

Covid-19 Vaccine Candidates

Type	Vaccine		Trial			Efficacy					Variants					Specifics						
	Developer (Name)	Investigational Status (Participants)	EUA Submission	Full Approval	First dose efficacy	Second dose efficacy	Prevention of moderate to severe disease	Prevention of severe disease	Prevention of death	Pediatric Efficacy % (95% CI)	*ALPHA B.1.1.7	*BETA B.1.351	*GAMMA P.1	*DELTA B.1.617	EPSILON B.1427/B.1429	Route/# of doses	Timing of Doses	Presentation ²	Storage requirements	Preparation & Handling	Stability after opening	Can overfill be used as extra doses?
mRNA <i>How it works</i>	Pfizer/BioNTech (BNT162b2)	Phase 2 & 3 with EUA (44,000)	EUA approved 5/10 for ages 12 and older	Application submitted in May (pending approval)	52%	95%	Not quantified	95%	100%	100%	93%	100%	No data	Efficacy against symptomatic disease: 2-dose: 88% 1-dose: 33% 96% (from hospitalization)	No data	IM/ 2 doses	0, 21 days ²	MDV (5 doses) / 30 mcg/0.3mL ¹³	*Ultra-cold storage (-80 to -60°C) until expiration date *Thermal shippers replenished with dry ice for 30 days *Freezer (-25 to -15°C) for up to 2 weeks *Refrigeration (2-8°C) for up to 1 month. ²¹ If not used, discard. *Room Temp: thawed vials must be used within 2 hours *Do not refreeze once thawed.	*Thawing and reconstitution required. *Reconstitute with 1.8 mL of 0.9% sodium chloride	Stable up to 6 hours after dilution.	Yes
	Moderna (mRNA-1273)	Phase 3 with EUA (30,000)	EUA approved 12/20 for ages 18 and above	Application submitted in June (pending approval)	80%	95%	Not quantified	95%	100% (inferred)	EUA for ages 18 and older. Application submitted 6/10 for 12 to 17 year olds.	No impact	6-fold reduction in antibodies (unclear impact on efficacy).	Booster dose shown to increase neutralizing antibody titers	No data	Limited Data	IM/ 2 doses	0, 28 days ²	MDV (10 doses) / 100 mcg/0.5 mL ¹³	*Freezer (-50 to -15°C) for 7 months *Refrigeration (2-8°C) for up to 3 months prior to first use. *Room Temp (8-25°C): 24 hours (unpunctured) *Do not refreeze once thawed.	Thawing required. Vaccine may be thawed in the refrigerator or at room temperature: *Refrigerator: 2.5 hours *Room temperature: 1 hour *Vials that have not been punctured may be kept between 8°C and 25°C for up to 24 hours	Stable up to 12 hours after puncture.	Yes
Viral Vector <i>How it works</i>	Johnson & Johnson (Ad26.COV2.S)	Phase 3 (44,325)	EUA approved 2/27 for 18 years and older (11 day pause for safety monitoring, resumed 4/23)	N/A	66%	N/A	72%	66%	100%	EUA for ages 18 and older	No data	81%	No data	No data	No data	IM/1 dose	0 day ⁶	MDV (5 doses)	2 years at -20°C 4.5 months at 2-8°C.2,7	Mix contents of vial gently by swirling before withdrawing. DO NOT SHAKE.	2 hours at room temperature, or 6 hours at 2-8°C	No
	Oxford/AstraZeneca (ChAdOx1)	Phase 3 (30,000)	TBD	TBD	76%	82%	(Severe) 100%	100%	Pending	N/A	66%	Pending	Pending	Efficacy against symptomatic disease: 2-dose: 60% 1-dose: 33% 92% (from hospitalization)	No data	IM/ 2 doses	0, 28 days ⁶	MDV (10 doses) ⁶	Refrigerator (2-8°C) for up to 6 months *may be longer, pending stability testing	N/A	N/A	N/A
Protein Subunit <i>How it works</i>	Novavax (NVX-CoV2373)	Phase 3 (30,000)	Targeting EUA for June 2021	N/A	Not quantified	90.4% (overall)	100%	Not quantified	Not quantified	N/A	86.3%	48.6%	N/A	No data	No Data	IM/ 2 doses	0, 21 days ⁵	MDV (10 doses)	Refrigerator (2-8°C) up to 6 months Room temp for 24 hours ¹⁵	N/A	N/A	N/A
	Sanofi-Translate Bio (MRT5500)	Start Phase 3 clinical study May 27 ²²	Expected in 2022	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No Data	No Data	IM/ 2 doses	0, 22 days ³	N/A	Refrigerator (2-8°C), duration unknown	N/A	N/A	N/A

Disclaimer


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References

- 1 <https://www.defense.gov/Explore/Spotlight/Coronavirus/Operation-Warp-Speed/Operation-Warp-Speed-Timeline/>
- 2 https://www.vizientinc.com/-/media/documents/sitecorepublishingdocuments/public/vizient_covid_19_vaccine_tracker.pdf
- 3 <https://clinicaltrials.gov/>
- 4 <http://ir.inovio.com/news-releases/news-releases-details/2020/INOVI0-Reports-FDA-Partial-Clinical-Hold-for-Planned-Phase-2-3-Trial-of-COVID-19-Vaccine-Candidate-INO-4800/default.aspx>
- 5 <https://ir.novavax.com/news-releases/news-releases-details/novavax-initiates-phase-3-efficacy-trial-covid-19-vaccine-united>
- 6 https://www.vizientinc.com/-/media/documents/sitecorepublishingdocuments/public/vizient_covid_19_vaccine_tracker.pdf
- 7 <https://www.jnj.com/johnson-johnson-statement-on-fda-approval-of-shelf-life-extension-for-compansys-covid-19-vaccine#:~:text=The%20decision%20is%20based%20on%20www.vaxcheck.jnj.>
- 8 CDC Identifies Variants <https://www.cdc.gov/coronavirus/2019-ncov/variants/variant-info.html>
- 9 <http://ir.inovio.com/news-releases/news-releases-details/2020/INOVI0-Reports-FDA-Partial-Clinical-Hold-for-Planned-Phase-2-3-Trial-of-COVID-19-Vaccine-Candidate-INO-4800/default.aspx>
- 10 <https://www.reuters.com/article/us-health-coronavirus-inovio-pharma/inovio-partners-with-thermo-fisher-to-bolster-covid-19-vaccine-supply-idUSKBN2521X5>
- 11 <https://www.wbur.org/commonhealth/2020/10/29/moderna-vaccine-end-of-year>
- 12 <https://investors.modernatx.com/news-releases/news-releases-details/moderna-announces-longer-shelf-life-its-covid-19-vaccine>
- 13 <https://www.biospace.com/article/warp-speed-head-slaoui-predicts-astrazeneca-vaccine-won-t-be-used-in-the-u-s-until-april/>
- 14 Pfizer updated EUA (April 6 2021) <https://www.fda.gov/media/144413/download>
- 15 <https://www.fda.gov/news-events/press-announcements/fda-and-cdc-lift-recommended-pause-johnson-johnson-janssen-covid-19-vaccine-use-following-thorough>
- 16 Janssen EUA <https://www.fda.gov/media/146304/download>
- 17 Moderna EUA (Mar 31 2021) <https://www.fda.gov/media/144637/download>
- 18 CDC Moderna Vaccine Prep and Administration Summary <https://www.cdc.gov/vaccines/covid-19/info-by-product/moderna/downloads/rep-and-admin-summary.pdf>
- 19 Moderna (29 April) <https://investors.modernatx.com/news-releases/news-releases-details/moderna-announces-additional-investments-increase-global-supply>
- 20 Pfizer EUA 12-15 years <https://www.fda.gov/media/144412/download>
- 21 Pfizer EUA Storage <https://www.fda.gov/media/148877/download>
- 22 Sanofi Pasteur/GSK start Phase 3 <https://ml-eu.globenewswire.com/Resource/Download/c8640d60-4f51-4b9f-9be5-b7b816d80555>
- 23 <https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/>
- 24 <https://ir.novavax.com/news-releases/news-releases-details/novavax-covid-19-vaccine-demonstrates-90-overall-efficacy-and>
- 25 <https://www.reuters.com/business/healthcare-pharmaceuticals/uk-study-finds-vaccines-offer-high-protection-against-hospitalisation-delta-2021-06-14/>
- 26 <https://www.gov.uk/government/news/vaccines-highly-effective-against-b-1-617-2-variant-after-2-doses>
- * SARS-CoV-2 Variants of Concern (VOCs) according to WHO

ASHP Statement

ASHP will continue to advocate on behalf of our members and support COVID-19 vaccine planning efforts; a number of resources, including ASHP's Principles for COVID-19 Vaccine Distribution, Allocation, and Mass Immunization, are available on our COVID-19 vaccine page <https://www.ashp.org/COVID-19/Vaccines>



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