

Free and useful resources and news on Corona – Mittwoch, 21. März 2020 (last update: 2.12.2021)

Dear colleagues/ Dear Sir or Madam,

[PS: Be aware that we together with several publishers/ providers set up institutional login via Shibboleth see [Journals](#) resp. [Downloads](#) (section Remote access)

As our country is battling the Coronavirus libraries, publishers and course platforms are there to give fast access to the resources you need. Here is a collection of resources (last updated: 26. Nov. 2020), subdivided in the following sections:

[a. die wichtigsten Übersichtsseiten/ the most important overview websites](#)

[b. die wichtigsten Verlage und Suchtools, die Corona-bezogene Inhalte z.Z. kostenfrei zur Verfügung stellen/ main publishers currently providing Corona-related content free of charge](#)

[c. die wichtigsten sonstigen Quellen/ most important additional resources](#)

[d. Program tools, technological services, methods and standard development, datasets of genome sequences, antiviral target candidates etc.](#)

[e. eBooks, Online courses](#)

a. **die wichtigsten Übersichtsseiten/ the most important overview websites**

- RKI: [COVID-19-Übersichtsseite/Overview](#), [Infos für die Fachöffentlichkeit](#) (Fallzahlen, Epidemiologie, Diagnostik), [FAQ Covid19 und Impfen](#)
- RKI: [Epidemiologisches Bulletin](#), e.g. [COVID-19 im Epidemiologischen Bulletin](#)
- RKI: [COVID-19-Dashboard](#)
- PEI/ Paul-Ehrlich-Institut: [Coronavirus / Covid19 resp. English website](#) (u.a. [Covid19-Impfstoffe](#), [FAQ Coronavirus etc.](#))
- Hemholtz Association: [SARS-CoV-2 coronavirus: Overview, Research, Facts & Figures, Updates](#)
- The Centers for Disease Control and Prevention (CDC) website has [outbreak information](#) updated daily, including a [Situation Summary](#), [Information for Laboratories \(CDC\)](#), [2019 nCoV Resource by China National Center for Bioinformation](#)
- STM-Association: [Publisher support for combating COVID-19](#)
- Healthcare Infection Society (contains 1. Guidance - UK Government/PHE/WHO/NHS, 2. Research and commentary, 3. Additional Resources)
- ABSA International/ Association for Biosafety and Biosecurity: [SARS-CoV-2/COVID-19 TOOLBOX](#) (e.g sections: personal protective equipment, Laboratories / Research, Training)
- [GloPID-R/UKCDR COVID-19 Research Project Tracker](#): Live database of funded research projects, clinical trials and funding calls across the world, mapped against the COVID-19 research priorities identified in the [WHO Coordinated Global Research Roadmap: 2019 Novel Coronavirus](#).
- [SARS-CoV-2 Diagnostic Pipeline](#) (The Foundation for Innovative New Diagnostics/FIND) overview of all SARS-CoV-2 tests commercially available or in development for the diagnosis of COVID-19, directly submitted by test suppliers or obtained from publicly available sources. (see also article "[Trends in COVID-19 Diagnostic test development](#)" [Bioprocess International 6,2020](#))
- ISARIC: [COVID-19 Clinical Research Resources](#): the International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC) has developed a [portfolio of resources](#) to accelerate outbreak research and response.
- FZ Jülich/ Univ. Osnabrück: [Bayessches räumlich-zeitliches Interaktionsmodell für Covid-19](#) (new probability-weighted model for predicting COVID-19 infections on a daily basis. The

results include daily updated estimates of the reported new infections (based on RKI data) and a 5-day forecast for each German county)

- **FZ Jülich: [Rt-live.de](#)**: provides up-to-date values for Rt (key measure of how fast the virus is growing) for German states. It's the average number of people who become infected by an infectious person. If Rt is above 1.0, the virus will spread quickly.
- **[COVID Information Commons \(CIC\)](#)**: aims to facilitate knowledge sharing and collaboration across various COVID research efforts, initiated by the NSF Convergence Accelerator. The initial focus of the CIC website is on NSF-funded COVID Rapid Response Research (RAPID) projects. The CIC serves as a resource for researchers, students and decision-makers from academia, government, not-for-profits and industry to identify collaboration opportunities, to leverage each other's research findings, and to accelerate the most promising research to mitigate the broad societal impacts of the COVID-19 pandemic. The COVID Information Commons is funded by an [NSF COVID RAPID Award #2028999](#), Resources are subdivided in section "[Research funding](#)", "[Webinar videos](#)", [Datasets](#), "[Groups and Guides](#)" and "[News and Publications](#)"
- **[first living search strategy via 2dsearch](#)** see <https://doi.org/10.1016/j.jclinepi.2020.04.014>
- **[CORD-19 Explorer](#)** (Allen Institute for AI): a full-text search engine for the COVID-19 Open Research Dataset (based on this also other institutions e.g. [Microsoft Academic](#), [WHO](#), [NIH](#) etc. have created such tools, see overview "[COVID-19 Open Research Dataset \(CORD-19\)](#)")
- [COVID-19 Open Research Dataset \(CORD-19\)](#) a free, Open Resources & Datasets overview for the Global Research Community
- [COVID-19 Data Portal](#) (EMBL-EBI and partners): bring together relevant datasets for sharing and analysis in an effort to accelerate coronavirus research. It enables researchers to upload, access and analyze COVID-19 related reference data and specialist datasets as part of the wider European COVID-19 Data Platform
- [COVID-19 RESEARCH IMPLEMENTATION HUB](#) (Global Health Network): Click on each topic (e.g. Disease characteristics, Vaccines etc.) to find guidance, open access protocols, tools and resources; all aiming to support rapid research implementation in every type of healthcare setting, and whatever your previous experience.
- **[COVID-19 TrialsTracker](#)** (WHO's International Clinical Trials Registry Platform/ ICTRP)
- WHO [Novel Coronavirus](#), [Country & Technical Guidance](#), [Coronavirus disease \(COVID-2019\) situation reports](#)
- [WHO Global research on coronavirus disease \(COVID-19\)](#): contain also articles without OA fulltext, all references are available to download into Excel or reference management software. New search interface available.
- [WHO rolling update](#) on events etc.
- **WHO: [Coronavirus disease \(COVID-19\): Overview, Prevention, Symptoms](#)**
- [Coronavirus disease \(COVID-19\) advice for the public: Myth busters](#)
- [WHO/ PAHO \(Pan-American Health Organizations: COVID-19 database](#) (daily updated searchable database to access technical guidelines, scientific publications, & ongoing research protocols. Content from America & worldwide)
- WHO: [Covid-19 survey tool and guidance](#) & [behaviour insights-tool-chart](#) from WHO Regional Office for Europe
- [COVID-19 Information Portal](#) (incl. CDC & WHO Resources, browse Latest Updates, CDC Updates, Government Resources, Non-Government Resources, WHO Updates; created by Ebsco) and [Covid-19 Research Portal](#) (meta-search on PubMed, protocols.io, GoogleScholar, Ebsco's resources etc.)
- **[COVID-19 Primer](#)** (Primer AI): summarizes research trends, news coverage and social media discussion on scientific research about the COVID-19 pandemic and the SARS-CoV-2 virus. It employs natural language processing and generation to read and analyze research papers, bubble up trending concepts and discussions, as well as write the summaries. See [intro blog post](#) for more information on the origins and background of COVID-19 Primer.
- [EPI-WIN](#): WHO information network for epidemics (infos for different audiences)

- NIH-NLM: [Disaster Lit on Novel Coronavirus Disease 2019 \(COVID-19\)](#)
- [Live-Map COVID-19 updates](#): Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University of Medicine: (details [about map](#), archived cases and data sources described at [GitHub](#)), for Germany: [Corona-cases per districts and federal states \(RKI\)](#)
- EPPI-Centre's [COVID-19: a living systematic map of the evidence](#) (up-to-date map of the current evidence that we partition into broad domains for easy exploration)
- [COVID-19 Transformation Map](#) (latest strategic trends, research, analysis, and data from the World Economic Forum's Strategic Intelligence Unit, PS: close loading-window to view it)
- [Corona Knowledge Hub](#) (/Frontiers)
- [CoVis: COVID-19 Knowledge Map \(OpenKnowledgeMap/ReFigure\)](#): To support scientists in developing therapeutics and vaccines for COVID-19 Open Knowledge Maps and ReFigure have launched CoVis: a curated knowledge map of seminal works on COVID-19 from eight critical areas of biomedical research. The knowledge map is constantly evolving thanks to the collective editing of subject-matter experts. - CoVis enables you to spend less time reviewing coronavirus literature and more time on your research.
- [Worldometer](#) (estimated current numbers based on statistics and projections from United Nations Population Division, World Health Organization, Food and Agriculture Organization, International Monetary Fund, and World Bank) – Please be aware that statistical data have to be interpreted correctly see [Guardian-article](#)
- general news on Coronavirus (Science/AAAS): <https://www.sciencemag.org/tags/coronavirus>
- [Scitrus Echtzeit-Feed/ real-time feed](#) (latest research and news on Scitrus COVID-19, supported by Atypon's AI-driven personalized discovery application):
- [Evidence Collection](#) funded by the H2H Fund (Evidence Aid is preparing summaries of relevant research which are available below as soon as each is ready. In time we will have translations of the summaries in other languages. A 'NEW' flag will appear on each review as it is added and remain for 48-72 hours.)
- ZB Med's literature [search engine LIVIVO](#) (see more detailed search strings) plus ZB Med's [Genome browser](#)
- ZB Med [on Covid-19](#), ZB Med's [overview on resources](#)
- [NFDI4Microbiota consortium](#) (helps scientists with information services and analyzing tools that do research on SARS-CoV-2 and other viruses):
- Mary Ann Liebert: [Catching Up to Coronavirus: Top 60 Treatments in Development](#)
- Nature: [The coronavirus pandemic in five powerful charts](#)
- CAS Special report ***"R&D of Therapeutics and Vaccines of COVID-19 and related diseases"*** (provides a comprehensive overview of published scientific information highlighting antiviral strategies involving small molecules and biologics targeting complex molecular interactions, related blogpost *"Research and Development on Therapeutic Agents and Vaccines for COVID-19 and Related Human Coronavirus Diseases"*)
- AMA's [Physician's Guide to COVID-19](#) (PDF)
- AMA's [COVID-19 \(2019 novel coronavirus\) resource center for physicians](#)
- IHME [COVID-19 Projections: COVID-19 Hospital Needs and Death Projections](#)
- JAMA Network: [Coronavirus disease 2019 \(COVID-19\) information center](#) for diagnosis and treatment
- FDA's [Emergency Use Authorizations](#)
- [AMBOSS-Informationenübersicht zu COVID-19](#) (in German)
- [Research Data Alliance \(RDA\) COVID-19 Fast track Working Group](#): creation of guidelines for sharing & reuse of research data
- [Open-access.net: "Open Access während der COVID-19 Pandemie" / "Open Access during the COVID-19 pandemic"](#) (collection of resources)

b. **die wichtigsten Verlage und Suchtools, die Corona-bezogene Inhalte z.Z. kostenfrei zur Verfügung stellen/ main publishers currently providing Corona-related content free of charge (following [Creative Commons' call for OpenAccess Policies](#))**

- [Cell Press](#)
- [New England Journal of Medicine/NEJM](#)
- [ASM](#)
- [PNAS](#)
- [PLOS](#) (OpenAccess-Publisher)
- [Frontiers](#) (OpenAccess-Publisher): (mostly [reviews here](#), [recent articles here](#)), Frontiers survey on the impact of COVID-19 among 25.000 scientists: Rijs C and Fenter F (2020) [The Academic Response to COVID-19](#). Front. Public Health 8: 621563. doi: [10.3389/fpubh.2020.621563](#)
- [BMJ](#) (BMJ's [Newsposting](#)), eBook "[Epidemiology for the uninitiated](#)"
- AAAS-Science journals' [research commentary and reviews](#) and [Articles & published News](#)
- CAS: **CAS COVID-19 Antiviral Candidate Dataset** (the [open source dataset](#) of nearly 50K chemical substances includes antiviral drugs and related compounds that are structurally similar to known antivirals for use in applications including research, data mining, machine learning, and analytics), related blogpost [CAS Joining Forces with Researchers and Data Scientists to Accelerate COVID-19 Treatments](#), [CAS Special report "R&D of Therapeutics and Vaccines of COVID-19 and related diseases"](#) (provides a comprehensive overview of published scientific information highlighting antiviral strategies involving small molecules and biologics targeting complex molecular interactions, related blogpost "[Research and Development on Therapeutic Agents and Vaccines for COVID-19 and Related Human Coronavirus Diseases](#)"), [COVID-19 Protein Target Thesaurus](#) (collection of human-curated protein target synonyms from CAS REGISTRY® and the CAS thesaurus provides additional points of discovery to supplement your research), blogpost [Targeting ACE2 – Closing COVID-19's cellular doorway](#), blogpost "[Beating COVID-19: Insights and strategies for new vaccines and therapies](#)"
- [JAMA](#)
- [DUKE University Press](#) (books are free til June 1, 2020, journal articles are free til October 1)
- [EMBO Press](#) (e.g. [Stem Cells-collection](#))
- [Microbiology Society](#) (whole content for all journal's -not only literature dealing with Corona)
- [Lancet](#)
- [Elsevier's Novel Coronavirus Information Center](#) (incl. publications at Cell Press, The Lancet, eBooks and relevant Databases e.g. Reaxys Medical Chemistry, Pathway Studio), [Elsevier's Coronavirus Research Hub](#) (currently includes a biomedical database, scientific and clinical content, COVID-19 specific data sets, a biomedical text mining solution and several research collaboration tools. The Hub currently provides free access to Embase, ClinicalKey, Mendeley, Mendeley Data, the Pure COVID-19 Research Collaboration Center, SSRN, and Elsevier Text Mining (MedScan). Access will initially be available until 28 October 2020), [Elsevier COVID-19 Healthcare Hub](#) (free access to relevant toolkits, experts' knowledge, research resources, COVID-19-Guidelines and FAQs on symptoms), [Novel Coronavirus Resource Directory](#) (Elsevier's various coronavirus initiatives for scientists, health professionals, librarians, students and other target groups), [Resources for campuses and health professionals/ Covid-19 Resources for Text and Data Mining](#)
- [SpringerNature's SARS-CoV-2 and COVID-19](#), SpringerNature's inReview, the free integrated preprint sharing service (see [announcement on InReview](#))
- [SpringerNature-Ebooks](#) (more than 500 key textbooks of [free Emergency Nursing titles](#), [free English textbooks of all disciplines](#), [free German textbooks of all disciplines](#))
- [Nature](#) (Nature-branded journals are not part of SpringerNature-DEAL), sign up for daily [Nature Briefing](#)
- [BioMedCentral](#) (BMC's "[Global outbreak and responses](#)", COVID19-quiz "[Clinical Trials Day 2020 Quiz: COVID-19](#)"

- OpenAIRE: multi-search-engine [Scientific Gateway “Corona Virus Disease COVID-19”](#) (provides access to publications, research data, projects and software that may be relevant to the Corona Virus Disease (COVID-19) & aggregates COVID-19 related records, links them and provides a single access point for discovery and navigation. We tag content from the OpenAIRE Research Graph (10,000+ data sources) and additional sources. All COVID-19 related research results are linked to people, organizations and projects, providing a contextualized navigation.); OpenAIRE’s curated [“Coronavirus Disease Research Community - COVID-19 \(zenodo\)”](#): collects research outputs that may be relevant to the Coronavirus Disease (COVID-19) or the SARS-CoV-2. Scientists are encouraged to upload their outcome in this collection to facilitate sharing and discovery of information. Although Open Access articles and datasets are recommended, also closed and restricted access material are accepted. All types of research outputs are allowed. (see also [OpenAIRE’s announcement](#))
- RSC: [Themed collection Coronavirus articles - free to access collection](#) & [Chemistryworld Corona collection](#)
- Taylor & Francis [COVID-19: Novel Coronavirus Content](#), database [Dictionary of Drugs](#) (free access until Sept. 2020): accurate, up to date, and concise information on currently marketed drugs, drugs undergoing clinical trials, as well as pharmacological tools; this is a one-stop resource for the medicinal chemist. Dictionary of Drugs consists of 15,569 entries and 59,684 compounds
- [Thieme](#) (mostly German learning materials on protective equipment, disinfection etc.)
- [Wiley](#)
- [Oxford Academic](#)
- [ProMED \(International Society for Infectious Diseases\)](#): Global reporting of COVID-19
- [Sciendo \(deGruyter\)](#)
- [WoltersKluwer COVID-19 Resources & Tools \(Coronavirus Resources\)](#)
- [WoltersKluwer/Ovid: GIDEON: Global Infectious Disease and Epidemiology Online Network](#): features up-to-date information and visual tools for diagnosing diseases and following the latest trends in epidemiology and treatment for clinicians, educators, policymakers, drug makers and researchers. (made available for free via Ovid -normally not open access)
- [Emerald](#)
- [Ebsco’s COVID-19 resources](#) and [COVID-19 Information Portal](#) (incl. CDC & WHO Resources, browse Latest Updates, CDC Updates, Government Resources, Non-Government Resources, WHO Updates; created by Ebsco) and [Covid-19 Research Portal](#) (meta-search on PubMed, protocols.io, GoogleScholar, Ebsco’s resources etc.)
- [Cambridge Academic, Cambridge COVID-19 resources and information](#)
- [Annual Reviews, Research Support](#)
- [Karger](#)
- Mary Ann Liebert, [Coronavirus Highlights - Urgent Need for Science-Backed Research](#)
- Rockefeller University Press, [RUP response to COVID-19 crisis](#) (free until 31st May 2020)
- Preprints at [medRxiv & bioRxiv](#), [Outbreak Science Rapid PREREview](#) (aims to centralize reviews from different preprint server), [PreVIEW: COVID-19 \(ZB Med/ nfdi4health Task Force COVID-19\)](#): includes all COVID-19 related preprints from medRxiv, bioRxiv, ChemRxiv, arXiv & Preprints.org, updated daily, extended search and filter functions for abstracts, direct links to the full texts and export functions for retrieved results. To improve retrieval functionality, concepts from standardized disease and symptom vocabularies are marked in the abstracts & additional terminology for the search for transmission and seroprevalence information are included
- FID Pharmazie: [PubPharm](#)
 - provides **up-to-date resources**, e.g. preprints from the archives bioRxiv, ChemRxiv und, arXiv – e.g. for this [search strategy: "novel coronavirus" OR Covid OR "Sars-CoV" OR "CoV-2" OR ncov](#) see more detailed search strategies, e.g. [living search on COVID19 at the end](#) which has also been implemented in [PubPharm](#) now

- enables to **search for a drug substance**, e.g. "[Dexamethasone](#)" that brings an automatically generated list of related substances, diseases/symptoms, and genes
- **search for diseases and symptoms**: it is now also possible to explore the learned relationships for current diseases such as [COVID-19](#), [links learned by the AI between SARS-COV-2](#) and drugs, other diseases/symptoms, and genes are also being shown, see [Kroll et al.: A Semantically Enriched Dataset based on Biomedical NER for the COVID19 Open Research Dataset Challenge – preprint on Arxiv, 18 May 2020](#)
- **structure editor and name search**, e.g. [Zanamivir](#) (either via compound name search, or via structure search or via "import structure" or "similarity search")
- **Cochrane COVID-19 study register**: Daily searches of ClinicalTrials.gov and the WHO's International Clinical Trials Registry Platform (ICTRP) and weekly searches of PubMed (see Webinar "[Updates in Cochrane Technology and Informatics Projects and Initiatives and the COVID-19 Study Register](#)" (27. Aug 2020), recording/ slides of past events [here](#))
- **Covid19reviews.org** (VA Evidence Synthesis Program): If you are looking for completed reviews and reviews in progress, we suggest going to the homepage's whole collection or "[Evidence Reviews in Progress](#)" only.

Completed reviews are located on the homepage's whole collection (extracted from the following sources: [LitCovid](#), [COVID-19 Portfolio Search](#) (NIH iCite), [WHO COVID database](#), [CEBM Oxford COVID-19 Evidence Service](#), [Cochrane](#), [ECRI COVID-19 Center](#), [National Collaborating Centre for Methods and Tools](#), [McMaster University](#), [INHATA member organizations](#)). **Reviews in progress** can be found on "[Evidence Reviews in Progress](#)" (populated by searching [PROSPERO](#) (NIHR), [CEBM Questions Under Review](#), and the [Cochrane COVID Rapid Reviews and question bank](#)). We also add reviews in progress as we hear of them from you – scientists & experts.

Other rapid reviews collections: [Joanna Briggs Institute's COVID-19 Special Collection](#), [Centre for Evidence-Based Medicine's Oxford COVID-19 Evidence Service](#), [National Institute for Health and Care Excellence's Coronavirus \(COVID-19\)](#), [Institut national d'excellence en santé et en services sociaux : COVID-19](#), [CADTH: CADTH and COVID-19](#)

- University of British Columbia's guide: [Coronavirus Disease 2019 \(COVID-19\) for Beginners to Experts](#), PART II FOR RESEARCHERS: "[Evidence-Based](#)" Studies, Reports, Updates
- **COVID-19 Research Articles Downloadable Database** (Stephen B. Thacker CDC Library): Systematic searches of various bibliographic databases and hand searching selected grey literature sources. See website under methodology for full details of search strategies used and sources searched
- **NIHR Innovation Observatory „COVID-19 Updates"**: This resource provides dashboards of the therapeutic interventions and diagnostic tests in clinical development for COVID-19. The information is updated regularly and has been collated via horizon-scanning of multiple sources (ClinicalTrials.gov, WHO ICTRP, EU Clinical Trials Register, ChiCTR, China Trial Registries, GlobalData, Foundation for Innovation New Diagnostics) to support the national response and effort to tackle COVID-19.
- NCBI (also offering Pubmed): [NCBI SARS-CoV2 Ressources](#)
- **COVID-evidence**: Searches of PubMed, LitCovid, WHO Covid-19 database, trial registers, preprints – see website for further details. (It's [PubMed search strategy here](#))
- **COVID-NMA** : [Living mapping and living systematic review of Covid-19 studies](#): Searches of WHO International Clinical Trials Registry Platform (ICTRP), ClinicalTrials.gov, EU Clinical Trials Register, PubMed, MedRxiv, OSF, contact with experts. Search strategies [here](#).
- **Global Coronavirus COVID-19 Clinical Trial Tracker** (Cytel): WHO International Clinical Trials Registry Platform, European Clinical Trials Registry, [clinicaltrials.gov](#), Chinese Clinical Trial Registry, German Clinical Trials registry, Japan Primary Registries Network, Iranian Clinical Trial Registry, and Australian New Zealand Clinical Trials Registry
- See also [eppi-Centre's "Resources relating to COVID-19"](#) for more databases on reviews, trials etc.

- [Inspec-Database search results](#) (Excel) for research on and development of technical equipment (not only medical) to detect and control viral infections and their consequences
- Retractions of and misleading information in some Corona-related papers see [Retractionwatch-Tweets](#) and blogpost [“The promise and peril of speedy coronavirus research”](#) (Retractionwatch, 25. Apr. 2020)

* However, such temporary offers by traditional publishers are not sustainable (except those that are permanently OpenAccess) – as those temporary offers are not permanently accessible.

c. *die wichtigsten sonstigen Quellen/ most important additional resources*

- [National Institute of Health](#)
- [Broad Institute](#)
- [eppi-Centre’s “Resources relating to COVID-19”](#) for guidelines, epidemiologic resources, databases on reviews, trials etc.
- [Medical Library Association\(MLA\): COVID-19 Resources for Medical Librarians & Other Health Information Professionals](#)
- **LEOSS. sero-survey platform: platform for seroprevalence studies on SARS-CoV-2 (HZI/ DZIF):** infrastructure to accelerate research about the seroprevalence of SARS-CoV-2. Researchers, government and industry partners are invited to contribute their knowledge and tools to improve evidence-based decision-making on COVID-19. LEOSS stands for Lean European Open Survey on SARS-CoV-2, see for more details [LEOSS.net](#).
- [ProMED \(International Society for Infectious Diseases\): Global reporting of COVID-19](#)
- [Shokraneh, Farhad, and Tony Russell-Rose \(2020\): “Lessons from COVID-19 to Future Evidence Synthesis Efforts: First Living Search Strategy and out of Date Scientific Publishing and Indexing Industry.” Journal of Clinical Epidemiology 123 \(July\): 171-173.](#)
- [Rijs C and Fenter F \(2020\): “The Academic Response to COVID-19” Front. Public Health 8: 621563. doi: 10.3389/fpubh.2020.621563](#)
- [Hufsky, Franziska et al. \(2020\): “Computational strategies to combat COVID-19: useful tools to accelerate SARS-CoV-2 and coronavirus research, Briefings in Bioinformatics, bbaa232, DOI: 10.1093/bib/bbaa232](#)
- [Freie Datenbanken \(Bibs vs. Virus\) / free databases \(Bibs vs. Virus\): Fachauswahl in DBIS / choose subject > erhalte nutzbare Datenbanken/ get Databases](#)
- [Helmholtz Open Science Office’s Informationsammlung zu COVID-19 und Open Science \(German\)](#)
- [COVID-19 Resource Collection \(PHE Knowledge and Library Services\)](#)
- [Evidence Aid: Coronavirus \(COVID-19\): Information portal](#)
- [COVID-Guide: helps to find out what important strategies & steps are if someone feels sick](#)
- [“Inside the Coronavirus” animation \(Scientific American\)](#)
- [Atemschutzmasken: Vorsicht vor dubiosen Angeboten / Respiratory Protection : Beware of dubious offers \(BGHW\)](#)
- [COVID-19-Infos \(BZGA\)](#)
- **De.NBI (German Network for Bioinformatics Infrastructure): COVID-19 Research within de.NBI:** the German Network for Bioinformatics Infrastructure (de.NBI), which is funded by the BMBF, is obliged to provide both the wide collection of analysis programs and the compute capacities of the network’s own de.NBI cloud. Both, analysis programs and compute capacities can be used free of charge by all researchers in the life sciences. In addition, working groups within the de.NBI network are directly involved in corona research projects. (see also [DUZ-Article „Much more has to happen“/ “Es muss sehr viel mehr passieren”](#))
- **COVID-19 Knowledge Accelerator:** A focus of the [COVID-19 Knowledge Accelerator](#) is for people creating the **systematic reviews** of our research to share and coordinate their efforts. Let’s help each other learn how to do it faster while we are doing it. Another way we accelerate our knowledge about COVID-19 is to use computers in advanced ways like what

may be called artificial intelligence, machine learning, machine intelligence, natural language processing, supercomputers, or high-performance computing. The people doing the systematic reviews can train the machine on what they do, and the machine can be developed to help the people do it faster. Let's help each other learn how to do it faster while we are doing it. Thus you can join any of COVID-19 Knowledge Accelerator's group meetings For a 2-page summary of this idea see [COVID-19 Knowledge Accelerator: Help Us Help Us Overcome COVID-19 Impact at the Speed of Thought](#)

- **COVID-END: COVID-19 Evidence Network to support decision making:** helps 1) those **supporting decision-making** about COVID-19 to find and use the best available evidence (i.e. to support the evidence-demand side of the pandemic response) & 2) **helps researchers to avoid waste by reducing duplication in and better coordinating the COVID-19 evidence syntheses, technology assessments and guidelines being produced** (i.e., to support the evidence-supply side of the pandemic response). **COVID-END** is a time-limited network that brings together more than 50 of the world's leading evidence-synthesis, technology-assessment and guideline-development groups around the world. It covers the full spectrum of the pandemic response, from public-health measures and clinical management to health-system arrangements and economic and social responses. If you are a researcher wanting to prepare an evidence synthesis or develop a guideline about COVID-19, take a look at our resources designed specifically for you:
 1. [priorities for new syntheses and guidelines](#) so you can fill an important gap in what's known and don't contribute to unnecessary duplication (coming soon)
 2. [resources for those considering and conducting COVID-19 evidence syntheses](#) so what you prepare has a good chance of making it into our inventory of best evidence syntheses and being used to support decision-making
 3. [resources for those considering and developing COVID-19 guidelines](#) so what you develop addresses a need and is of high quality (coming soon).
 - **European Virus Bioinformatics Center – EVBC:** helps to advance research on coronaviruses and curates a [list of bioinformatics tools designed explicitly for SARS-CoV-2 and coronaviruses](#), see also: Hufsky, Franziska et al. (2020): ***Computational strategies to combat COVID-19: useful tools to accelerate SARS-CoV-2 and coronavirus research***, *Briefings in Bioinformatics*, bbaa232, DOI: [10.1093/bib/bbaa232](#), Table [1: Detection and annotation \(Overview of all workflows and tools covered in this review\)](#)
 - Guidelines International Network: [Library & Resources/COVID-19](#)
 - **COAR Recommendations for COVID-19 resources in repositories** (COAR)
 - [Association for Computing Machinery \(ACM\)](#) has released [detailed principles and practices for the development and deployment of “contact tracing” technology](#) & suggest “to use only those which respect and protect the rights of all individuals; safeguard personal data and privacy; and are subject to scrutiny by the scientific community and civil society before, during and after deployment.” - for examples of technological services, see d)
- d. **Program tools, technological services, methods and standard development, datasets of genome sequences, antiviral target candidates etc.**
- [Coronavirus Tech Handbook](#) is a crowdsourced resource for technologists building things related to the coronavirus outbreak
 - **Crisis Informatics: Human-Centered Research on Tech & Crises - A Guided Bibliography** Developed by [Crisis Informatics Researchers](#) (CU-Boulder): created to support researchers who might be newly conducting crisis informatics research in the light of the pandemic of 2020. It also might support creation of new course syllabi on related topics. (updated regularly)
 - HealthMap: [Novel Coronavirus \(COVID-19\)](#)
 - [Patients-App](#), BS software development: for informing patients fast
 - [CovApp](#), developed by Charité (Berlin) in cooperation with Data4Life

- **FZ Jülich/ Univ. Osnabrück: [Bayessches räumlich-zeitliches Interaktionsmodell für Covid-19](#)** (new probability-weighted model for predicting COVID-19 infections on a daily basis. The results include daily updated estimates of the reported new infections (based on RKI data) and a 5-day forecast for each German county)
- **FZ Jülich: [Rt-live.de](#)**: provides up-to-date values for Rt (key measure of how fast the virus is growing) for German states. It's the average number of people who become infected by an infectious person. If Rt is above 1.0, the virus will spread quickly.
- [Folding@home](#) & also IBM's World Community Grid "[OpenPandemics - COVID-19](#)" launched collaborative projects to assist medical researchers via giving unused computer space to research. The initial wave of projects are meant to simulate potentially protein targets from SARS-CoV-2 virus, and the related SARS-CoV virus, which has been studied previously. (see Broekhuijsen, Niels: "[Help Cure Coronavirus with Your PC's Leftover Processing Power](#)"; Bowman, Greg: "[Folding@home takes up the fight against COVID-19 / 2019-nCoV](#)"; "[Folding@home Turns Its Massive Crowdsourced Computer Network Against COVID-19](#)")
- Other COVID-19 Citizen Science/ crowdsourcing projects see Citizen Science Association's list "[Citizen science resources related to the COVID19 pandemic](#)" & Univ. of California's collection "[COVID-19 Open Innovation Efforts](#)" (e.g. "[Eterna OpenVaccine](#)" project enables video game players to "design an mRNA encoding a potential vaccine against the novel coronavirus.")
- **[Corona-Warn-App \(RKI\)](#)**, alternatively "[COVID-Watch](#)"-App (both do not share personal information or store GPS locations; Bluetooth signals send out random numbers that are later used to send exposure alerts, anonymously.)
- [Code vs Covid-Hackaton submissions](#)
- [Pandemic Response Hackathon - Hack COVID-19](#) (HHS, Datavant)
- [Call to Action for Machine-Readable COVID-19 Dataset](#) (OSTP)
- [COVID-19 Open Research Dataset Challenge \(CORD-19\)](#) (OSTP, NIH-NLM)
 - [COVID-19 Open Research Dataset \(CORD-19\)](#) (Semantic Scholar)
 - [COVID-19 Global Forecasting Challenge](#)
 - [COVID-19 Local US California Forecasting Challenge](#)
- [FDA Efforts to Connect Manufacturers and Health Care Entities](#) (FDA)
- [MIT COVID19 Challenge](#) (VA)
- [Anti-Coronavirus Hackathon - Ideation Challenge for Social Good](#) (Topcoder)
- [COVID-19 Challenges](#) (Innocentive)
- [New York Academy of Sciences - Challenge: Combatting COVID-19](#)
- [COVID-19 Maker Challenge](#)
- **[Collabovid](#)** (created via TU-BS students during "Code vs Covid-Hackaton"): Collabovid helps researchers to identify the most relevant information by using Natural Language Processing. You can search for any topic you want below. Visit [search](#) to review all articles or browse a list of predefined [topics](#). For additional help visit the [frequently asked questions](#).
- **[Coronavirus Open Research Dataset \(44.200 entries\)](#)**: this dataset [can be analysed via Kaggle](#) (belongs to Google)
- **[CAS COVID-19 Bioindicator Explorer \(CAS\)](#)**: identifies correlations between drug-like substances with potential antiviral activity and COVID-19 protein targets; connections are made using data analyzed by CAS scientists. Launch app & start from a specific protein target, navigate through a collection of CAS-curated documents and the included substances with antiviral potential. Relationships between the substances, antiviral activity, and protein targets are classified as high, medium or low, indicating the strength of the associations.
- **[European Virus Bioinformatics Center – EVBC](#)**: helps to advance research on coronaviruses and curates a [list of bioinformatics tools designed explicitly for SARS-CoV-2 and coronaviruses](#), see also: Hufsky, Franziska et al. (2020): [Computational](#)

strategies to combat COVID-19: useful tools to accelerate SARS-CoV-2 and coronavirus research, *Briefings in Bioinformatics*, bbaa232, DOI: [10.1093/bib/bbaa232](https://doi.org/10.1093/bib/bbaa232), **Table 1: Detection and annotation (Overview of all workflows and tools covered in this review)**

- **CORD-19 Explorer (Allen Institute for AI)**: a full-text search engine for the COVID-19 Open Research Dataset, based on this [also other institutions \(e.g. Microsoft Academic, WHO, NIH etc.\) have created such tools see overview](#)
- **Outbreak Tracker (LSHTM)**: mapping tool that lets you scroll through a timeline for nCoV, SARS, H1N1 and Ebola
- **CDC: COVID data tracker** (e.g. [vaccination demographics by “Age group”](#), [COVID-19 hospitalizations by vaccination status](#), [COVID Data Tracker’s Hospitalizations by Vaccination Status](#) [COVID-NET tab now includes data on adolescents between the ages of 12 through 17 years] etc.)
- **Genomic epidemiology of COVID-19** (Nextstrain) <https://nextstrain.org/ncov> based on data from GISAID, nextstrain’s [software also on GitHub](#)
- **COVID-19 Antiviral Candidate Dataset (CAS)**: the [open source dataset](#) of nearly 50K chemical substances includes antiviral drugs and related compounds that are structurally similar to known antivirals for use in applications including research, data mining, machine learning, and analytics)
- **COVID-19 Protein Target Thesaurus** (collection of human-curated [protein target synonyms](#) from CAS REGISTRY[®] and the CAS thesaurus provides additional points of discovery to supplement your research),
- [Covid-19 tool collection](#) (EENA/ European Emergency Number Association): lists different tools, initiatives, resources etc. that companies & organisations worldwide are developing to support emergency services in the fight against COVID-19 (regularly updated).
- **COVID-19 Dashboards** (see [GitHub](#) to contribute) (Hamel Husain - Github)
- **Coronavirus Disease Research Community - COVID-19** ([zenodo](#)): collects research outputs that may be relevant to the Coronavirus Disease (COVID-19) or the SARS-CoV-2. Scientists are encouraged to upload their outcome in this collection to facilitate sharing and discovery of information. Although Open Access articles and datasets are recommended, also closed and restricted access material are accepted. All types of research outputs are allowed.
- **COVID-19 Open Research Data** ([figshare](#)): COVID-19 research data on Figshare
- **COVID19 Disease Map**: knowledge repository of molecular mechanisms of COVID-19 as a broad community-driven effort (see <https://disease-maps.org/>) with resources and best practices to develop a COVID-19 Disease Map of these mechanisms. The COVID-19 Disease Map is an assembly of molecular interaction diagrams, established based on literature evidence, see [list of data & literature resources](#). The focus is on host-pathogen interactions specific to the SARS-CoV-2 virus.
- **COVID19 in Open Research Knowledge Graph/ ORKG** (TIB/ Twincore): [ORKG](#) focuses on representing scientific contributions from papers semantically. This makes comparing differences and similarities of different approaches easier, by juxtaposing them in tabular views or domain-specific visualizations. More details at [TIB-projects](#)
 - TIB/Twincore are creating in ORKG an overview of scientific works regarding R_0 reproductive number of SARS-CoV-2 (see [blogpost “Organizing COVID-19 research with the Open Research Knowledge Graph”](#)), e.g. in this [example of representing and comparing the \$R_0\$ reproductive number of SARS-CoV-2 or Covid-19 Case Fatality Rate Estimates](#). As new literature on R_0 research is published, it is straightforward to extend such an overview, which therefore continues to reflect in a comparable manner the current state of knowledge. The real power of such ORKG overviews is clear when they are taken as data sources (see [ORKG paper comparison demo](#)). Indeed, thanks to machine

- actionability of both the data and the data exchange protocol (REST API), it is possible to link the ORKG and overviews, specifically, with downstream data science. TIB demonstrates this by connecting [Jupyter](#) with ORKG to show how we can leverage the flexibility of data science environments and programming languages such as [Python](#) and [R](#) to visualize or otherwise process the COVID-19 comparison data, e.g. [this possible result](#). Via this tool you can [check it out](#)
- TIB/TwinCore are enriching ORKG with COVID-19 research data (see [Blogpost “How Do Knowledge Graphs Contribute to Understanding COVID-19 Related Treatments?”](#))
 - [“Knowledge4COVID-19”-Demo & at project’s details at Hackaton “EuvsVirus”](#)
 - [COVID19 Exploration API/ Code \(GitHub\)](#)
- **COVIDGraph:** The [COVID*GRAPH](#) project builds a knowledge graph on COVID-19 from various public sources. It combines publications, case statistics, genes, molecular data, and many more entities in a Neo4j database. Currently, more data sources are integrated, e.g. clinical trials, and connecting entities from potentially related diseases like diabetes, cancer or lung diseases. Other action points are running pattern finding algorithms to find new patterns or relationships, and working more on the GUI and user experience side. Use [COVID Graph Explorer](#) to interactively explore the database. Start by searching for entities in the database. Select an entity type and enter a query in the toolbar. If there are multiple matches for your query, you can preview and filter the results in a table. From there you can load them into the diagram. The visualizations have been created with [yFiles for HTML](#). The actions in the context menu and in the details view help exploring the database by loading connected entities and clearly arranging the graph
 - **ISARIC: COVID-19 Clinical Research Resources:** the International Severe Acute Respiratory and Emerging Infection Consortium (ISARIC) has developed a [portfolio of resources](#) to accelerate outbreak research and response.
 - [Clinical Characterisation Protocol \(CCP\)](#)
A standardised protocol designed for any severe or potentially severe acute infection of public health interest. The CCP enables the collection of data and biological samples in a globally harmonised manner. This protocol can be used for the rapid, coordinated clinical investigation of confirmed cases of COVID-19.
 - ISARIC Data Platform
‘For rapid, secure recording of high-quality data’
This is an electronic data capture system and repository that standardises and secures global data on COVID-19. All systems are free to use and supported by data management specialists at the University of Oxford. You can find more information [here](#). Please contact the ISARIC Global Support Centre at ncov@isaric.org to obtain access.
 - COVID-19 Case Record Forms (CRF)
For the collection of standardised clinical data to inform the public health response. Should be used to collect data on suspected or confirmed cases of COVID-19. A brief of the nCoV (COVID-19) CRF is available [here](#).
[Individual CRFs English](#) | [中文](#) | [Español](#) | [Française](#) | [Japanese](#) | [Portuguese](#)
 - **European Virus Bioinformatics Center – EVBC:** helps to advance research on coronaviruses and curates a [list of bioinformatics tools designed explicitly for SARS-CoV-2 and coronaviruses](#)
 - **Veridata EDC (Elsevier):** On 26/03/2020, [Elsevier](#) launched Veridata EDC, a secure, compliant and user-friendly platform to capture patient data for clinical research. To assist researchers working to develop vaccines and other therapies for COVID-19, Elsevier has [pledged to make Veridata EDC available for free](#). Interested clinical researchers can contact Elsevier via e-mail at covid19@elsevier.com and apply for a

demo account. Following the necessary compliance training, you will receive a free 12-month license.

- Stats and R: [Top 7 R resources on COVID-19 Coronavirus](#)
- R-bloggers: [Flatten the COVID-19 curve](#)
- R-bloggers: [COVID-19: The Case of Germany](#)
- [Genome browser](#) (jbrowse based) lets you explore the sequence of the SARS-CoV-2 wuhCor1 strain ([NC_045512v2](#))
- [VirusTracker](#), a web platform to visualize a global spread reconstruction of COVID-19 using air travel and viral genomics data (HZI).
- [WASP](#), a versatile web accessible single cell RNA-seq processing platform (JLU Giessen).
- SARS-CoV-2 genome sequences at [NCBI Genbank](#)
 - View [clinical studies](#) listed on [ClinicalTrials.gov](#),
 - [View compounds](#) used in SARS-CoV-2 clinical trials at [PubChem](#),
 - **Nucleotide Sequences:** view and download these 5507 GenBank sequences and 1 RefSeq sequence ([NC_045512](#)) in the new [NCBI Virus](#) resource, [BLAST against Betacoronavirus sequences](#),
 - **SRA Sequences:** View and download next-generation sequencing runs from [Sequence Read Archive SRA](#), available through multiple cloud providers and NCBI servers & View results as an expanded interactive table using the [RunSelector: Send results to Run selector](#),
 - **Protein Structures:** View the SARS-CoV-2 [protein structures](#) and their [associated sequences](#).
 - **Genome Expression Studies:** View [Genome Expression Studies](#) related to SARS-CoV-2.
 - **Reference Genome:** Download the [GFF](#),
 - **Other Resources** The Centers for Disease Control and Prevention (CDC) website has [outbreak information](#) updated daily, including a [Situation Summary](#), [Information for Laboratories \(CDC\)](#), [2019 nCoV Resource by China National Center for Bioinformatics](#), see [NCBI SARS-CoV-2 Table of Contents & NCBI-Announcement](#)
- SARS-CoV-2 genome sequences at [Beijing Institute of Genomics \(starts download via FTP\)](#)
- CAS [COVID-19 Antiviral Candidate Compounds Dataset](#) (initial data set made available to the public comprised of nearly [50,000 known antiviral drugs and related chemical compounds](#) assembled from [CAS REGISTRY](#)[®], as well as [related metadata](#) including CAS Registry Number[®], physical properties and connection tables for each substance. It was the first chemical substance collection contributed to the Allen Institute for AI's [COVID-19 Open Research Dataset "CORD-19"](#))
- Taylor& Francis [Dictionary of Drugs](#) (free access until Sept. 2020): accurate, up to date, and concise information on currently marketed drugs, drugs undergoing clinical trials, as well as pharmacological tools; this is a one-stop resource for the medicinal chemist. Dictionary of Drugs consists of 15,569 entries and 59,684 compounds
- FID Pharmazie:
 - [PubPharm](#) provides **up-to-date resources**, e.g. preprints from the archives [bioRxiv](#), [ChemRxiv](#) und, [arXiv](#) – e.g. for this [search strategy: "novel coronavirus" OR Covid OR "Sars-CoV" OR "CoV-2" OR nCoV](#) see more detailed search strategies at the end, e.g. [living search on COVID19 at the end which has also been implemented in PubPharm now](#)

- enables to **search for a drug substance**, e.g. "[Dexamethasone](#)" that brings an automatically generated list of related substances, diseases/symptoms, and genes
 - **search for diseases and symptoms**: it is now also possible to explore the learned relationships for current diseases such as [COVID-19](#), [links learned by the AI between SARS-COV-2 and drugs](#), other diseases/symptoms, and genes are also being shown, see [Kroll et al.: A Semantically Enriched Dataset based on Biomedical NER for the COVID19 Open Research Dataset Challenge – preprint on Arxiv, 18 May 2020](#)
 - **structure editor and name search**, e.g. [Zanamivir](#) (either via compound name search, or via structure search or via “import structure” or “similarity search”)
-
- LSHTM [COVID-19 vaccine development tracker](#): This tracker (regularly updated), developed by the Vaccine Centre at the London School of Hygiene & Tropical Medicine, will follow COVID-19 vaccine candidates as they progress through the development pipeline. An overview of the different vaccine types as well as the phases of clinical development is provided in the Summary tab.
 - ZB Med’s Multiple sequence alignments and phylogenetic trees: ZB Med is constantly generating full genome sequence alignments ([here](#)) of all available genomes sequences and create phylogenetic trees ([here](#)) based on them.
 - **PreVIEW: COVID-19 (ZB Med/ nfdi4health Task Force COVID-19)**: includes all COVID-19 related preprints from medRxiv, bioRxiv, ChemRxiv, arXiv & Preprints.org, updated daily, extended search and filter functions for abstracts, direct links to the full texts and export functions for retrieved results. To improve retrieval functionality, concepts from standardized disease and symptom vocabularies are marked in the abstracts. Additional terminology for the search for transmission and seroprevalence information has been added
 - See also [NFDI4Microbiota consortium](#) (helps scientists with information services and analyzing tools that do research on SARS-CoV-2 and other viruses):, e.g.:
 - Detection of amino acid changes providing selective benefit to rapidly evolving viruses. [This method](#), applied to SARS-CoV-2, suggests changes linked to adaptation to the human host since the introduction of this virus into a human population (HZI)
 - Reconstruction of [geographic spread paths and putative outbreak source](#) of RNA viruses (HZI)
 - Benchmarking overview and workflow ([QuasiModo](#)) of tools for analyzing whole genome sequencing data from clinical samples with mixed strain infections of large viruses (HZI)
 - Virome analysis within the [MGX software platform](#) (JLU Giessen)

e. eBooks, Online courses/ meetings

- [National Emergency Library](#) (shut down due to publishers actions against it): addressed the global and immediate need for access to reading and research materials, as the Internet Archive suspended waitlists for 1.4+ million books by creating a [National Emergency Library](#), see [Internet Archive’s post](#)), the [National Emergency Library \(snapshot via Wayback machine here\)](#) has been shut down due to publishers’ actions against it, see [“Free books online? Who could be against that?” \(Washington Post\)](#), [“Internet Archive in der Kritik” \(Library Essentials\)](#), [“Internet Archive öffnet umstrittene Open Library: Autorenverband “schockiert” \(heise.de\)](#)
- [JOVE’s Coronavirus Free Access Resource Center](#) (e.g. Corona Specific Protocols, General Virus Protocols, Lab Preparation, Current Status and Research, Current Diagnosis Methods, Treatment and prevention)

- **OpenAccess Book “Crisis Management”** (created by TIB in a Booksprint) & a **MOOC course** built on top of the book’s content. (see [blogpost](#)), for TIB’s efforts at [ORKG](#) see setion d)
- **Advisory Committee on Immunization Practices (ACIP): [Meeting information & meeting materials](#)**
- Webinar “Facilitating COVID-19 research using Graph Analytics and Knowledge Graphs” (Apr 9, 2020, [details here](#) & [recording as mp3-Download here](#))
- Twincore-Symposium „SARS-CoV-2: News from Lower Saxony“ (Sept 3, 2020, [program & register here](#))
- **HZI: virtual information event on Covid19 vaccination (webinar, Dec. 2,2021)**
 - RKI: [Infos für die Fachöffentlichkeit](#) (Fallzahlen, Epidemiologie, Diagnostik), [FAQ Covid19 und Impfen](#)
 - PEI/ Paul-Ehrlich-Institut: [Coronavirus / Covid19 resp. English website](#) (u.a. [Covid19-Impfstoffe](#), [FAQ Coronavirus](#) etc.)
 - Dopico et al.: [Immunity to SARS-CoV-2 induced by infection or vaccination](#)
 - Juno et al.: [Boosting immunity to COVID-19 vaccines](#)
 - Wallace: [COVID-19 mRNA vaccines in adolescents and young adults: benefit-risk discussion pdf \[44 pages\]](#) – In: ACIP meeting, Covid da June 2021 (all [meetings materials here](#))
 - Su: [Myocarditis- VAERS \(V-safe and VAERS\) video, slides](#) – In: ACIP meeting, 20-21. Oct 2021 (all [meetings materials here](#))
 - CDC: [COVID data tracker](#) (e.g. [vaccination demographics by “Age group”](#), [COVID-19 hospitalizations by vaccination status](#) etc.)
 - COVID-Net: a weekly summary of US COVID-19 Hospitalization Data : [Laboratory-Confirmed COVID-19-Associated Hospitalizations](#) (COVID-NET tab now includes data on adolescents between the ages of 12 through 17 years)
 - Swanda: [Covid-19 Boosters: The Shield to our Armor](#), based on CDC’s [COVID-19 vaccine booster shots](#)
 - Rössler et al.: [Post COVID-19 in children, adolescents, and adults: results of a matched cohort study including more than 150,000 individuals with COVID-19](#)
 - Gelitz, C.: [Welche Corona-Schnelltests sind zuverlässig?](#) (Spektrum der Wissenschaft)
- Friday-Lunch-Seminar “Screening for new antiinfectives, e.g. against COVID-19” (see mail & [Intranet](#) (Sept 4, 2020)
- RDA-Alliance: [Data-sharing in Epidemiology: COVID-19 Research and Beyond](#) (webinar, Oct. 29, 2020)
- Wiley: [Putting SARS-CoV-2 where it belongs: Identification of potential therapeutic targets with single cell analysis](#) (webinar, Nov. 11, 2020)
- CADTH: [OpenScience: COVID19 and beyond](#) (webinar, Oct. 27, 2020)
- CADTH: [How COVID-19 Is Changing the Evidence Landscape](#) (webinar, Oct. 20, 2020)
- [WHO Online Courses](#) (e.g. [Biosafety video series GMMP](#))
- **SARS-CoV-2 PCR training (RKI)**: Robert Koch Institute is offering some SARS-COV-2 PCR training materials/webinars (English, Spanish, French) - originally produced for remote training in April 2020. These movies show the nucleic acid extraction process from swab samples followed by the PCR diagnostic for SARS-CoV-2, using commercially available kits. Additional training materials are available at [GitLab](#)
- **De.NBI** (German Network for Bioinformatics Infrastructure): **Training** (provides online training materials for a broad range of topics in bioinformatics; Training focus on supporting and training end and is intended to enable bioinformaticians and life scientists to exploit their own and publicly available data more effectively by applying tools, standards and compute services provided by de.NBI.)
- Webinar [CERN against COVID-19”](#) (Overview of the work of the CERN against COVID-19 task force, Medical devices, IT initiatives, Support to Society, 20 May 2020)
- Webinar series [COVID-19 & Humanitarian Settings](#) (Centre for Humanitarian Health at Johns Hopkins University/ Center of Education and Research in Humanitarian Action (CERAH)/

[London School of Hygiene and Tropical Medicine \(LSHTM\)/ READY Initiative](#)): weekly webinar series on COVID-19 and humanitarian settings. The webinars will take place on Wednesdays from 8–9am EST (2-3pm CET).

- BMJ's eBook "[Epidemiology for the uninitiated](#)"
- University of British Columbia's guide: [Coronavirus Disease 2019 \(COVID-19\) for Beginners to Experts, PART II FOR RESEARCHERS: "Evidence-Based" Studies, Reports, Updates](#)
- European Centre for Disease Prevention and Control: [COVID-19 Micro learning](#)
- Global Health Training Centre: [Short Courses in Clinical Research, Good Clinical Laboratory Practice](#) (Modular Course)
- CDC: [Information for Laboratories](#): The CDC has developed interim guidance and resources for laboratory professionals working with specimens from persons under investigation (PUI) for COVID-19. This page also includes a section containing CDC-developed Real-Time RT-PCR Resources.
- [EDCTP Knowledge Hub](#) (European & Developing Countries Clinical Trials Partnership/ Global Health Network): This hub aims to facilitate and provide guidance on several topics related to clinical trials, with resources including a [Protocol Development Toolkit](#), a [Data Management Portal](#) and a [Data Sharing Toolkit](#).
- Imperial College London: [Science Matters: Let's talk about COVID19](#) (19 hours)
- [Thieme](#) (mostly German learning materials on protective equipment, disinfection etc.)
- [American College of Cardiology](#) (ACC Clinical Guidance and Practice, Clinical Perspectives and Front-Line Experience, Regulatory and Reimbursement Updates, COVID-19 Cardiovascular Disease Management Webinars, and additional resources)
- [ZB MED COVID-19 Hub](#): collection of events e.g.
 - [We vs Virus / Wir vs Virus](#): Focus on data and tools development, 20th-22nd March, 2020
 - [Code vs COVID](#): Focus on data and tools development, 72 hours from 27th March, 2020, [Newsposting in German](#) and [Code vs COVID results/ submissions](#)
 - [Virtual COVID-19 BioHackathon](#): Focus on data and tools development, 5th-11th April
 - [RDA Covid Group](#): Focus on publications guidelines
 - [LEOSS: Lean European Open Survey on SARS-CoV-2 Infected Patients](#): Focus on patient register, available in German and English, on-going, open dates (Learn more: [ZB MED COVID-19 Hub](#), [Overview of the events & other resources](#))
- Podcast "Ologies with Alie Ward": [Virology \(COVID-19\) with Dr. Shannon Bennett & various virologists](#)
- [LSHTM Viral \(podcast\)](#): A global health podcast focusing on the science behind outbreaks and how we respond to them
- EBSCO DynaMed: COVID-19 and Public Health Support 14. Apr. 2020 [12:00 Uhr](#) | [19:00 Uhr](#)
- TED talks
 - ["The quest for the coronavirus vaccine"](#),
 - [The troubling reason why vaccines are made too late ... if they're made at all](#),
 - [How we must respond to the coronavirus pandemic](#)
 - [Why COVID-19 is hitting us now — and how to prepare for the next outbreak](#)
 - [What we do \(and don't\) know about the coronavirus](#)
- Webinar "[Updates in Cochrane Technology and Informatics Projects and Initiatives and the COVID-19 Study Register](#)" (27. Aug 2020), recording/ slides of past events [here](#)
- Webinar "[Cochrane COVID-19: Update and resources](#)" (5. Jun 2020)
- Webinar "[Cochrane Handbook for Systematic Reviews of Interventions, 2nd edition](#)" (20. Jan. 2020)
- Webinar "[Researching and Writing a Systematic Review](#)" (19. Sept 2019)
- Webinar "[Searching for Systematic Reviews evidence](#)" (28. Aug 2018)
- Nordhausen, T. & Hirt, J. (2020). [RefHunter. Manual zur \[systematischen\] Literaturrecherche in Fachdatenbanken](#). Version 5.0 (Martin-Luther-Universität Halle-Wittenberg & FHS St.Gallen, Hrsg.), Halle (Saale) & St.Gallen. <https://refhunter.eu/manual/>
- RefHunter-Publikationsreihe "[One size does not fit all: systemat. Literaturrecherche](#), Bd.1-10

- Nordhausen, T. & Hirt, J. (2020). *Navigieren im Dschungel – Empfehlungen zur Auswahl der Fachdatenbanken für eine systematische Literaturrecherche*. GMS Medizin – Bibliothek – Information, 20 (1-2), Doc08.
- Brainard: *Researchers face hurdles to evaluate, synthesize COVID-19 evidence at top speed*. – In Science Oct. 8, 2020
- Online course “Check, please! Starter course” (how to fact and source-check in 5 lessons) to prevent to fall for misleading information e.g. in published [Corona-articles](#) (see [Retractionwatch](#))
- [Oxford’s free Online Courses](#) on a) Online Teaching & b) Blended Learning
- ZB MED: [Online Software Carpentry Workshop for Researchers in Life Sciences \(Aug 31 + Sep 1, 2020\)](#)
- [How Pubmed works -webinar series](#) (National Network of Libraries of Medicine Training Office):
 - [How PubMed Works: Introduction](#) (90 min., July 14, 2020)
 - [How PubMed Works: Medical Subject Headings](#) (90 min., July 21, 2020)
 - [How PubMed Works: Automatic Term Mapping](#) (90 min., July 23, 2020)
- MacMillan International’s [COVID-19 supporting your teaching](#)
- WoltersKluwer [“How To Talk About COVID-19 With Your Patients”](#)
- American Heart Association [“COVID-19 and Cardiovascular Disease: Updates from the Front Lines in Paris, France”](#) (see AHA’s channel for more updates)
- Wiley’s [COVID-19: Online Teaching Resources](#) (several topics on Online Teaching etc.), [Wiley’s Online Training Hub](#)
- SpringerNature **“How to peer review”-tutorial & podcasts and webinars:**
 - [“Reviews journals : A vital library resource for students, faculty and researchers”](#) (its slides here)),
 - [“Research and publishing for societal challenges and the Sustainable Development Goals”](#) (30th June 9am GMT (London)/10am CEST (Paris), 30th June 5pm GMT (London)/6pm CEST (Paris))
 - [“The Future of Publishing: Using AI Techniques to Manage Information Overload”](#) (technical aspects including Springer Nature’s COVID-19 app, 8th July, 9am GMT (London)/10am CEST (Paris), 8th July 3pm GMT (London)/4pm CEST (Paris))
 - [“SN Experiments: How to find the protocols and methods you need for your research”](#) (25th June 19:00 CET, 26th June 14.00 CET, 18th September 19:00 CET, 21st September 12.00 CET, 24th September 07.00 CET, 25th September 14.00 CET)
 - **“Better Research Through Better Data Live with The National Institutes of Health”(NIH):** In this virtual session for researchers, you will discover the benefits of sharing research data, and how NIH can help you. 9th Jul , 4:30 PM- 5:30 PM CEST
- Elsevier [webinars](#):
 - e.g. [“Infectious Disease Outbreak Research: Insights and Trends”](#) (March 30, 2020)
 - e.g. [“How to Publish with Premium Journals”](#) (Cell Press)
 - e.g. [“Learn how Lancet editors decide which papers to accept for publication”](#)-Slides p. 32ff
 - e.g. [“What is proper scientific conduct and why you can't afford to ignore publication ethics?”](#) (30. Jun 11:30 (60 Min.)
- [Scopus-webinars](#)
 - e.g. [Scopus-Bootcamp Webinar „Improving your \(infectious disease\) research approach – Getting more out of your searches with Scopus, Topic Pages & eBooks”](#) (May 4, 2020)
 - e.g. [Scopus-Bootcamp Webinar “Unterstützung für AutorInnen in Krisenzeiten und darüber hinaus/ Supporting authors during times of pandemic \(and beyond\): Researcher Academy & Author Resilience Center”](#) -choose Webinar-language [here](#) (May 12, 2020)
 - e.g. [“Chemistry Data for Systems Thinking”](#) (May 26, 2020)
 - e.g. [Scopus-Bootcamp “Researcher Academy Virtual Campus: Grundlagen des wissenschaftlichen Publizierens und Manuskript-Schreibens/ Essentials of manuscript writing”](#) -choose Webinar-language [here](#) (May 28, 2020)

- e.g. Scopus-Webinar [“Scopus APIs: Getting started with Scopus search”](#) (Jun 23, 2020)
- e.g. Scopus-Webinar [“The many helpful applications of journal impact metrics”](#) (Jun 24, 2020)
- e.g. Scopus-Webinar [“CiteScore 2019 and the responsible use of metrics”](#) (June 29, 2020)
- e.g. **Scopus-Bootcamp Webinar** [“Researcher Academy Virtual Campus: Editor*innen beantworten Eure Fragen”](#) (July 21, 2020)
- e.g. **Scopus-Anwendertreffen “Benchmarking/ Metriken”** (August 5, 2020): Welche Metriken gibt es für Publikationen und Zeitschriften? Wie sehen Metriken für AutorInnen aus? wo sind die entsprechenden Metriken innerhalb der Scopus-Oberfläche zu finden, konkrete Anwendungsbeispiele z.B. Zeitschriftenvergleich mithilfe der Zeitschriftenmetriken, Auswertung des Publikationsoutputs Eurer/ Ihrer Einrichtung
- e.g. **Scopus-Anwendertreffen “Hands on-Training session”** (August 6, 2020): topics are
 - Advanced Search, u.a. Erstellung von komplexeren Queries
 - Recherche mit Suchstrings für lizenzierte Zeitschriftenpakete von Verlagen
 - Verfügbarmachung der "Holdings" der jeweiligen Einrichtung in Scopus (Link Resolver)
 - Fachspezifische Suchanfragen und Keywords: Mesh-Integration, Suche nach chemischen Strukturen und Stoffnamen etc.
 - Zitationsanalysen (Related Records)
 - Suche nach Verlag/ Affiliation/ Corresponding Author
- e.g. Scopus-Bootcamp Webinar [„Wie suche ich nach COVID-19 Informationen und welche zusätzlichen Quellen stehen mir zur Verfügung?“](#) (April 2, 2020)
- e.g. Scopus-Bootcamp Webinar [„Optimieren Sie Ihre Informationssuche \(auf dem Bereich „Infectious Diseases“ o.a.\) mit Scopus, Topic Pages & eBooks“](#) (May 4, 2020)

Suggested search string (should contain (nearly) each possible synonym):

("COVID-19" OR Coronavirus OR "Corona virus" OR "2019-nCoV" OR "SARS-CoV" OR "MERS-CoV" OR "Severe Acute Respiratory Syndrome" OR "Middle East Respiratory Syndrome" OR coronavirus OR coronavirinae OR coronaviridae OR betacoronavirus OR covid19 OR "covid 19" OR nCoV OR "CoV 2" OR CoV2 OR sarscov2 OR 2019nCoV OR "novel CoV" OR "wuhan virus") OR ((wuhan OR hubei OR huanan) AND ("severe acute respiratory" OR pneumonia) AND (outbreak)) OR "Coronavirus"[Mesh] OR "Coronavirus Infections"[Mesh] OR "COVID-19" [Supplementary Concept] OR "severe acute respiratory syndrome coronavirus 2" [Supplementary Concept] OR "Betacoronavirus"[Mesh] e.g. in search database [Dimensions](#) (which is sometimes even more comprehensive than Scopus) or

Search strategy according to the [first living COVID19 search strategy via 2dsearch](#) (as of 24.11.20):

(Betacoronavirus[MH:NoExp] OR "Coronavirus Infections"[MH:NoExp] OR "Coronaviridae Infections"[MH:NoExp] OR "Severe Acute Respiratory Syndrome Coronavirus 2"[NM] OR "COVID-19 Serotherapy"[NM] OR "COVID-19 Diagnostic Testing"[NM] OR Coronavirus[MH:NoExp] OR "COVID-19 Vaccine"[NM] OR "COVID-19 Drug Treatment"[NM] OR "Papain-Like Protease, Coronavirus"[NM] OR "Nidoviral Uridylate-Specific Endoribonuclease"[NM] OR "Nucleocapsid Protein, Coronavirus"[NM] OR COVID-19[NM] OR Coronavirus[ALL] OR Coronavirus*[ALL] OR CoV2[ALL] OR nCoV[ALL] OR "SARS CoV 2"[ALL] OR SARS2[ALL] OR Corona Virus*[ALL] OR Corona Infect*[ALL] OR SARS-CoV[ALL] OR 2019nCoV[ALL] OR SARS-CoV-2[ALL] OR CoV[ALL] OR COVID19[ALL] OR COVID[ALL] OR COVID-19[ALL] OR Betacoronavirus*[ALL] OR SARSCoV*[ALL] OR HCoV-19[ALL] OR Severe Acute Respiratory Syndrome CoV*[ALL] OR "ORF1ab Polyprotein, SARS-CoV-2"[NM] OR "ORF8 Protein, SARS-CoV-2"[NM] OR "ORF7a Protein, SARS-CoV-2"[NM] OR "ORF7b Protein, SARS-CoV-2"[NM] OR "ORF6 Protein, SARS-CoV-2"[NM] OR "ORF3a Protein, SARS-CoV-2"[NM] OR "RNA-Dependent RNA Polymerase, Coronavirus"[NM] OR "Membrane Protein, SARS-CoV-2"[NM] OR "Envelope Protein, SARS-CoV-2"[NM] OR "Spike Protein, SARS-CoV-2"[NM] OR "NSP2 Protein, SARS-CoV-2"[NM] OR "NSP7 Protein, SARS-CoV-2"[NM] OR "NSP8 Protein, SARS-CoV-2"[NM] OR "NSP9 Protein, SARS-CoV-2"[NM] OR "NSP6 Protein, SARS-CoV-2"[NM] OR "NSP10 Protein, SARS-CoV-2"[NM] OR "NSP1 Protein, SARS-CoV-2"[NM] OR "NSP3 Protein, SARS-CoV-2"[NM] OR "NSP4 Protein, SARS-CoV-2"[NM] OR "NSP5A Protein, SARS-Cov-2"[NM] OR "NSP5B Protein, SARS-Cov-2"[NM] OR "Pediatric Multisystem Inflammatory Disease, COVID-19 Related"[NM]) AND ((2019/11/17[EDAT] : 3000[EDAT]) OR (2019/11/17[PDAT] : 3000[PDAT])) e.g. in [Scopus](#) or [PubPharm](#)*

[Related topics \(as PubMed searches\) collected by ALIA/Australian Library Association](#)

Controlled Terms and Classification Codes (e.g. for Search strings)

additional and more detailed search strings (BMI/Biomedische Informatie)

additional and more detailed search strings (CADTH)

additional expert search strings, also related topics (Ovid) – click “view strategy” and copy& paste it to other databases/ search portals e.g. Scopus, Pubmed, Dimensions

PS: für ergänzende Hinweise sind wir dankbar, allerdings werden wir aus Gründen der Übersichtlichkeit eine Auswahl treffen. / We are grateful for any additional suggestion, but for the sake of clarity we will do a selection.
