



Making a vaccine for the world

*Lessons learned from an industry
R&D perspective*

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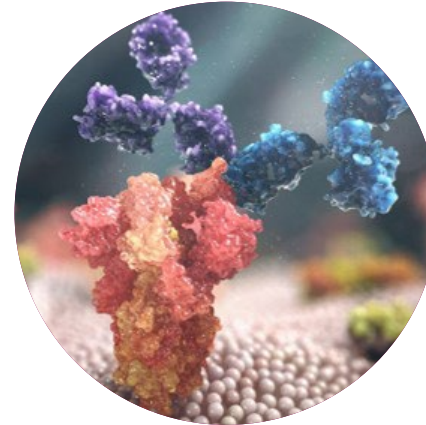
It started with a phone call...



Donations



COVID Testing



Long-acting antibody approaches



The AstraZeneca Oxford collaboration



COVID-19 vaccine for the world, at no-profit

6 million+

lives saved during
first 12 months of use ¹

3.1 billion+

doses of our vaccine
released for supply ²

180+

countries around
the world ²

>2/3

of these doses have
gone to **low- and low-middle
income countries** ²

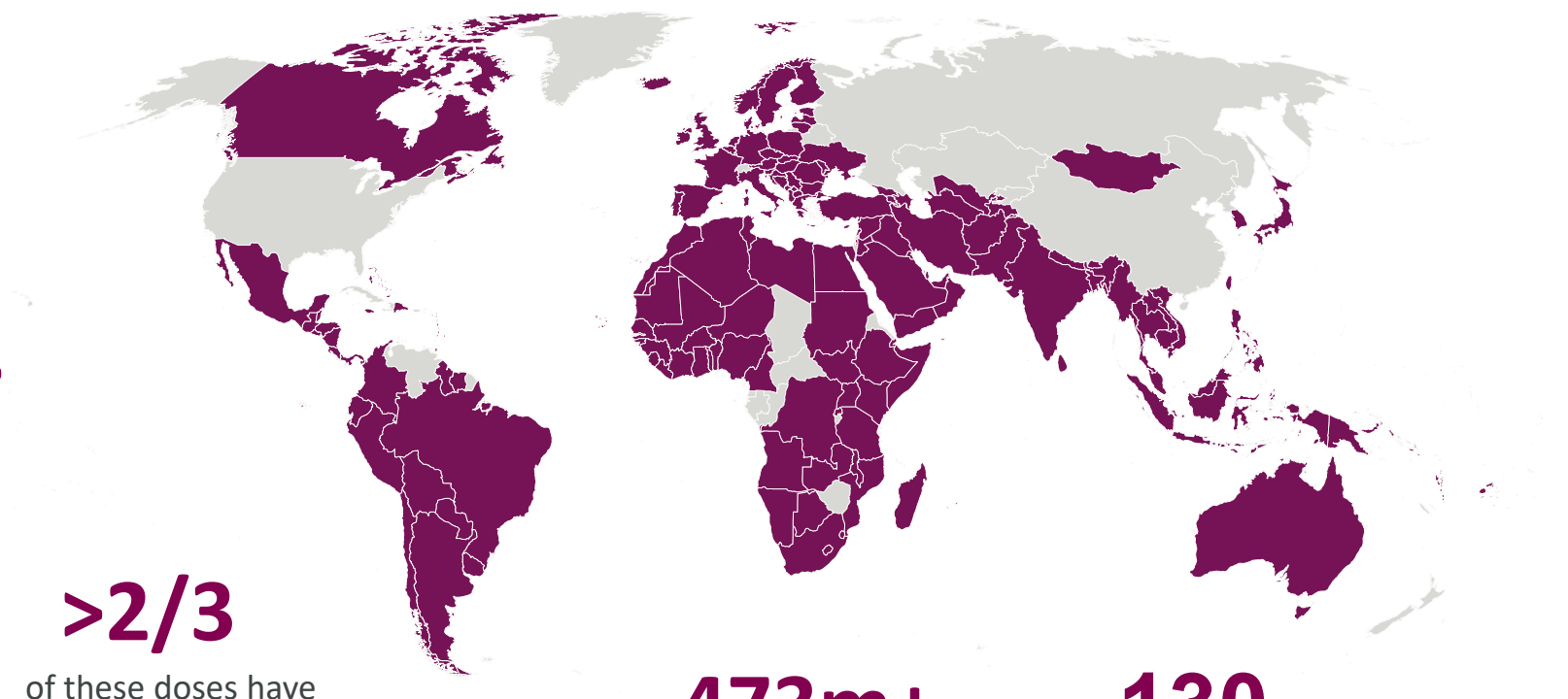
473m+

doses of our vaccine
delivered through **COVAX (COVID-19
Vaccines Global Access initiative)** ²

to

130

countries ²



1. Data estimates based on model outcomes from separate analyses conducted by Airfinity and Imperial College, United Kingdom. AstraZeneca Data on File. Data on File Ref – 156573, 11 July 2022. AstraZeneca UK Ltd 2. AstraZeneca and COVAX supply data



Unparalleled response to develop and deliver a COVID-19 vaccine

Expansive clinical trials



25+ supply partners in 15 countries



Global agreements



Rapid build of manufacturing network to secure and establish global supply

Network Identification



Selected partners with focus on capability, capacity, availability & cost

Network Strategy



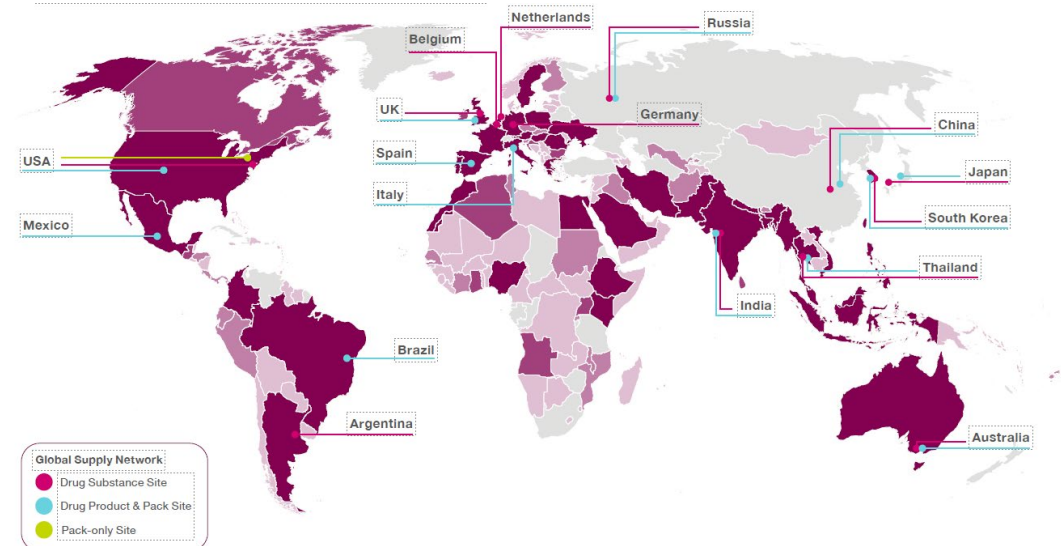
Constructed ~12 distinct supply chains with regional approach to minimize transportation & importation constraints

Supply Establishment

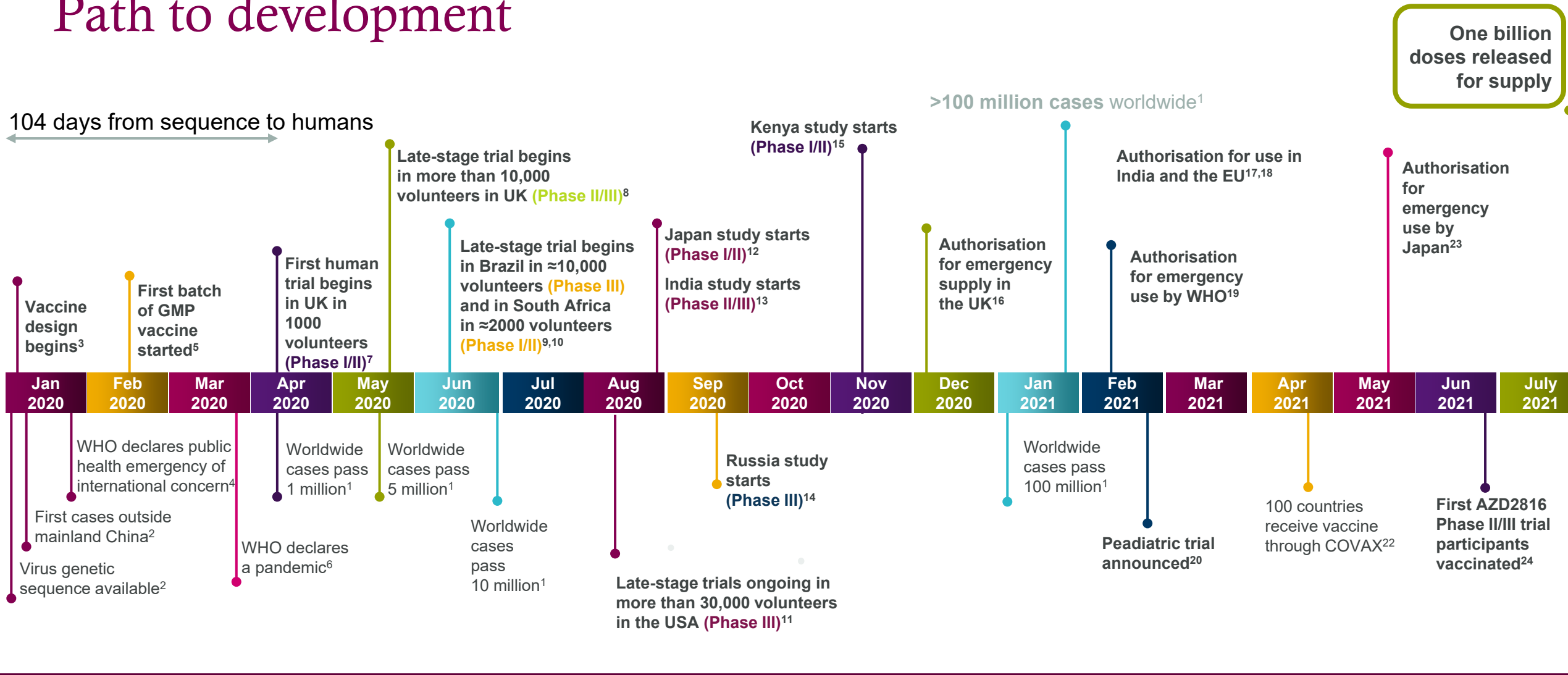


Initiated technology transfers, drove process optimization & accelerated procurement

Supply Network



Path to development



Collaboration has made this possible

1. COVID-19 Dashboard. Johns Hopkins University website. Accessed June 25, 2020. 2. Novel coronavirus situation report – 1. World Health Organization website. Accessed June 22, 2020. 3. University of Oxford press release. Published March 18, 2020. 4. Global research and innovation forum consensus. World Health Organization website. Accessed June 22, 2020. 5. University of Oxford press release. Published February 7, 2020. 6. COVID-19 situation report – 51. World Health Organization website. Accessed June 22, 2020. 7. Study NCT04324606. ClinicalTrials.gov website. 8. Study NCT04400838. ClinicalTrials.gov website. 9. University of Oxford press release. Published June 28, 2020. 10. Study NCT04444674. ClinicalTrials.gov website. 11. Study NCT04516746. ClinicalTrials.gov website. 12. Study NCT04568031. ClinicalTrials.gov website. 13. Study CTRI/2020/08/027170. Clinical Trials Registry – India website. 14. Study NCT04540393. ClinicalTrials.gov website. 15. University of Oxford press release. Published October 30, 2020. 16. AstraZeneca press release. Published December 30, 2020. 17. AstraZeneca press release. Published January 6, 2021. 18. AstraZeneca press release. Published January 29, 2021. 19. AstraZeneca press release. Published February 15, 2021. 20. University of Oxford press release. Published February 13, 2020. 21. COVID-19 Oxford vaccine trial – sponsors and partners. University of Oxford. Accessed June 25, 2020. 22. AstraZeneca Article. Published April 8 2021. 23. AstraZeneca press release. Published May 21 2021. 24. AstraZeneca press release. Published June 27, 2021.



COVID-19 vaccine effectiveness in clinical trials and real-world...



Protection from hospitalisation and severe disease



Overall vaccine efficacy



Efficacy in older age groups



Boosting

...and against variants of concern



Alpha



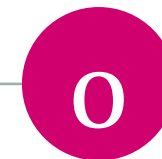
Beta



Gamma



Delta

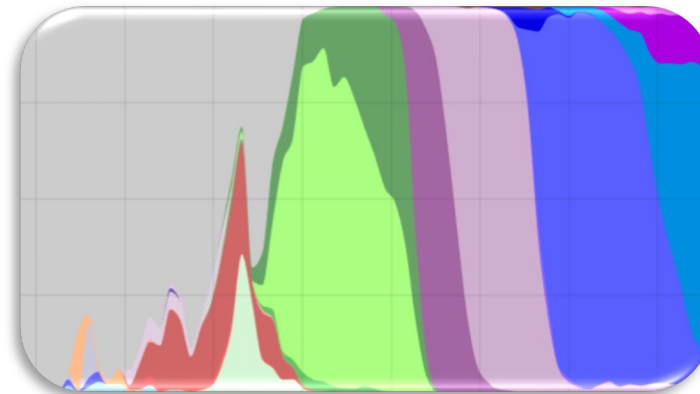


Omicron

1. Falsey AR et al. *NEJM* 2021; 2. Munro APS et al. *The Lancet* 2021; 3. UK HSA. Vaccines highly effective against hospitalisation from Delta variant. [Online]. Available at: <https://www.gov.uk/government/news/vaccines-highly-effective-against-hospitalisation-from-delta-variant>; 4. Hyams C et al. *The Lancet* 2021; 5. Bouillon K et al. EPI-PHARE ANSM; 6. Flaxman A, et al. *The Lancet* 2021; 7. Jara A et al. Available as preprint *The Lancet* 2022; 8. Vargas L et al. Available at: <https://www.medrxiv.org/content/10.1101/2022.01.14.22269289v1.full.pdf>; 8. Jara et al Preprint published online *The Lancet* 2022; 9. Costa Clemens SA, et al. *The Lancet* 2022; 10. EMEA report, 11 May 2021: COVID-19 vaccine safety update – Vaxzevria : https://www.ema.europa.eu/en/documents/covid-19-vaccine-safety-update/covid-19-vaccine-safety-update-vaxzevria-previously-covid-19-vaccine-astrazeneca-11-may-2021_en.pdf 11. Burn, E et al, Thrombosis and thrombocytopenia after vaccination against and infection with SARS-CoV-2: a population-based cohort analysis. Available at: <https://www.medrxiv.org/content/10.1101/2021.07.29.21261348v1>; 12. Burn, E et al, Thromboembolic Events and Thrombosis With Thrombocytopenia After COVID-19 Infection and Vaccination in Catalonia, Spain. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3886421; 13. P. Bhuyan et al. *The Lancet* 2021; 14. Laporte JR et al. Vaccines against Covid-19, venous thromboembolism, and thrombocytopenia. A population-based retrospective cohort study. Preprint. <https://www.medrxiv.org/content/10.1101/2021.07.23.21261036v1>



Navigated the challenges of an unprecedented journey



Variants 2020-today - South Korea



CEPI

Italy blocks shipment of Oxford/AstraZeneca vaccines to Australia



Macron: AstraZeneca vaccine seems 'quasi-ineffective' on older people



Is there a link between the AstraZeneca vaccine and blood clots?



AstraZeneca says early trial data indicates third dose helps against Omicron



“Public private partnerships and collaboration between academia, governments, research institutes and industry is critical in accelerating and strengthening our response”.

1. Fleming, S. et al. Financial Times. 2021 March. <https://www.ft.com/content/bed655ac-9285-486a-b5ad-b015284798c8>. 2. Momtaz, R. Politico. 2021 January. <https://www.politico.eu/article/coronavirus-vaccine-europe-astrazeneca-macron-quasi-ineffective-older-pe/>. 3. Khan, A. Al Jazeera. 2021 May. <https://www.aljazeera.com/features/2021/3/21/is-there-any-link-between-vaccines-and-blood-clots>. 4. Aripaka, P. et al. Reuters. 2022 January. <https://www.reuters.com/business/healthcare-pharmaceuticals/astrazeneca-says-higher-antibody-response-against-omicron-with-booster-dose-2022-01-13/>. 5. World Health Summit 2022. <https://www.conference.worldhealthsummit.org/>.



COVID-19 changed the environment, bringing renewed focus on the need for improved prevention and treatment



Increased focus on Public Health and Pandemic Preparedness by Governments and Payors



A renaissance in vaccines & technological innovation

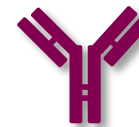


Increased focus to protect immunocompromised patients

With a complementary approach of vaccines and antibodies, our new Vaccines and Immune Therapies Unit is focused on developing **medicines that provide effective and long-lasting immunity to millions of patients**



Leverage Scientific Innovation to develop Best-In-Class vaccines



Protect and treat vulnerable populations where the burden of disease is the greatest



Complementary approach led to development of long-acting antibody combination

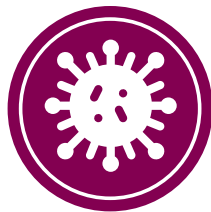
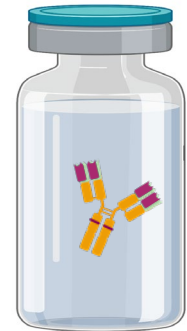
Protecting the most vulnerable patients from COVID-19

First generation long-acting antibody combination

- Playing key role in protecting vulnerable populations such as the immunocompromised
- Authorised around the world

Building on the foundation to develop next-generation long-acting antibody

- Neutralizes all known variants of concern
- Phase I/III trial utilizes a novel immunobridging approach



Lessons learned critical for the next pandemic...



**Harmonisation and
collaboration with health
authorities**



**Advanced planning with eye
on the goal**



**International cooperation on
data infrastructures**



Influenza pandemic preparedness



2009 H1N1 pandemic
2016 H5N1 avian influenza
Rapid response



Vaccine Platforms
Intranasal & Intramuscular
mRNA platform



Monoclonal Antibodies
Potential to play a key role in
prevention for the most
immunocompromised





Thank you