias judgement		Low / Moderate / Serious / Critical / NI
Optional: What is the overall predicted direction of bias for this outcome?		Favours experimental / Favours comparator / Towards null / Away from null / Unpredictable

Diagnostic accuracy studies: The (QUADAS-2)**QUADAS-2 tool: Risk of bias and applicability judgments**

Domain 1: Patient selection	
A. Risk of bias	
Describe methods of patient selection:	
• Was a consecutive or random sample of patients enrolled?	Yes/No/Unclear
• Was a case-control design avoided?	Yes/No/Unclear
• Did the study avoid inappropriate exclusions?	Yes/No/Unclear
Could the selection of patients have introduced bias?	RISK: LOW/HIGH/UNCLEAR
B. Concerns regarding applicability	
Describe included patients (prior testing, presentation, intended use of index test and setting):	
Is there concern that the included patients do not match the review question?	CONCERN: LOW/HIGH/UNCLEAR
Domain 2: Index test(s) (if more than 1 index test was used, please complete for each test)	
A. Risk of bias	
Describe the index test and how it was conducted and interpreted:	
• Were the index test results interpreted without knowledge of the results of the reference standard?	Yes/No/Unclear
• If a threshold was used, was it pre-specified?	Yes/No/Unclear
Could the conduct or interpretation of the index test have introduced bias?	RISK: LOW/HIGH/UNCLEAR
B. Concerns regarding applicability	
Is there concern that the index test, its conduct, or interpretation differ from the review question?	CONCERN: LOW/HIGH/UNCLEAR
Domain 3: Reference standard	
A. Risk of bias	
Describe the reference standard and how it was conducted and interpreted:	
• Is the reference standard likely to correctly classify the target condition?	Yes/No/Unclear
• Were the reference standard results interpreted without knowledge of the results of the index test?	Yes/No/Unclear
Could the reference standard, its conduct, or its interpretation have introduced bias?	RISK: LOW/HIGH/UNCLEAR
B. Concerns regarding applicability	

Is there concern that the target condition as defined by the reference standard does not match the review question? CONCERN:
LOW/HIGH/UNCLEAR

Domain 4: Flow and timing

A. Risk of bias

Describe any patients who did not receive the index test(s) and/or reference standard or who were excluded from the 2x2 table (refer to flow diagram):

Describe the time interval and any interventions between index test(s) and reference standard:

• **Was there an appropriate interval between index test(s) and reference standard?** Yes/No/Unclear

• **Did all patients receive a reference standard?** Yes/No/Unclear

• **Did patients receive the same reference standard?** Yes/No/Unclear

• **Were all patients included in the analysis?** Yes/No/Unclear

Could the patient flow have introduced bias? RISK: LOW/HIGH/UNCLEAR

Appraisal tool for Cross-Sectional Studies (AXIS tool)

Introduction
1 Were the aims/objectives of the study clear?
Methods
2 Was the study design appropriate for the stated aim(s)?
3 Was the sample size justified?
4 Was the target/reference population clearly defined? (Is it clear who the research was about?)
5 Was the sample frame taken from an appropriate population base so that it closely represented the target/reference population under investigation?
6 Was the selection process likely to select subjects/participants that were representative of the target/reference population under investigation?
7 Were measures undertaken to address and categorize non-responders?
8 Were the risk factor and outcome variables measured appropriate to the aims of the study?
9 Were the risk factor and outcome variables measured correctly using instruments/measurements that had been trialed, piloted or published previously?
10 Is it clear what was used to determine statistical significance and/or precision estimates? (eg, p values, CIs)
11 Were the methods (including statistical methods) sufficiently described to enable them to be repeated?
Results
12 Were the basic data adequately described?

On line supplementary Table S1: Flowchart of the 3 searches (Part 1)

	TOTAL	COVID-19 AND pathogenesis	COVID-19 AND therapy	COVID-19 AND RMDs
Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations and Daily	17529	10847	5810	872
Embase	31409	16321	12074	3014
Cumulative Index to Nursing and Allied Health Literature (CINAHL)	4267	1643	2372	252
The Cochrane Central Register of Controlled Trials (CENTRAL)	2291	732	1511	48
TOTAL	55496	29543	21767	4186
DUPLICATES (within groups + between groups)	30470	11548	16349	2573
TITLES AND ABSTRACTS SCREENED	24986	17995	5418	1613
EXCLUDED:	23495	17144	4990	1361
<i>Other topic (no COVID-19)</i>	1522	1342	141	39
<i>Other topic (COVID-19)</i>	7995	6182	1286	527
<i>Other therapies for COVID-19 (e.g. antivirals)</i>	503	469	69	5
<i>Narrative reviews, commentaries, viewpoints, editorials</i>	8419	6259	1592	568
<i>Systematic literature reviews</i>	538	350	146	42
<i>Case reports unless on immunomodulatory treatments</i>	1146	692	379	75
<i>Study protocols</i>	2226	1137	1034	55
<i>Other language</i>	220	121	77	22

<i>Recommendations/guidelines/position papers</i>	228	79	125	24
<i>Conference abstracts</i>	65	8	57	0
<i>Erratum/Corrections/Retractions</i>	107	70	36	1
<i>Animal studies</i>	109	104	5	0
<i>Preprints</i>	377	331	43	3
INCLUDED FOR FULL TEXT ASSESSMENT	1571	860	459	252
PATHOGENESIS	586	423	140	23
THERAPY	591	298	289	4
RMDs	394	139	30	225

Online supplementary Table S2: Flowchart of the 3 searches (Part 2)

	TOTAL	COVID-19 AND pathogenesis	COVID-19 AND therapy	COVID-19 AND RMDs	Handsearch
FULL TEXTS EVALUATED	556	289	258	4	5
EXCLUDED	266	151	111	4	0
Narrative reviews, commentaries, viewpoints, editorials	108	53	52	2	0
Systematic literature reviews	14	9	5	0	0
Wrong population	31	18	11	2	0
Study protocols	17	10	7	0	0
Conference abstracts	9	9	0	0	0
Other language	12	8	4	0	0
Other topic related to COVID	42	24	18	0	0
Wrong intervention	12	6	6	0	0
Duplicates	22	14	8	0	0
INCLUDED IN THE SLR	83	78	0	0	5
Genetic variants	8	8	0	0	0
Cytokine and chemokines	8	5	0	0	3
Cellular Immunity	20	18	0	0	2
Interferon response	2	2	0	0	0
Humoral immunity	5	5	0	0	0
Endothelial dysfunction, thrombosis	8	8	0	0	0
Multiparametric algorithms	14	14	0	0	0
Children	3	3	0	0	0
Gut and SARS-CoV-2 infection	5	5	0	0	0
Histological lesions	6	6	0	0	0
Comorbidities	1	1	0	0	0
Consequences of immune-modulatory drugs	3	3	0	0	0

Online supplementary Table S3: Gut and SARS-CoV-2 infection

Author	Study type	Population	Description of result	RoB
Zuo et al. [1–3]	Prospective	15 hospitalised COVID-19 VS 9 hospitalized community-acquired pneumonia VS 15-30 HD	<p>-Significant alterations in the COVID-19 fecal microbiomes at all timepoints characterised by:</p> <ul style="list-style-type: none"> ○ Highly heterogeneous mycobiome configuration (2.5-fold higher than that of controls (P < 0.05) at discharge) ○ Depletion of beneficial commensals and gut dysbiosis persisting even after clearance of SARS-CoV-2 (swabs) and resolution of respiratory symptoms. ○ Opportunistic fungal pathogens (eg. <i>Candida albicans</i>) ○ Two respiratory-associated fungal pathogens, <i>A. flavus</i> and <i>Aspergillus niger</i> detected even after clearance of SARS-CoV-2 and resolution of respiratory symptoms. ○ Baseline abundance of <i>Coprobacillus</i>, <i>Clostridium ramosum</i>, and <i>Clostridium hathewayi</i> directly correlated with COVID-19 severity ○ Baseline abundance of <i>Faecalibacterium prausnitzii</i> (an anti-inflammatory bacterium) inversely correlated with disease severity. ○ <i>Bacteroides</i> spp. which downregulate expression of ACE2 in murine gut, correlated inversely with SARS-CoV-2 load in fecal samples. ○ Faecal samples with signature of high SARS-CoV-2 infectivity had higher abundances of bacterial species <i>Collinsella aerofaciens</i>, <i>Collinsella tanakaei</i>, <i>Streptococcus infantis</i>, <i>Morganella morganii</i>, and higher functional capacity for nucleotide de novo biosynthesis, amino acid biosynthesis and glycolysis, ○ Faecal samples with signature of low-to-none SARS-CoV-2 infectivity had higher abundances of short-chain fatty acid producing bacteria, <i>Parabacteroides merdae</i>, <i>Bacteroides stercoris</i>, <i>Alistipes onderdonkii</i> and <i>Lachnospiraceae bacterium 1_1_57FAA</i>. ○ Faecal viral metagenome of three patients continued to display active viral infection signature up to 6 days after clearance of SARS-CoV-2 from respiratory samples. 	Unclear

Gu et al. [4]	Cross-sectional	30 COVID-19 VS 24 H1N1 influenza VS 30 HD	<p>Significant alterations in the COVID-19 fecal microbiomes characterised by:</p> <ul style="list-style-type: none"> ○ Reduced bacterial diversity vs controls ○ Higher bacterial diversity and different overall composition vs H1N1 ○ Higher relative abundance of opportunistic pathogens, such as <i>Streptococcus</i>, <i>Rothia</i>, <i>Veillonella</i>, and <i>Actinomyces</i> ○ Lower relative abundance of beneficial symbionts <p>5 species allow to distinguish COVID-19 and HD (AUC=0.89) 7 species allow to distinguish COVID-19 and H1N1 (AUC = 0.94).</p>	Unclear
Hoel et al. [5]	Prospective	39 hospitalised COVID-19 VS 16 HD	<ul style="list-style-type: none"> ○ ↑ plasma levels of LPS-binding protein (LBP, gut leakage) vs controls and correlated with IL-18 and IL-1Ra overtime ○ ↑ plasma levels of CCL25 (gut homing) vs controls ○ = levels of intestinal fatty acid binding protein (enterocyte damage) ○ Baseline levels of LBP twice as high in patients with cardiac involvement where remained elevated during the hospital stay, 	Unclear

ACE2: Angiotensin- Converting Enzyme 2, CCL: Chemokine (C-C motif) ligand, COVID-19, coronavirus disease 2019, IL: Interleukine, HD: healthy donors, LBP, lipopolysaccharide binding protein, RoB: Risk of Bias

Online supplementary Table S4: Histological lesions related to SARS-CoV-2 infections

Author	Study type	Population	Other findings	RoB
NETS				
Leppkes et al. [8]	IHC (Anti NE and Anti Cit-H3 ABs)	8 deceased patients	<ul style="list-style-type: none"> ○ CD31 positive pulmonary vessels occluded by aggregated NETs ○ Cell-rich intra-vascular clots with aggregated neutrophils that express neutrophil elastase and citrullinated histone H3 	High
Radermecker et al. [10]	ImmunoFluo (Anti-MPO and anti-Cit-H3 ABs)	4 deceased patients	<ul style="list-style-type: none"> ○ Multiple, widely distributed NET-infiltrating areas in the lungs of COVID-19 patients ○ Association with fibrin, occlusion of alveoli or bronchioles ○ Cit-H3+MPO+ neutrophils in microthrombi 	High
Middleton et al. [6]	ImmunoFluo (Anti-MPO and anti-Cit-H3 ABs)	3 deceased patients	<ul style="list-style-type: none"> ○ Infiltration of Neutrophils positive for Cit-H3 and MPO stainings. and MPO+ PMNs ○ NET-infiltrating areas in the lungs of COVID-19 patients 	High
Viral inclusions				
Carsana et al. [11]	IHC Electron microscopy	38 deceased patients	Viral Particles: 9 cases/10, located in pneumocytes	High
Histological abnormalities				
Carsana et al. [11]	IHC Electron microscopy	38 deceased patients	<ul style="list-style-type: none"> ○ Infiltrate: Macrophages in the alveolar lumina (63%) Lymphocytes in the interstitium (79%) ○ Vascular: Platelet-fibrin thrombi (87%) ○ Tissue: Exudative and proliferative phases of diffuse alveolar damage: 	High

			<ul style="list-style-type: none"> -Capillary congestion (100%) -Necrosis of pneumocytes (100%) -Hyaline membranes 87%) -Interstitial and intra-alveolar oedema (97%) -Type 2 pneumocyte hyperplasia (100%) -Squamous metaplasia with atypia (55%) 	
Hanley et al. [12]	IHC	10 deceased patients	<ul style="list-style-type: none"> ○ Tissue Exudative pure (60%) and mixte exudative and organizing (40%) diffuse alveolar damage ○ Vascular Macroscopic (23%) and microscopic (89%) pulmonary thromboemboli ○ Infiltrate -Macrophages were accompanied by scattered plasma cells. -Mild or moderate lymphocyte inflammation predominantly CD4+ T cells (100%) -Focal lymphocyte cuffing of small vessels (60%). We noted that lymphocytes in the lung were predominantly CD4-positive T cells. -CD56-positive natural killer cells were rarely found.. 	High
Li et al. [13]	IHC	30 deceased patients	<ul style="list-style-type: none"> ○ Tissue Diffuse alveolar damage (DAD) (93.3%) with predominantly ACUTE (32%) hyaline membranes, intra-alveolar fibrin exudation, prominent reactive pneumocytes, and pulmonary edema. ORGANIZING (25%) loose organizing fibroblastic tissue consisting of polypoid plugs within distal air space and/or FIBROZING (43%) (dense interstitial fibrous tissue) patterns. Patients with fibrosing DAD were one decade younger (p=0.034) and they had a longer duration of illness (p=0.033), hospitalization (p=0.037) and mechanical ventilation (p=0.014) compared to those with acute DAD. Patients with organizing DAD had a longer duration of illness (p=0.032) and hospitalization (p=0.023) compared to those with acute DAD. 	High

ABs: antibodies, CD: Cluster of Differentiation, DNA: Desoxyribonucleic Acid, HD: Healthy Donor, IHC: Immunohistochemistry, MPO: Myeloperoxidase, NE: Neutrophil Elastase, NETs: Neutrophils Extracellular Traps, PMNs: Polymorphonuclear Neutrophils.

Online supplementary Table S5: Comorbidities and SARS-CoV-2 infection

Author	Methods	Population	Cell subset	Description of results	RoB
Alzaid et al. [16]	-Quantification of 15 major innate and adaptive immune populations and subpopulations by flow cytometry. -Gene expression analyses on pbmcs.	30 COVID-19 with Type 2 Diabetes VS 15 ND COVID-19 36 ND non-COVID-19 22 T2D non-COVID-19	T cells	No difference vs ND COVID-19	Unclear
			B cells	No difference vs ND COVID-19	
			Dendritic cells	No difference vs ND COVID-19	
			Natural Killer cells	No difference vs ND COVID-19	
			Monocytes	-1.3-fold decrease in CD14 ⁺ monocyte frequency vs ND COVID-19 -Increased phenotypically switched monocytes and decreased classical monocytes vs ND COVID-19 -1.6-fold decrease in monocyte frequency in COVID-19 T2D requiring ICU admission vs COVID-19 WITH T2D not requiring ICU admission. -Intermediate monocyte expression of IRF5 increased in COVID-19 with T2D admitted to the ICU vs COVID-19 WITH T2D not requiring ICU admission	
			Cytokines	IL-8, IL-6 and CCL2 increased vs ND COVID-19	
Immunotype	-Principal component analysis (PCA) including variant immune population frequencies (lymphocyte and monocyte subpopulations) showed that three distinct clusters of patients emerged corresponding to ND COVID-19, T2D COVID-19 and T2D non-COVID-19 patients -Unsupervised analyses of cytometry data (t-SNE algorithm) confirmed the monocyte and lymphocyte dynamics associated with T2D and with COVID-19 severity.				

CCL: Chemokine (C-C motif) ligand, COVID-19: Coronavirus Disease 2019, ICU, intensive care unit, IL: Interleukine T2D, Type 2 Diabetes, ND, non diabetic

Online supplementary Table S6: Immunosenescence and SARS-CoV-2 infection.

Author	Study type	Patients N	Control N	Cells	RoB
Weistemeier et al. [18]	Flow cytometry and Single cell RNAseq PBMCs	30 mild	10 HD <80 7 HD ≥80	↓ Naive CD8 T cells ↓ Frequency of CD8 T cells with a cytotoxic profile ↓ Secretion of Granzyme A and Perforin	High
Zheng et al. [19]	Single cell, mass CyTOF and ATAC-seq, BCR/TCR seq PBMCs	16	?	↓ B and T cells in all PBMCs T cells: ↑ CD4+ and CD4+CD8+ and proliferating T cells ↓ CD8+, naive CD4 and CD8 ↑ Effector, Memory and Exhausted cell subsets were dominant in the aged group. NK cells: ↓ CD56bright NK1 population ↓ NK2 and late NK3 populations, ↓ anti-viral capacities and diversity B cells: ↓ Naive B cell decreased ↑ Dendritic cells were mildly increased, reduced anti-viral capacities, decreased diversity Monocytes: ↑ CD14 and CD16monocytes, enrichment in TNF, IL-1 and CXCL8 Dendritic cells: ↑ cDC2 cells and enrichment of IFNγ genes ↓ cDC1, pDC, and pre-DC with age,	High
Bellesi et al. [17]	Flow Cytometry	42 patients (15 <65 27 ≥65)	19 “young” HD and 20 “old” HD	↓ CD3+, CD4+, CD8+ ↑ CD95 and PD-1 expression	Low
Weistemeier et al. [18]	Flow cytometry and Single cell RNAseq	30 mild	10 HD <80 7 HD ≥80	CD8 cells cytotoxic production = across populations	High

BCR: B Cell Receptor, COVID-19, coronavirus disease 2019, CyTOF: Cytometry by Time of Flight, CXCL: Chemokine (C-X-C motif) Ligand, DC: dendritic Cells, HD: Healthy Donor, IFN: Interferon, IL: Interleukine, NK: Natural Killer, TCR: T Cell Receptor, TNF: Tumour Necrosis Factor, PBMCs: Peripheral Blood Mononuclear Cells, RoB: Risk of Bias, RNA: Ribonucleic acid.

Online supplementary Table S7: Consequences of immune-modulatory drugs on host anti-viral immune response.

Author	Study type	Population	Other findings	Rob
Sims et al. [21]	Longitudinal Multiplex® (184 cytokines) + IL-19 assay	4 patients treated with Baricitinib	↓ IL-6, MCP-3, IL-10, CXCL10, and IFN- γ and PTX3, IL-1RA, MCP-2, CCL19, and IL-18R1 along with spdl1 and CCL23. Time-dependent PTX3 ↓ levels.	High
Mazonni et al. [22]	Multiparametric flow cytometry	5 patients treated with Tocilizumab	↑ lymphocyte count ↑ expression of granzyme A and perforin on NK cells = CD8+ T cells expressing granzyme A or perforin	Unclear
Giamarellos-Bourboulis et al. [23]	Multiparametric flow cytometry	5 patients treated with Tocilizumab	↑ lymphocyte count ↑ HLA-DR in CD14+ monocytes	High

References

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