Lopinavir/ritonavir for COVID-19: A living systematic review
doi: 10.5867/medwave.2020.06.7966

Appendix 2: Search strategies

L·OVE platform strategies

Search strategies used in the L·OVE platform for the following question:
Lopinavir for Coronavirus infection
The components below are combined by the system with the boolean operator **AND**

Population component: Coronavirus
This is the population component of the search strategy used by L·OVE platform to
automatically retrieve potentially eligible articles from Epistemonikos Database (see special
COVID-19 methods)
Date: May 17, 2020 (this strategy is continuously improved any time a relevant article is missed)

coronavir* OR coronavirus* OR "corona virus" OR "virus corona" OR "corono virus" OR "virus
coron" OR hvcov* OR "chvid-19" OR covid19* OR "covid 19" OR "2019-nCoV" OR cv19* OR "cv-
19" OR "cv 19" OR "n-cov" OR ncov* OR "sars-cov-2" OR "sars-cov2" OR "SARS-Coronavirus-2" OR "SARS-Coronavirus2" OR (wuhan* AND (virus OR viruses OR viral)) OR (covid* AND (virus
OR viruses OR viral)) OR "sars-cov" OR "sars cov" OR "sars-coronavirus" OR "severe acute
respiratory syndrome" OR "mers-cov" OR "mers cov" OR "middle east respiratory syndrome"
OR "middle-east respiratory syndrome" OR "covid-19-related" OR "SARS-CoV-2-related" OR "SARS-CoV2-related" OR "2019-nCoV-related" OR "cv-19-related" OR "n-cov-related"

Intervention component: Lopinavir/ritonavir
This is the intervention component of the strategy used by L·OVE platform to automatically
retrieve potentially eligible articles from Epistemonikos Database
The terms below are combined by the system with the boolean operator **OR**
Date: May 17, 2020 (this strategy is continuously improved any time a relevant article is missed)
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doi: 10.5867/medwave.2020.06.7966

Relevant terms in L·OVE taxonomy

| Search strategy |
|------------------|
| Lopinavir        |
| (lopinav* OR LPV* OR "ABT-378" OR "ABT 378" OR ABT378* OR kaletra*) |

Single-block search strategy in L·OVE platform for the question: mesenchymal stromal cells for COVID-19 (adapted for simplicity)

Date: May 17, 2020

((coronavir* OR coronovirus* OR "corona virus" OR "virus corona" OR "coro virus" OR "coro virus" OR "corona virus" OR "virus corona" OR hcov* OR "cov-19" OR covid19* OR "covid 19" OR "2019-nCoV" OR cv19* OR "cv-19" OR "cv 19" OR "n-cov" OR ncov* OR "sars-cov-2" OR "sars-cov2" OR "SARS-CoV-2" OR "SARS-Coronavirus-2" OR "SARS-Coronavirus2" OR (wuhan* AND (virus OR viruses OR viral)) OR (covid* AND (virus OR viruses OR viral)) OR "sars-cov" OR "sars cov" OR "sars-coronavirus" OR "severe acute respiratory syndrome" OR "mers-cov" OR "mers cov" OR "middle east respiratory syndrome" OR "middle-east respiratory syndrome" OR "covid-19-related" OR "SARS-CoV-2-related" OR "SARS-CoV2-related" OR "2019-nCoV-related" OR "cv-19-related" OR "n-cov-related") AND (lopinav* OR LPV* OR "ABT-378" OR "ABT 378" OR ABT378* OR kaletra*)

Additional searches in electronic databases

Search strategy for Pubmed/MEDLINE

Search date: May 17, 2020

#1 coronavir*
#2 coronovirus*
#3 "corona virus"
#4 "virus corona"
#5 "coro virus"
#6 "virus corona"
#7 hcov*
#8 "covid-19"
#9 covid19*
#10 "covid 19"
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#11 "2019-nCoV"
#12 cv19*
#13 "cv-19"
#14 "cv 19"
#15 "n-cov"
#16 ncv*
#17 "sars-cov-2"
#18 wuhan* AND (virus OR viruses OR viral)
#19 covid* AND (virus OR viruses OR viral)
#20 "sars-cov"
#21 "sars cov"
#22 "sars-coronavirus"
#23 "severe acute respiratory syndrome"
#24 "mers-cov"
#25 "mers cov"
#26 "middle east respiratory syndrome"
#27 "middle-east respiratory syndrome"
#28 #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
#29 lopinav*
#30 LPV*
#31 "ABT-378"
#32 "ABT 378"
#33 ABT378*
#34 kaletra*
#35 #29 OR #30 OR #31 OR #32 OR #33 OR #34
#36 #28 AND #35
Search strategy for EMBASE (Elsevier)

Search date: May 2, 2020

#1. coronavirus*
#2. coronavir*
#3. 'corona virus'
#4. 'virus corona'
#5. 'corono virus'
#6. 'virus corono'
#7. hcov*
#8. 'covid-19'
#9. covid19*
#10. 'covid 19'
#11. '2019-ncov'
#12. cv19*
#13. 'cv-19'
#14. 'cv 19'
#15. 'n-cov'
#16. ncov*
#17. 'sars-cov-2'
#18. wuhan* AND (virus OR viruses OR viral)
#19. covid* AND (virus OR viruses OR viral)
#20. 'sars-cov'
#21. 'sars cov'
#22. 'sars-coronavirus'
#23. 'severe acute respiratory syndrome'
#24. 'mers-cov'
#25. 'mers cov'
#26. 'middle east respiratory syndrome'
#27. 'middle-east respiratory syndrome'
#28. #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
#29. lopinav*
#30.LPV*
#31."ABT-378"
#32."ABT 378"
#33.ABT378*
#34.kaletra*
#35.#29 OR #30 OR #31 OR #32 OR #33 OR #34
#36.#28 AND #35

Search strategy for CENTRAL (The Cochrane Library Issue 1, 2019)

Search date: May 17, 2020

#1   coronavir*:ti,ab,kw
#2   coronovirus*:ti,ab,kw
#3   "corona virus":ti,ab,kw
#4   "virus corona":ti,ab,kw
#5   "corono virus":ti,ab,kw
#6   "virus corono":ti,ab,kw
#7   hcov*:ti,ab,kw
#8   "covid-19":ti,ab,kw
#9   covid19*:ti,ab,kw
#10  "covid 19":ti,ab,kw
#11  "2019-nCoV":ti,ab,kw
#12  cv19*:ti,ab,kw
#13  "cv-19":ti,ab,kw
#14  "cv 19":ti,ab,kw
#15  "n-cov":ti,ab,kw
#16  ncov*:ti,ab,kw
#17  "sars-cov-2"
#18  (wuhan* AND (virus OR viruses OR viral)):ti,ab,kw
#19  covid* AND (virus OR viruses OR viral):ti,ab,kw
#20  "sars-cov":ti,ab,kw
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#21  "sars cov" :ti,ab,kw
#22  "sars-coronavirus" :ti,ab,kw
#23  "severe acute respiratory syndrome" :ti,ab,kw
#24  "mers-cov" :ti,ab,kw
#25  "mers cov" :ti,ab,kw
#26  "middle east respiratory syndrome" :ti,ab,kw
#27  "middle-east respiratory syndrome" :ti,ab,kw
#28  #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
#29  lopinav*
#30  LPV*
#31  "ABT-378"
#32  "ABT 378"
#33  ABT378*
#34  kaletra*
#35  #29 OR #30 OR #31 OR #32 OR #33 OR #34
#36  #28 AND #35

Databases and registries automatically screened by Epistemonikos Database for COVID-19 ('COVID-19 repository')
Updated daily or more than daily

PubMed

https://www.ncbi.nlm.nih.gov/pubmed/
coronavir* OR coronavirus* OR "corona virus" OR "virus corona" OR "corono virus" OR "virus corono" OR hcov* OR "covid-19" OR covid19* OR "covid 19" OR 2019-nCoV OR cv19* OR "cv-19" OR "cv 19" OR "n-cov" OR ncov* OR "sars-cov-2" OR (wuhan* AND (virus OR viruses OR viral OR coronav*)) OR (covid* AND (virus OR viruses OR viral)) OR "sars-cov" OR "sars cov" OR "sars-coronavirus" OR "severe acute respiratory syndrome" OR "mers-cov" OR "mers cov" OR "middle east respiratory syndrome" OR "middle-east respiratory syndrome"
COVID-19 SARS-CoV-2 preprints from medRxiv and bioRxiv
https://connect.medrxiv.org/relate/content/181
* All the articles in this list are uploaded

Clinicaltrials.gov
https://clinicaltrials.gov/
Search date: May 17, 2020
"SARS-COV-2" OR "Sars-CoV2" OR nCoV OR COVID OR Coronavirus OR Corona OR "covid-19" OR covid19 OR "covid 19" OR "2019-nCoV" OR cv19 OR "cv-19" OR "cv 19" OR "n-cov" OR coronavirus

ISRCTN registry
https://www.isrctn.com/
Search date: May 17, 2020
lopinav* OR LPV* OR "ABT-378" OR "ABT 378" OR ABT378* OR kaletra*

Chinese Clinical Trial Registry
http://www.chictr.org.cn/
Search date: May 17, 2020
Separate searches for the following terms:
coronavirus; coronavirus; corona virus; virus corona; corono virus; virus corona; hcov; covid-19; covid19; covid 19; 2019-nCoV; cv19; cv-19; cv 19; n-cov; ncov; sars-cov-2; sars-cov2; SARS-Coronavirus-2; SARS-Coronavirus2

Iranian Registry of Clinical Trials
https://www.irct.ir/
Search date: May 17, 2020
((coronavir* OR coronavirus* OR "corona virus" OR "virus corona" OR "corono virus" OR "virus corono" OR hcov* OR "covid-19" OR covid19* OR "covid 19" OR "2019-nCoV" OR cv19* OR "cv-19" OR "cv 19" OR "n-cov" OR ncov* OR "sars-cov-2" OR "sars-cov2" OR "SARS-Coronavirus-2" OR "SARS-Coronavirus2" OR (wuhan* AND (virus OR viruses OR viral)) OR (covid* AND (virus OR viruses OR viral)) OR "sars-cov" OR "sars cov" OR "sars-coronavirus"

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OR "severe acute respiratory syndrome" OR "mers-cov" OR "mers cov" OR "middle east respiratory syndrome" OR "middle-east respiratory syndrome" OR "covid-19-related" OR "SARS-CoV-2-related" OR "SARS-CoV2-related" OR "2019-nCoV-related" OR "cv-19-related" OR "n-cov-related") AND (lopinav* OR LPV* OR "ABT-378" OR "ABT 378" OR ABT378* OR kaletra*)

Other databases and websites specialised in COVID-19 manually searched for this review

Google Scholar
https://scholar.google.com/
Search date: May 17, 2020
allintitle:"COVID-19"|COVID19|2019nCoV|"Corona Virus"|Coronavirus|"CoV 2"|CoV2|COVID|nCoV|SARS2|SARSCoV|"SARS-CoV"

EU Clinical Trials Register: Clinical trials for covid-19
Search date: May 17, 2020
https://www.clinicaltrialsregister.eu/ctr-search/search?query=covid-19
* All the references in this list were screened

NIPH Clinical Trials Search (Japan)
Search date: May 17, 2020
https://rctportal.niph.go.jp/en/
Separate searches for the following terms:
coronavirus; coronovirus; corona virus; virus corona; corono virus; virus corono; hcov; covid-19; covid19; covid 19; 2019-nCoV; cv19; cv-19; cv 19; n-cov; ncov; sars-cov-2; sars-cov2; SARS-Coronavirus-2; SARS-Coronavirus2

Clinical Research Information System (Korea)
Search date: May 17, 2020
https://cris.nih.go.kr/cris/en/
Separate searches for the following terms:
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coronavirus; coronavirus; corona virus; virus corona; corono virus; virus corono; hcov; covid-19; covid19; covid 19; 2019-nCoV; cv 19; cv-19; cv 19; n-cov; ncov; sars-cov-2; sars-cov2; SARS-Coronavirus-2; SARS-Coronavirus2

ICTRP Search Portal
Search date: May 17, 2020
http://apps.who.int/trialsearch
lopinav* OR LPV* OR "ABT-378" OR "ABT 378" OR ABT378* OR kaletra*

Cochrane COVID-19 Study Register
Search date: May 17, 2020
https://covid-19.cochrane.org/
lopinav* OR LPV* OR "ABT-378" OR "ABT 378" OR ABT378* OR kaletra*

Resources scanned without using a search strategy
1. COVID-19: Global literature on coronavirus disease (https://search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/)
2. NIHR: Innovation observatory: COVID-19 Updates (http://www.io.nih.ac.uk/covid-19-updates/)
3. COVID-19: a living systematic map of the evidence (http://eppi.ioe.ac.uk/COVID19_MAP/covid_map_v8.html)
4. COVID-evidence website (https://covid-evidence.org/database)
5. Live map of COVID-19 evidence (https://www.fhi.no/en/qk/systematic-reviews-hta/map/)
6. LitCovid (https://www.ncbi.nlm.nih.gov/research/coronavirus/)
7. COVID-19 Special Collection (JBI) (https://jbi.global/ebp/covid-19)
8. Coronavirus disease (COVID-2019) R&D (https://www.who.int/blueprint/priority-diseases/key-action/novel-coronavirus/en/)
9. Coronavirus (COVID-19) Resource Hub (https://pharmacist.therapeuticresearch.com/Content/Topic/all/covid-19-Resource-Hub)
10. Coronavirus Research Repository (Elsevier Connect) (https://www.cdc.gov/coronavirus/2019-ncov/publications.html)
11. Coronavirus (COVID-19) (CDC) (https://www.cdc.gov/coronavirus/2019-ncov/publications.html)

12. Orientación sobre la COVID-19 y últimas investigaciones en las Américas (PAHO) (https://covid19-evidence.paho.org/)

13. COVID-19. Información confiable para la toma de decisiones (https://www.iecs.org.ar/covid/)

14. New England Journal of Medicine: Coronavirus (Covid-19) (https://www.nejm.org/coronavirus)

15. BMJ: Coronavirus (covid-19): Latest news and resources (http://bmj.com/coronavirus)

16. Lancet: COVID-19 Resource Centre (https://www.thelancet.com/coronavirus)

17. JAMA: Coronavirus Disease 2019 (COVID-19) (https://jamanetwork.com/journals/jama/pages/coronavirus-alert)

18. Cochrane Resources on Coronavirus (COVID-19) (https://www.cochranelibrary.com/covid-19)

19. Oxford COVID-19 Evidence Service (https://www.cebm.net/covid-19/)

20. NICE Rapid Guideline and Summaries on COVID-19 (https://www.nice.org.uk/covid-19)

21. Coronavirus disease (COVID-19) - European Medicines Agency (EMA) (https://www.ema.europa.eu/en/human-regulatory/overview/public-health-threats/coronavirus-disease-covid-19)

22. Coronavirus Disease 2019 (COVID-19) - U.S. Food & Drug Administration (FDA). (https://www.fda.gov/emergency-preparedness-and-response/cancerterrorism-and-emerging-threats/coronavirus-disease-2019-covid-19)