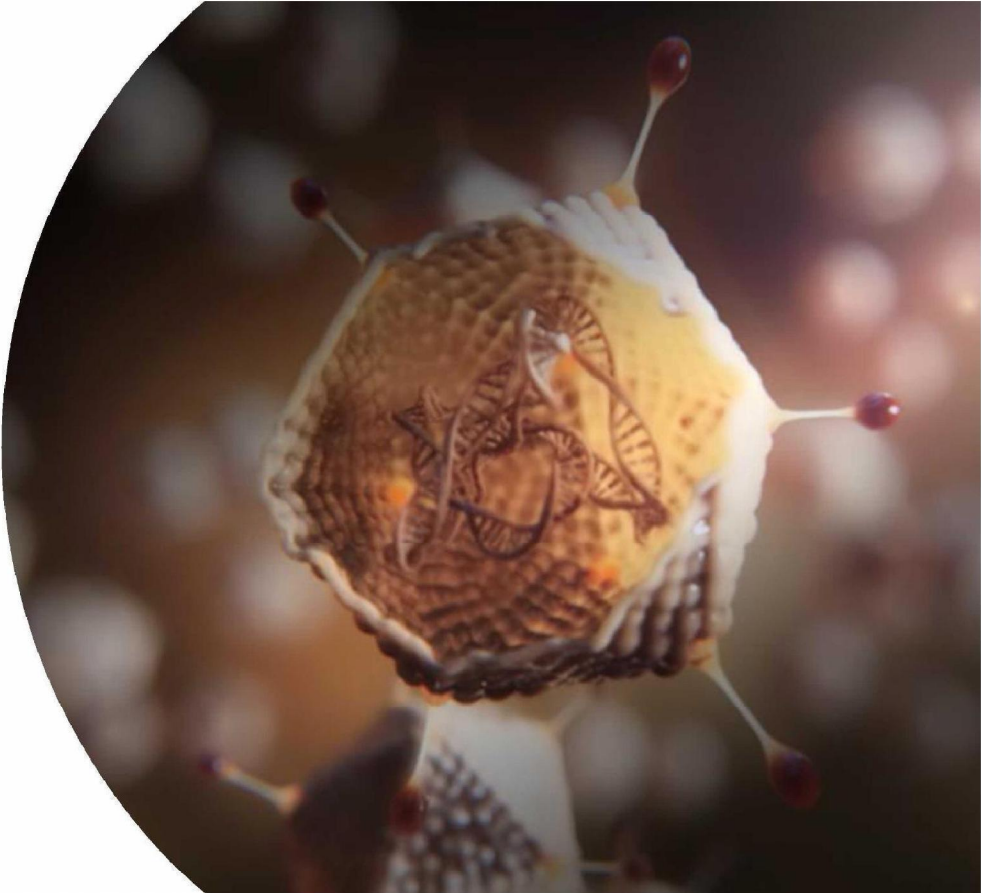




AstraZeneca COVID-19 Vaccine (AZD1222)

ACIP COVID-19 Emergency Meeting
January 27, 2021

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Forward-Looking Statements

In order, among other things, to utilize the 'safe harbor' provisions of the US Private Securities Litigation Reform Act of 1995, AstraZeneca (hereafter 'the Group') provides the following cautionary statement: this document contains certain forward-looking statements with respect to the operations, performance and financial condition of the Group, including, among other things, statements about expected revenues, margins, earnings per share or other financial or other measures. Although the Group believes its expectations are based on reasonable assumptions, any forward-looking statements, by their very nature, involve risks and uncertainties and may be influenced by factors that could cause actual outcomes and results to be materially different from those predicted. The forward-looking statements reflect knowledge and information available at the date of preparation of this document and the Group undertakes no obligation to update these forward-looking statements. The Group identifies the forward-looking statements by using the words 'anticipates', 'believes', 'expects', 'intends' and similar expressions in such statements. Important factors that could cause actual results to differ materially from those contained in forward-looking statements, certain of which are beyond the Group's control, include, among other things: the risk of failure or delay in delivery of pipeline or launch of new medicines; the risk of failure to meet regulatory or ethical requirements for medicine development or approval; the risk of failure to obtain, defend and enforce effective intellectual property (IP) protection and IP challenges by third parties; the impact of competitive pressures including expiry or loss of IP rights, and generic competition; the impact of price controls and reductions; the impact of economic, regulatory and political pressures; the impact of uncertainty and volatility in relation to the UK's exit from the EU; the risk of failures or delays in the quality or execution of the Group's commercial strategies; the risk of failure to maintain supply of compliant, quality medicines; the risk of illegal trade in the Group's medicines; the impact of reliance on third-party goods and services; the risk of failure in information technology, data protection or cybercrime; the risk of failure of critical processes; any expected gains from productivity initiatives are uncertain; the risk of failure to attract, develop, engage and retain a diverse, talented and capable workforce; the risk of failure to adhere to applicable laws, rules and regulations; the risk of the safety and efficacy of marketed medicines being questioned; the risk of adverse outcome of litigation and/or governmental investigations; the risk of failure to adhere to increasingly stringent anti-bribery and anti-corruption legislation; the risk of failure to achieve strategic plans or meet targets or expectations; the risk of failure in financial control or the occurrence of fraud; the risk of unexpected deterioration in the Group's financial position; and the impact that the COVID-19 global pandemic may have or continue to have on these risks, on the Group's ability to continue to mitigate these risks, and on the Group's operations, financial results or financial condition. Nothing in this document, or any related presentation/webcast, should be construed as a profit forecast.



AGENDA

AZD1222 Adenoviral Platform, Clinical
Development Plan & Phase I/II Data

US Phase III Study

Non-IND Phase III Efficacy and Safety
Trials (Interim Analysis)

Vaccine Storage & Handling

Summary

Q&A



AZD1222 COVID-19 Vaccine - Executive Summary

Phase III trial in the US is ongoing, enrollment is complete. This trial will be the primary basis for the EUA application with supporting data from the non-IND trials conducted outside the US.

AstraZeneca committed to a partnership with Oxford University to ensure broad and equitable vaccine access globally, not for profit during the pandemic.

Vaccine immunogenicity, efficacy and safety were demonstrated in four Phase I-III non-IND trials in UK, Brazil & South Africa. Data from these trials supported MHRA (UK) Authorization for Temporary Supply.

Vaccine is supplied in 5 ml preservative free, non-latex multidose vials to be stored at 2-8°C for at least 6 months.



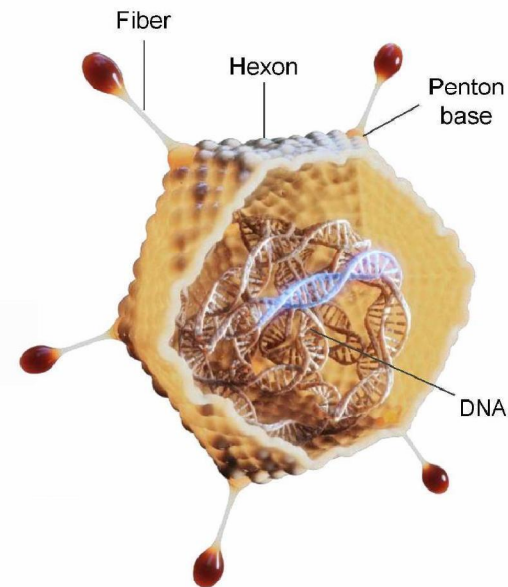


AZD1222 Adenoviral Platform
Clinical Development Plan &
Phase I/II Data



AZD1222: The Technology

- Non-replicating chimp adenovirus-vectored vaccine expressing nCoV-19 spike¹
- Non-replicating due to E1 (and E3) gene deletion²
- Chimp adenovirus avoids issues with pre-existing immunity to human adenoviruses²
- Vaccine antigen encoded in the viral genome – not a structural part of the virion³
- Induces strong B- and T-cell responses after a single vaccination¹
- Prior to April 2020, 12 Phase I studies, 330 subjects vaccinated
- Dose is 5×10^{10} viral particles (vp) as an IM injection, 0.5 ml¹

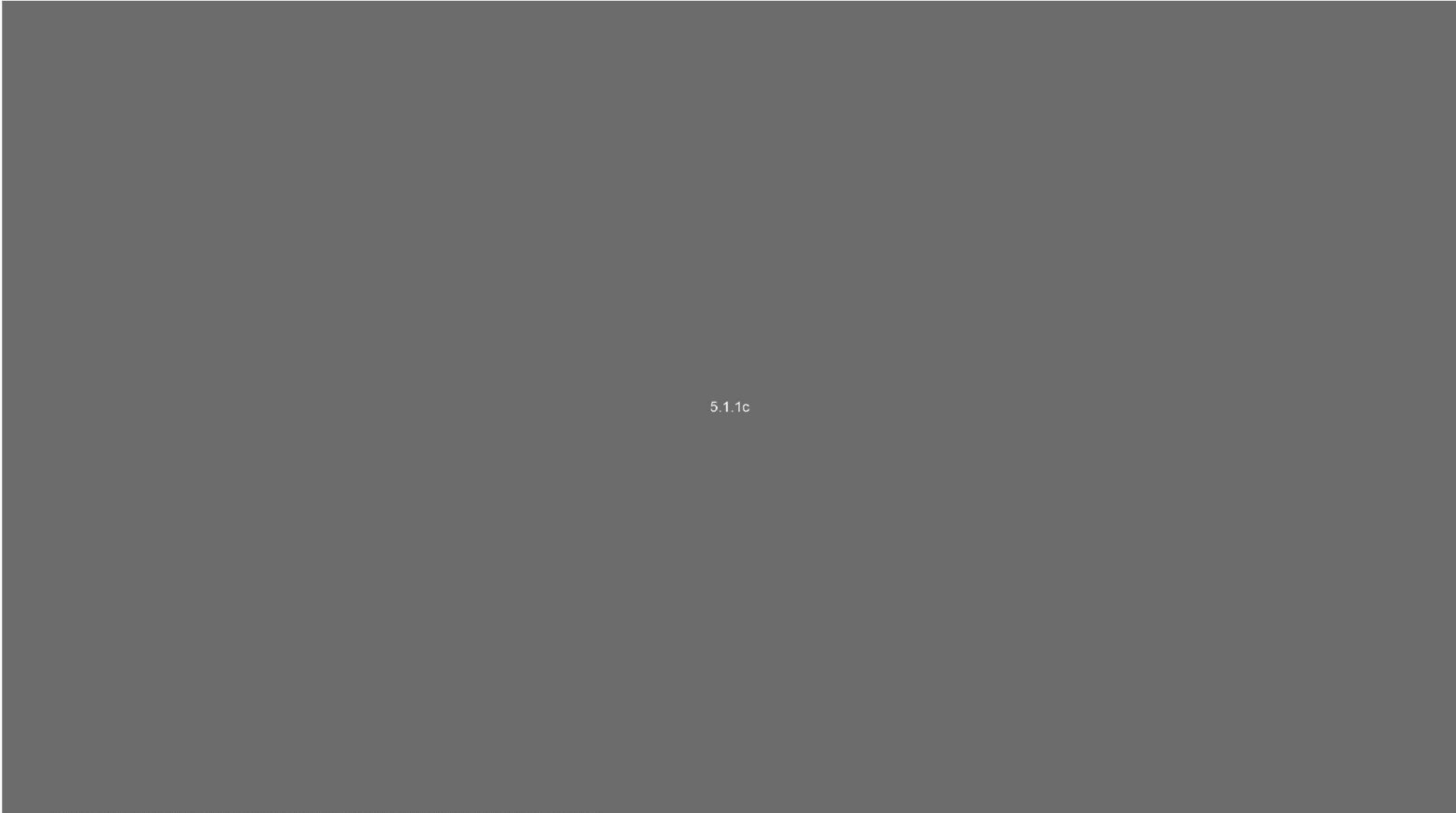


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DNA = deoxyribonucleic acid; IM = intramuscular.

1. Folegatti PM, et al. *Lancet* 2020;396:467–478; 2. Dicks MDJ, et al. *PLoS One* 2012;7:e40385; 3. Guo J, et al. *Hum Vaccin Immunother* 2018;14:1679–1685.



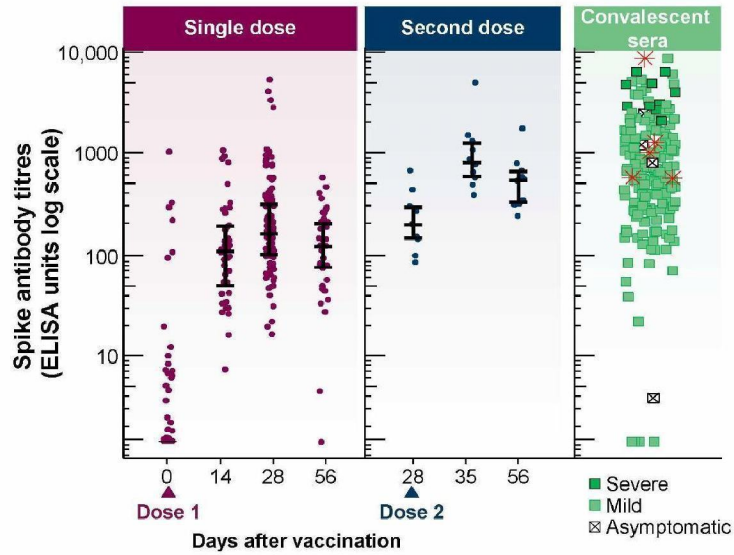


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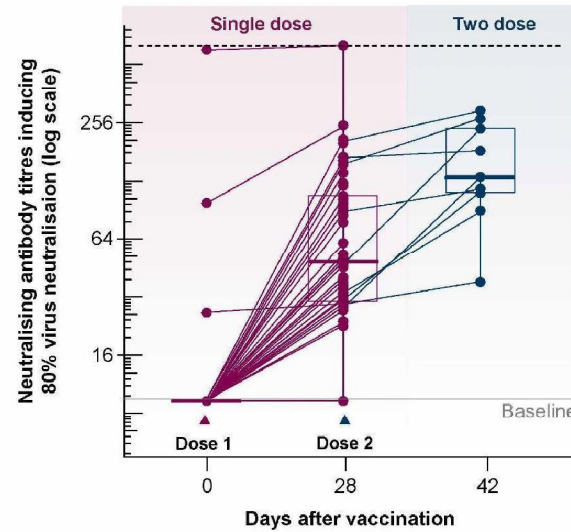
press release (processed on November 2020). Participants enrolled by January 15, 2021.

AZD1222 Induced Robust Antibody Responses At Levels In A Similar Range To Those Seen In Convalescent COVID-19 Patients In Phase I/II Study COV001

SARS-CoV-2 spike antibodies peaked one month after injection and were elevated after two doses in a similar range to convalescent sera

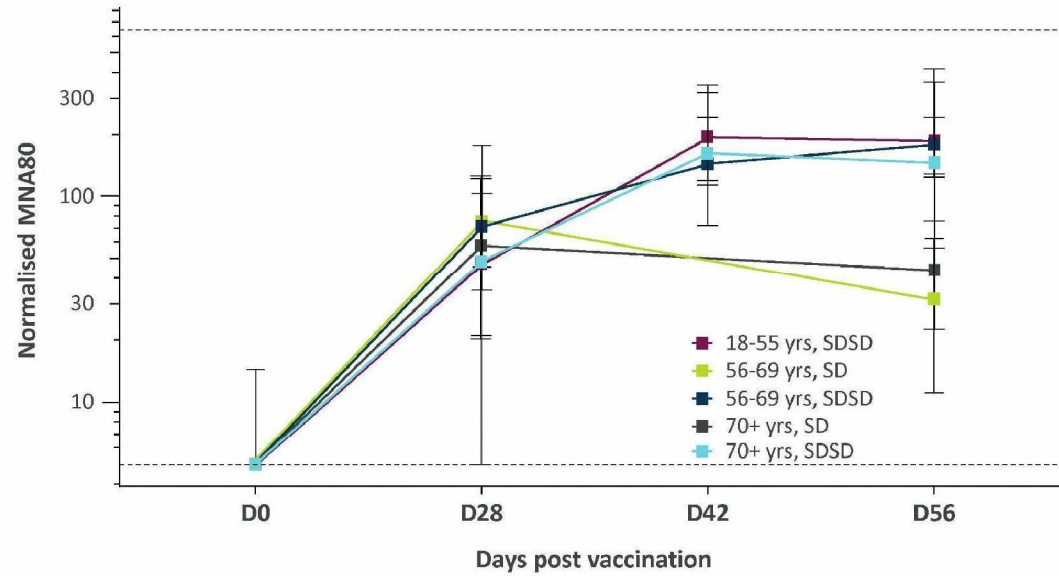


Neutralizing activity against SARS-CoV-2 in 91% vaccines after a single dose and 100% after two doses in micro-neutralisation assay (IC80)



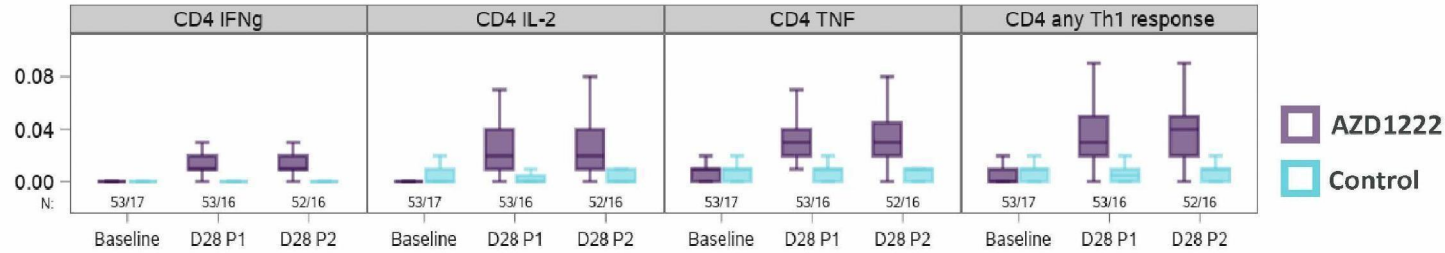
Robust Humoral Response In Older Adults Receiving AZD1222 In COV002

Neutralizing activity against the SARS-CoV-2 virus is boosted after a second dose in older adults

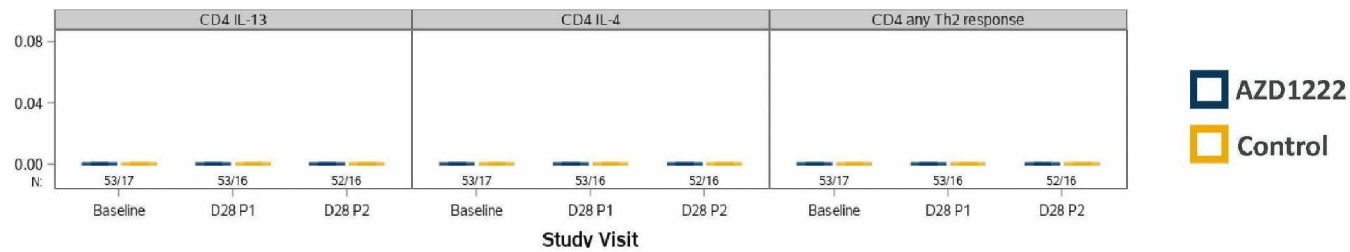


AZD1222 Induced A Robust Th1 Biased T-Cell Response In COV001 And COV002 Participants

Th1 cytokines were induced following stimulation with overlapping SARS-CoV-2 peptides



Limited Th2 cytokines were induced following stimulation with overlapping SARS-CoV-2 peptides



D28 P1 = Day 28 post 1st Dose, D28 P2 = Day 28 post 2nd Dose. Boxplots display the median and 1st and 3rd quartiles. Th1 data result indicates percentage of CD69+ cells expressing IFN γ , IL-2, TNF α (or any Th1 cytokine) after stimulation with SARS-CoV-2 S1 peptide pool (similar results were seen with S2 peptide pool). Th2 data result indicates percentage of CD69+ cells expressing IL-4, IL-13 (or either Th2 cytokine). Background percentage was subtracted from the stimulated percentage prior to analysis. Stimulated percentages less than the background percentage were set to 0%.

Exploratory analysis, Unpublished results



AZD1222 Was Well Tolerated In Phase I/II Studies

Most AEs were mild to moderate in severity and majority resolved within 1 to 7 days

○ Local and systemic reactions ~20% less frequent after the 2nd dose

AEs were similar in nature to those previously reported

○ Injection site pain, feeling feverish, muscle ache and headache

Local and systemic reactions were more common in participants given AZD1222 than MenACWY

Less reactogenicity (local and systemic) in older adults

○ >70 years about 30% fewer mild/moderate local reactions than <55 years

○ >70 years about 20% fewer systemic reactions than <55 years

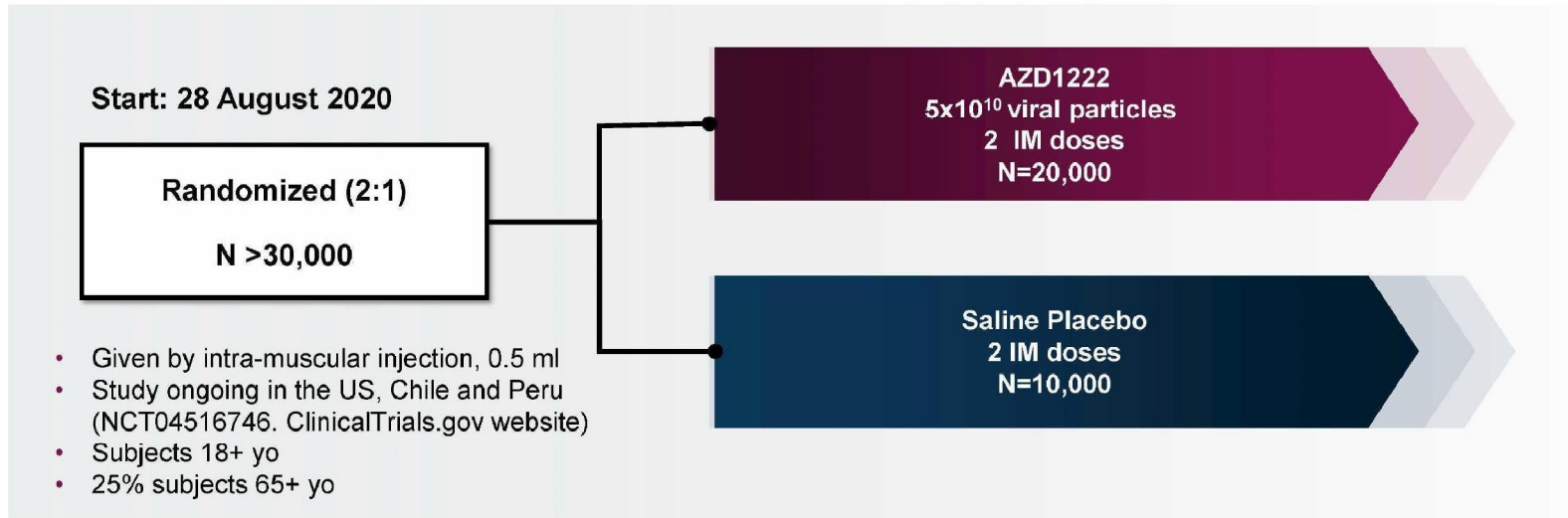




US Phase III Trial
D8110C00001
Design, Objectives, Diversity



Phase III Study D8110C00001 To Evaluate Safety And Efficacy Of AZD1222 In Over 30,000 Volunteers



- Study enrollment diversity targets were selected in agreement with US Government/OWS recommendations.



Phase III Study D8110C00001 Case Definition Of Symptomatic COVID-19 Disease

Primary efficacy endpoint: *Symptomatic illness*

- First case of SARS-CoV-2 RT-PCR-positive symptomatic illness occurring > 14 days post administration of study intervention. Participants included if they meet following criteria at any point from Day 1 (initial visit) through Day 14

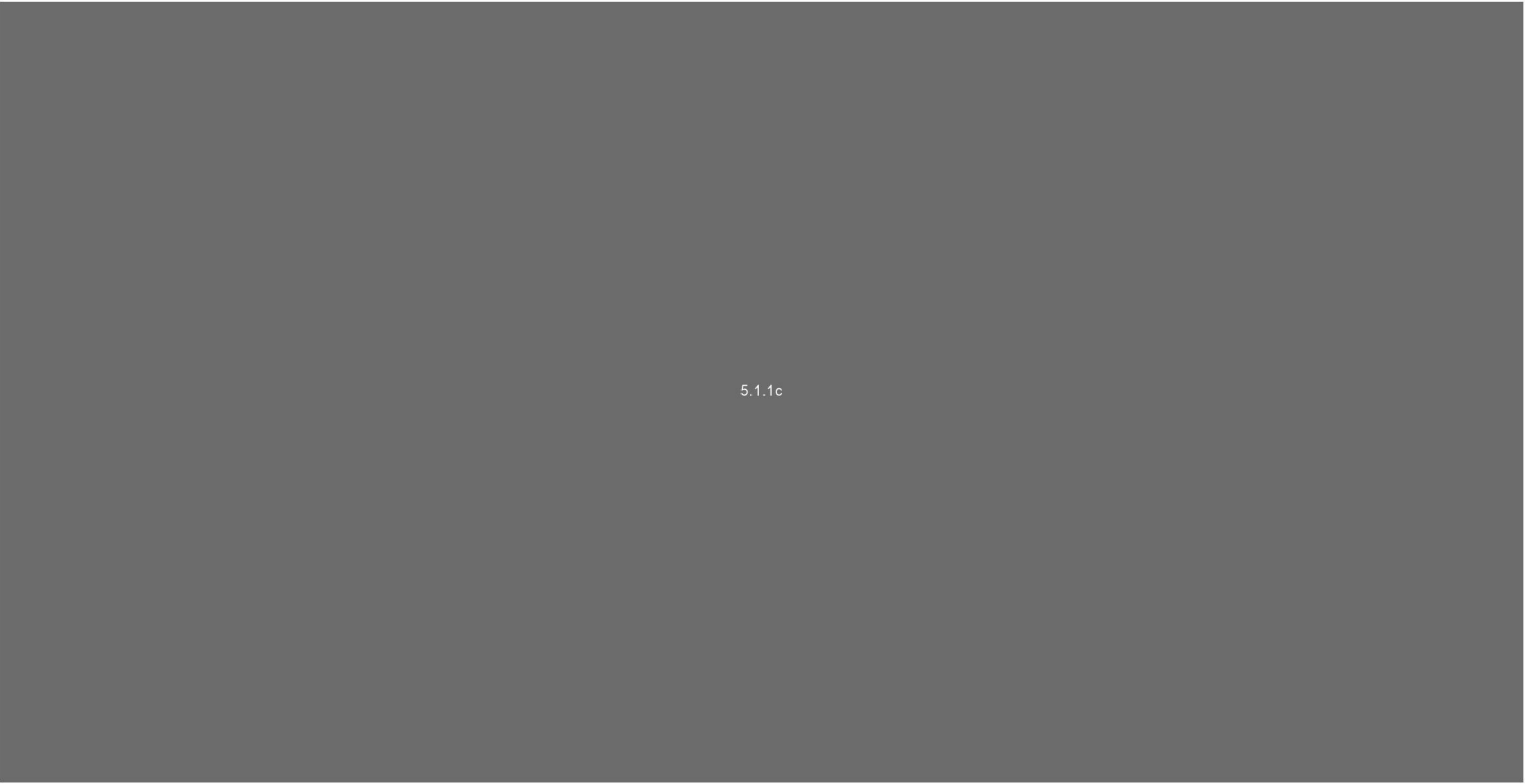
Subjects will be counted as a case if they have: 1) One or more category A findings OR 2) Two or more category B symptoms

Specificity (Pathogen Confirmation)	Category A: Lower respiratory tract involvement (one or more)	Category B: Systemic/ other symptoms (two or more)
SARS-CoV-2 confirmed • Positive RT-PCR	<ul style="list-style-type: none"> • Pneumonia diagnosed by chest x-ray, or CT scan • O₂ sat of ≤ 94% on room air or 2 percentage point drop from baseline • New or worsening dyspnea/ shortness of breath 	<ul style="list-style-type: none"> • Fever > 37.8° C (100° F) or feverishness • New or worsening cough • Myalgia/ muscle pain • Fatigue that interferes with activities of daily living • Vomiting or diarrhea • Anosmia or ageusia

Safety endpoint:

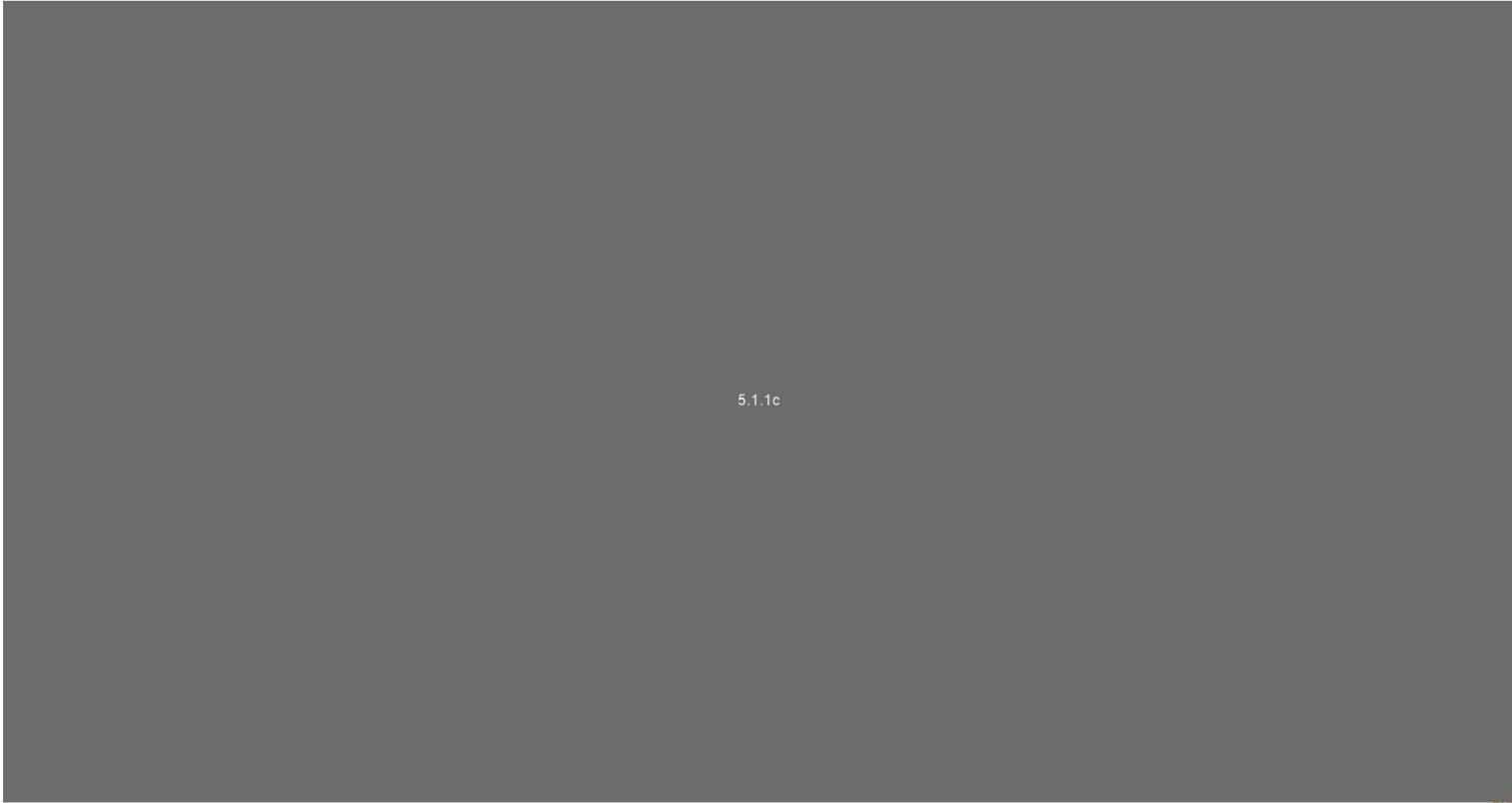
- Occurrence of adverse events :
 - 1) Incidence of AEs for 28 days post each dose
 - 2) Incidence of AEs, MAAEs, and AESIs from Day 1 post treatment throughout study





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Non-IND Phase II/III Program
Interim Results
(Data Cut: November 4th)



Interim Analysis Provided For Regulatory Approval: 23,745 Participants Across Four Studies

UK COV001 (N=1,077) ¹	UK COV002 (N=12,390) ¹	Brazil COV003(N=10,300) ¹	S. Africa COV005 (N=2,070) ¹
Phase I/II single-blinded, adults aged 18–55 yrs	Phase II/III single-blinded, ≥18 years (including elderly)	Phase III single-blinded, ≥18 years (including elderly)	Phase I/II double-blinded, adults aged 18–65 yrs

Primary endpoint: Efficacy (number of virologically confirmed symptomatic cases of COVID-19 [NAAT positive])¹

<ul style="list-style-type: none"> • Global statistical analysis plan for pooling data developed • Prespecified analyses that would contribute to assessment of efficacy 	<p>11,636²</p> <p>In UK/Brazil Phase 3 studies met inclusion criteria for the primary efficacy analysis</p> <p>The median follow-up post-dose 1 and dose 2 was 132 and 63 days, respectively</p>	<p>23,745²</p> <p>In all 4 studies met inclusion criteria for the safety analysis</p> <p>The median follow-up (AZD1222 group) post-dose 1 and dose 2 was 105 and 62 days, respectively</p>
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The cutoff date for inclusion in the analysis was November 4, 2020, and the data lock date was November 21, 2020
NAAT = nucleic acid amplification test.

1. Voysey M, et al. Article and supplementary appendix. *Lancet*. 2020. [http://dx.doi.org/10.1016/S0140-6736\(20\)32661-1](http://dx.doi.org/10.1016/S0140-6736(20)32661-1). Accessed January 21, 2021; 2. COVID-19 Vaccine AstraZeneca, solution for injection in multidose container COVID-19 Vaccine (ChAdOx1-S [recombinant]). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/949772/UKPAR_COVID_19_Vaccine_AstraZeneca_05.01.2021.pdf. Accessed January 8, 2021.



Summary of Phase III Interim Pooled Efficacy Analyses For AZD1222

In a diverse cohort (geographically and ethnically) pooled analysis demonstrated 70.4% (95.8% CI: 54.8% to 80.6%) efficacy at preventing symptomatic COVID-19

- Subgroup analysis with SD/SD demonstrated efficacy at preventing symptomatic COVID-19 of 62.1% (41.0% to 75.7%)

There were no hospitalizations or severe COVID-19 in vaccinated participants from 21 days after first dose



Across Four Studies, AZD1222 Exhibited A Favorable Safety Profile

Across all four studies, SAEs occurred in 168 participants (<1%)

79 of whom received AZD1222 (0.7%) and 89 of whom received MenACWY or saline control (0.8%)

There were 175 SAEs, of which 4 were considered possibly related to intervention (either the experimental vaccine or the control)

AZD1222 group

- **Pyrexia:** 2 days after dose 1; treated with paracetamol and resolved the same day
- **Transverse myelitis:** 14 days after dose 2

Control group

- **Autoimmune hemolytic anemia:** 10 days after MenACWY
- **Transverse myelitis:** 2 months after first control dose

Solicited Adverse Events, the majority usually resolved within a few days of vaccination.

- Reactogenicity; the most frequently reported AEs were mild to moderate in severity including injection site tenderness (>60%); injection site pain, headache, fatigue (>50%); myalgia, malaise (>40%); pyrexia, chills (>30%); and arthralgia, nausea (>20%).
- Generally milder and reported less frequently after second dose and in older adults (≥65 years old)

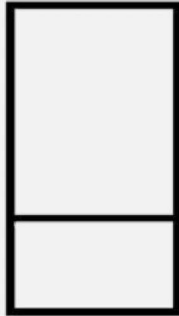




Vaccine Storage And Handling

AZD1222 Storage And Administration

Storage



Refrigerator

- Store in refrigerator (2 to 8°C)
- Shelf life = 6 months
- Do not freeze
- Keep vials in outer carton to protect from light

Administration



Multi-dose Vial

- After first puncture cumulatively store up to 6 hours at room temperature or up to 48 hours at 2-8°C with total storage time not to exceed 48 hours.
- No dilution or reconstitution





Summary



Summary: AZD1222 offers a potential to address the Global COVID-19 Crisis

- **AZD1222 induces robust immune responses against the SARS-CoV-2 S protein:**
 - Spike Antibodies increased after a second dose with GMTs comparable to convalescent sera
 - Neutralizing Antibodies titers observed in all participants following 2nd dose
 - Strong Th-1 biased CD4+ T Cell response observed
- **US Phase III study ongoing with 32,459 participants enrolled with co-morbidities, older adults and diverse backgrounds**
 - 26,327 received second dose by Jan 21, 2021
- **Efficacy and safety were demonstrated in four Phase I-III studies in UK, Brazil and South Africa**
- **AZD1222 has the potential to address the SARS-CoV-2 pandemic and has been authorized in 18 countries (under emergency use or full approval as of January 25, 2021)**



Thank You

to our collaborators, investigators and subjects:

- University of Oxford
- BARDA
- NIAID
- DoD
- The AstraZeneca Team
- Clinical trial sites personnel and investigators
- **All our trial participants**





Q&A

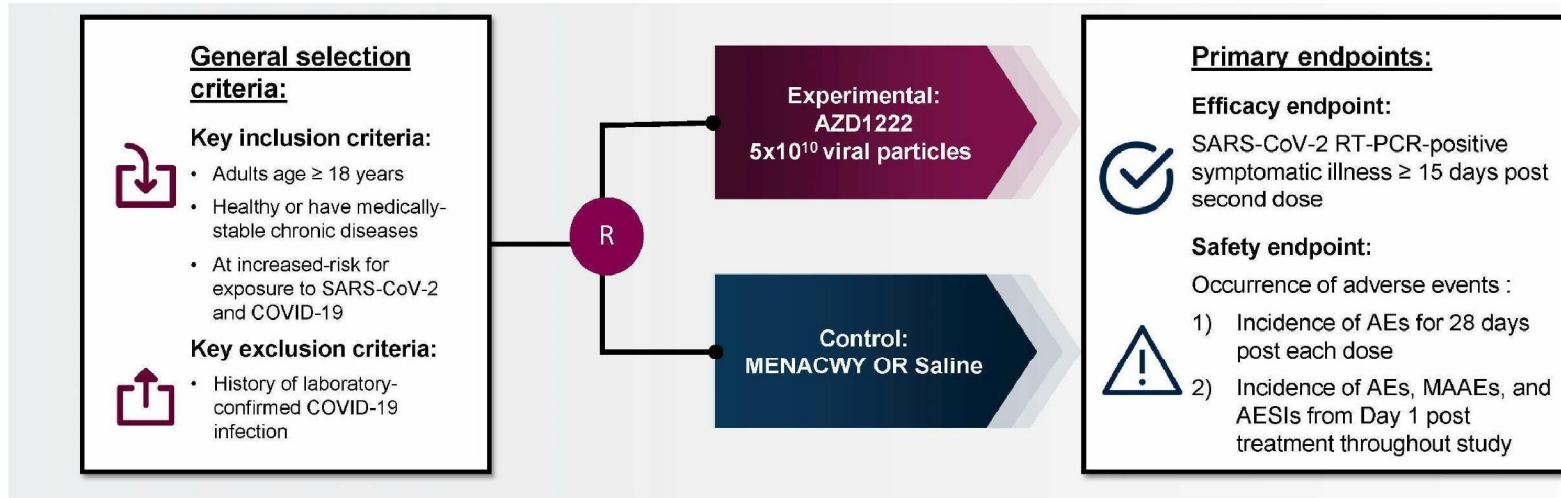




Back-Up



Phase II/III Program to evaluate safety and efficacy of AZD1222 in over 20,000 volunteers



Efficacy Based On Symptomatic, Virologically-Confirmed COVID-19 Cases > 14 Days Post 2nd Dose

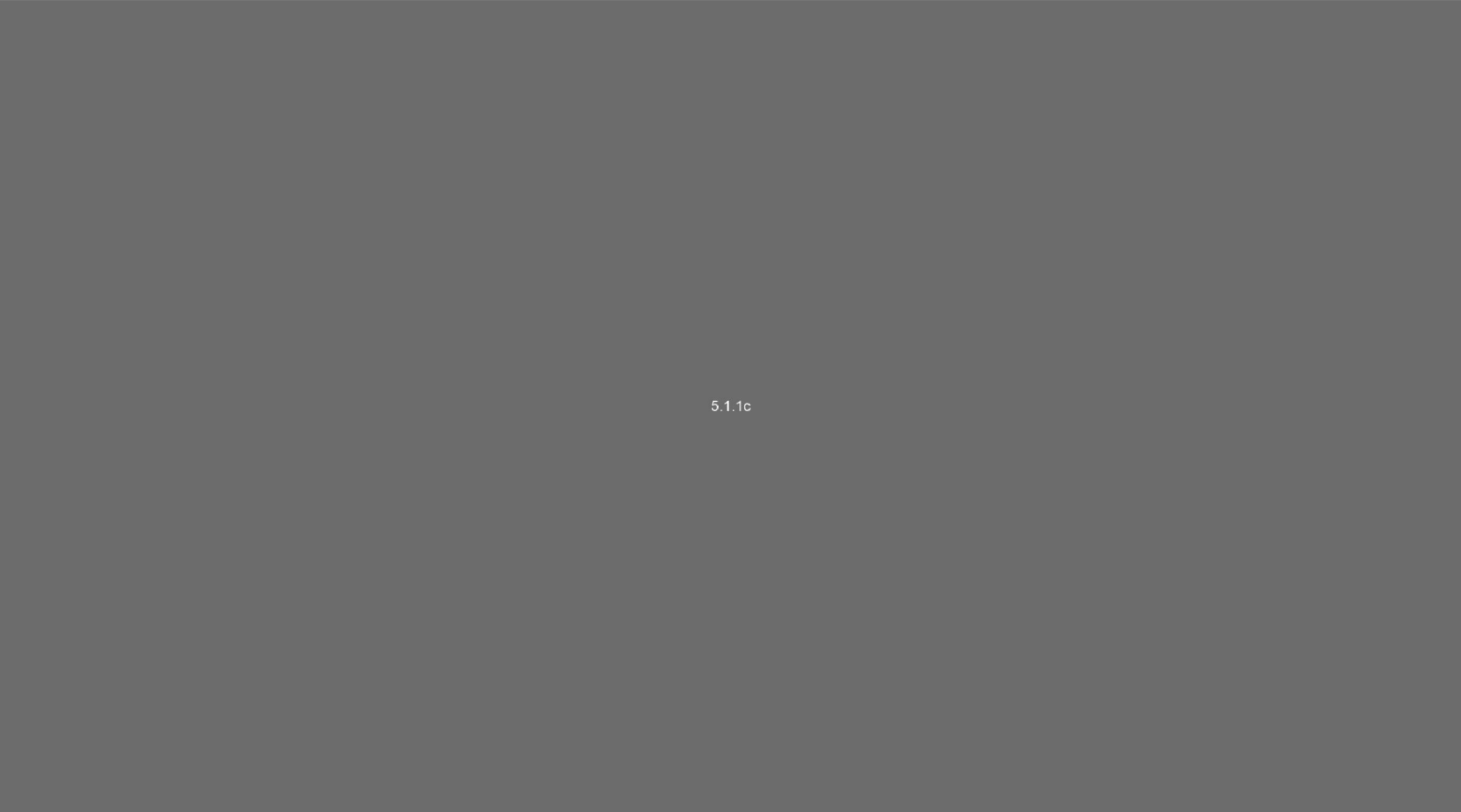
	Total number of cases	AZD1222 n/N (%)	Control n/N (%)	VE (95% CI) unless indicated
All LD/SD and SD/SD recipients	131	30/5807 (0.5%)	101/5829 (1.7%)	70.4% (54.8%, 80.6%) ^a
COV002 (UK)	86	18/3744 (0.5%)	68/3804 (1.8%)	73.5% (55.5%, 84.2%)
LD/SD recipients	33	3/1367 (0.2%)	30/1374 (2.2%)	90.0% (67.4%, 97.0%) ^{b,c}
SD/SD recipients	53	15/2377 (0.6%)	38/2430 (1.6%)	60.3% (28.0%, 78.2%)
COV003 (Brazil) SD/SD	45	12/2063 (0.6%)	33/2025 (1.6%)	64.2% (30.7%, 81.5%) ^p
All SD/SD recipients	98	27/4440 (0.6%)	71/4455 (1.6%)	62.1% (41.0%, 75.7%)

^a95.8% CI used for primary analysis. ^bVaccine efficacy calculated from a reduced robust Poisson model that was not adjusted for age. All other models included an adjustment for age. ^cP value for interaction term comparing LD/SD with SD/SD is P=0.010.

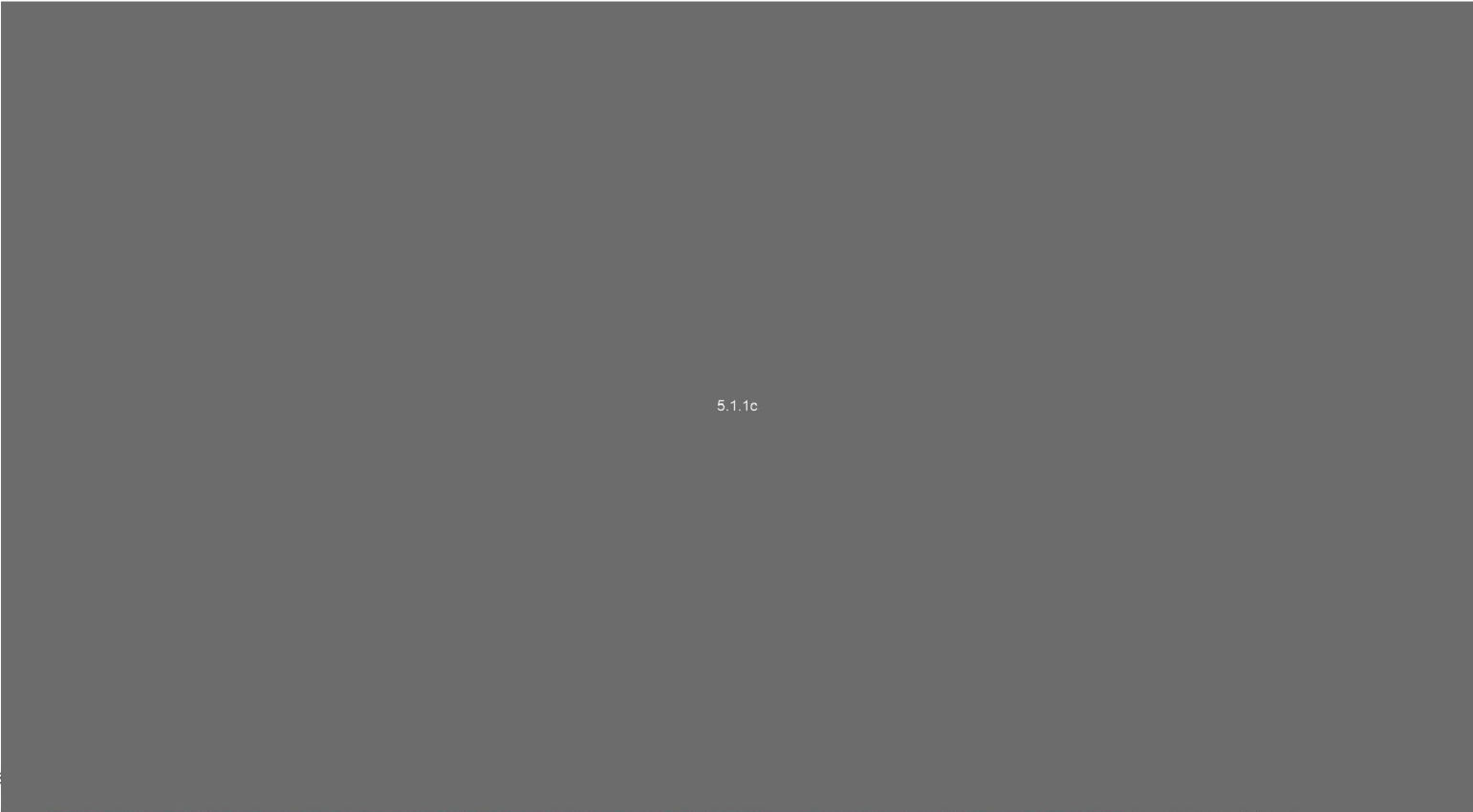
CI = confidence interval; LD = low dose (2.2×10^{10} vp); SD = standard dose (5×10^{10} vp); vp = virus particles.

Voysey M, et al. *Lancet*. 2020. [http://dx.doi.org/10.1016/S0140-6736\(20\)32651-1](http://dx.doi.org/10.1016/S0140-6736(20)32651-1). Accessed January 21, 2021.



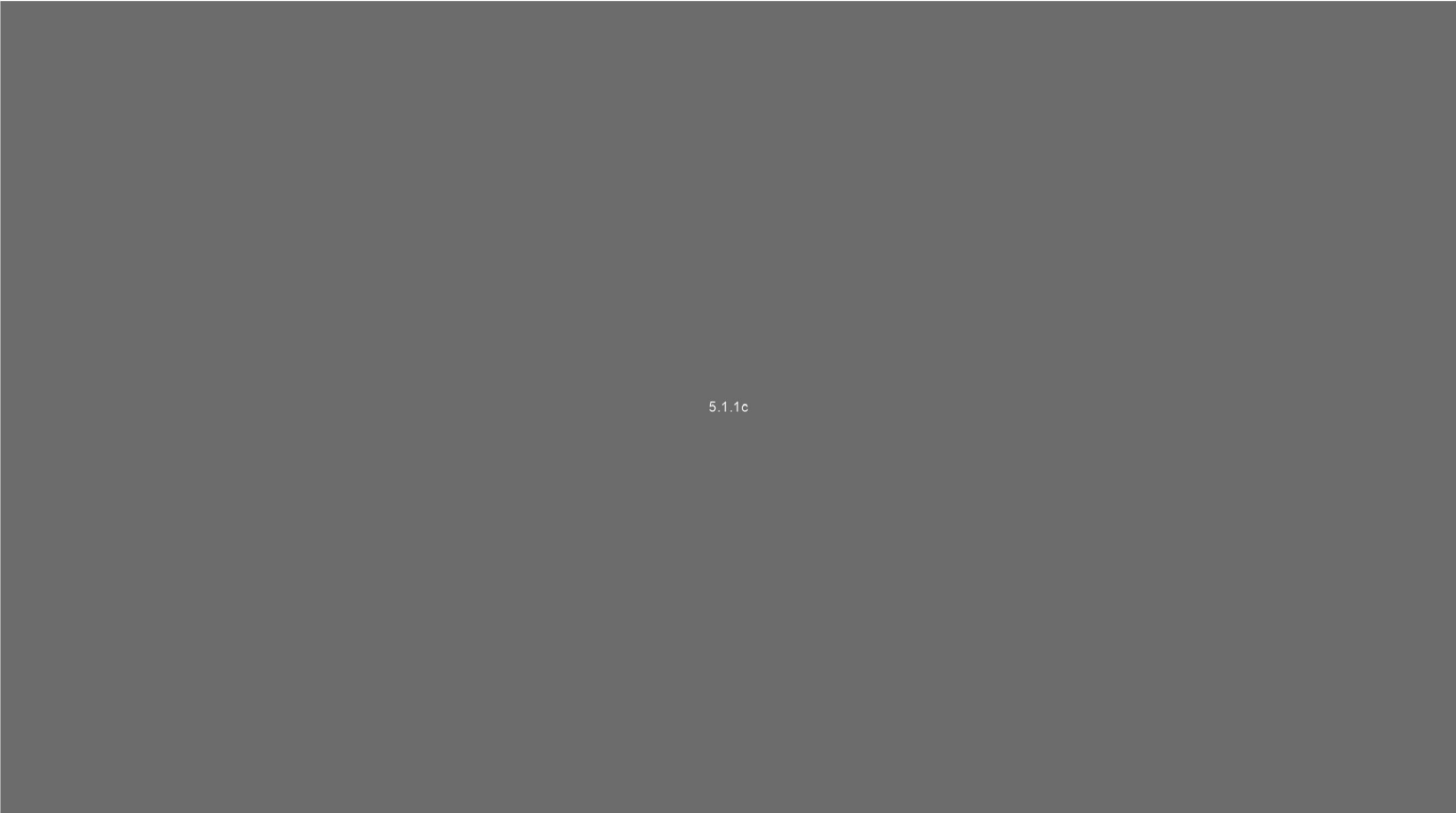


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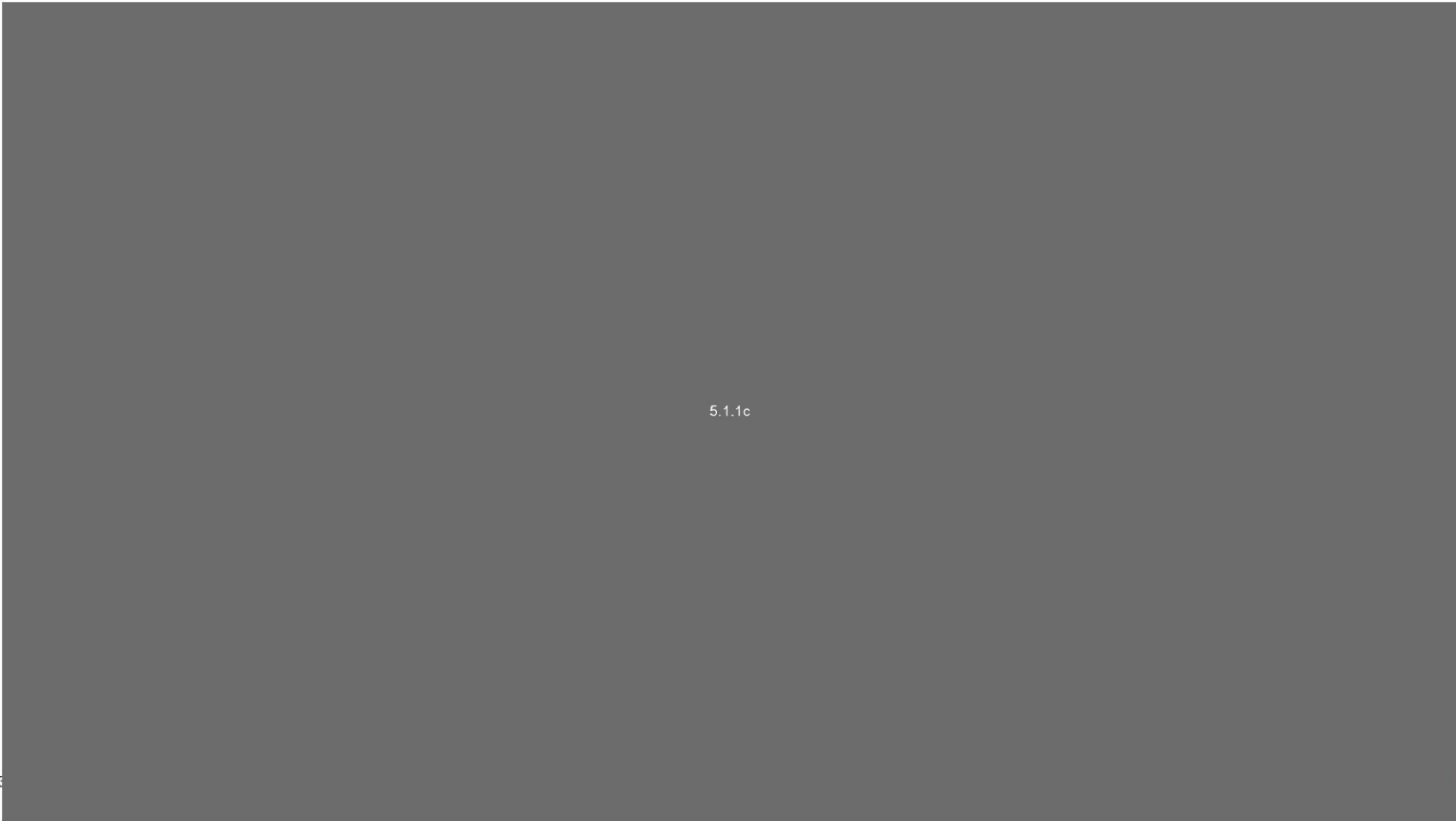


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