

7.00 Supplementary Reading Material

*At the request of many participating in 7.00 as listeners, we have made supplementary reading material for the course, posted below, available to the public. The material in this list is not exhaustive, but rather has been chosen as a sampling to provide conceptual background and allow students and participants to look more deeply into the material covered in the course. **Please note that for copyright reasons, we are only able to post web links to these materials and cannot share full articles directly.***

The course staff may update this list over the semester as topics covered expand. Although lecture-specific reading recommendations will not be made, notes on content of the readings can be found in italics. For context on the subject matter of each lecture, you may consult the course syllabus as well as the lecture recordings, posted at <https://bit.ly/700Covid>.

We hope that you find these materials useful as you listen in on the course and welcome to 7.00!

Reviews & Perspectives

[Abraham et al., Nature 2020](#). **Passive antibody therapy in COVID-19.**

Review of rationale and main strategies for antibody therapies for COVID-19.

[Andersen et al., Nature Medicine 2020](#). **The proximal origin of SARS-CoV-2.**

Overview of evolutionary origins of SARS-CoV-2.

[Bar-On et al., eLife 2020](#). **SARS-CoV-2 (COVID-19) by the numbers.**

Quantitative molecular overview on SARS-CoV-2.

[Cyranoski, Nature 2020](#). **Profile of a killer virus.**

Review of key differentiating characteristics of SARS-CoV-2.

[Fehr and Perlman Methods in Molecular Biology 2015](#). Coronaviruses: an overview of their replication and pathogenesis.

Review of the viral life cycle, components, and pathogenesis of coronaviruses.

[Feng et al., Analytical Chemistry 2020](#). Molecular diagnosis of COVID-19: challenges and research needs.

Review of molecular biology of the methods to test for COVID-19.

[Funk et al., Frontiers in Pharmacology 2020](#). A Snapshot of the global race for vaccines targeting SARS-CoV-2 and the COVID-19 pandemic.

Review of rationale, clinical development process, and considerations for safety/efficacy of leading vaccine development strategies for the pandemic.

[Hartenian et al., JCB 2020](#). The molecular virology of coronaviruses.

Review from Britt Glaunsinger's lab (speaker 9/8) placing SARS-CoV-2 molecular virology in the context of other coronaviruses.

[Kim et al., Nature Reviews Immunology 2020](#). The trinity of COVID-19: immunity, inflammation, and intervention.

Review of the immunopathogenesis of SARS-CoV-2 including pathophysiology, infection, inflammatory and immune responses.

[Krammer, Nature 2020](#). SARS-CoV-2 vaccines in development.

A fall overview of progress in vaccine development.

[Lipsitch et al., New England Journal of Medicine 2020](#). Defining the epidemiology of COVID-19 - studies needed.

A perspective piece from prominent epidemiologists early in the pandemic on what information could inform decisions going forward.

[Loembe et al., Nature Medicine 2020](#). COVID-19 in Africa: the spread and response.

Review of the response to and status of COVID-19 across countries in Africa.

[Oberfeld et al., Cell 2020](#). Snapshot: COVID-19.

High level review on molecular biology, viral life cycle, and immune response to COVID.

[Tay et al., Nature Reviews Immunology 2020](#). The trinity of COVID-19: immunity, inflammation, and intervention.

Review of the immunopathogenesis of SARS-CoV-2 including pathophysiology, infection, inflammatory and immune responses.

[Wiersinga et al., JAMA 2020](#). Pathophysiology, Transmission, Diagnosis, and Treatment of Coronavirus Disease 2019 (COVID-19).

A review focused on medical aspects of COVID-19 including diagnosis and treatment.

Research Articles

[Gordon et al., Nature 2020](#). A SARS-CoV-2 protein interaction map reveals targets for drug repurposing.

A study using techniques to track protein-protein interactions and drug screening to nominate candidate drug targets for SARS-CoV-2 infection.

[Gupta et al., JAMA Internal Medicine 2020](#). Factors associated with death in critically ill patients with coronavirus disease 2019 in the US.

A study examining demographic, clinical, and hospital-level risk factors associated with mortality in ICU patients with COVID-19.

[Hoffmann et al., Cell 2020](#). SARS-CoV-2 cell entry depends on ACE2 and TMPRSS2 and is blocked by a clinically proven protease inhibitor.

A study examining viral entry of SARS-CoV-2 using molecular biology techniques to identify important host cell factors.

[Kaneko et al., Cell 2020](#). Loss of Bcl-6-Expressing T Follicular Helper Cells and Germinal Centers in COVID-19.

A study showing loss of key components of the immune response in COVID-19.

[Kim et al., Cell 2020](#). The architecture of SARS-CoV-2 transcriptome.

A resource study using sequencing methods to interrogate the transcriptome of SARS-CoV-2.

[Lucas et al., Nature 2020](#). Longitudinal analyses reveal immunological misfiring in severe COVID-19.

A study examining COVID patients over time for markers of immune response.

[Robbiani et al., Nature 2020](#). Convergent antibody responses to SARS-CoV-2 in convalescent individuals.

Research article examining the human antibody response to infection by SARS-CoV-2 from the Nussenzweig lab (speaker in class 9/29).

[Zhang et al., Science 2020](#). Inborn errors of type I IFN immunity in patients with life-threatening COVID-19.

A study identifying mutations associated with type I IFN pathway function in severe COVID-19 patients.

[Zhou et al., Nature 2020](#). A pneumonia outbreak associated with a new coronavirus of probable bat origin.

Early study characterizing "2019-nCoV" as a novel coronavirus and showing it enters cells through the same receptor as SARS-CoV.

General web resources

[CDC, Principles of Epidemiology in Public Health Practice](#) 

CDC intro training on epidemiology and biostatistics.

[HMS student COVID course \(Links to an external site.\)](#)

Curriculum compiled by HMS students providing an overview and recommended materials for a range of topics in the medical response to SARS-CoV-2. Topics include bench research, epidemiology, health disparities, socioeconomic effects, mental health, and training for clinical roles in the pandemic.

[HMX, How the Body Reacts to Viruses \(Links to an external site.\)](#)

Intro to viral immunology including slides and videos.

Useful Reference Books and Textbooks

Abbas et al., Cellular and Molecular Immunology.

Immunology textbook written in part by one of our course lecturers, Shiv Pillai.

Acheson, Fundamentals of Molecular Virology.

Intro level virology textbook written to be accessible to both undergrads and grad students.

Chakraborty and Shaw, Viruses, Pandemics, and Immunity.

An overview of how viruses emerge to cause pandemics and how the body reacts to them to develop immunity.

Farmer et al., 2013. Reimagining Global Health.

Book written by prominent physician-anthropologists presenting a biosocial framework for considering past, present, and future global health crises.