Covid-19 VACCINE DEVELOPMENT PLATFORMS

CEPI

ADVAC ALUMNI MEETING

02 APRIL, 2020

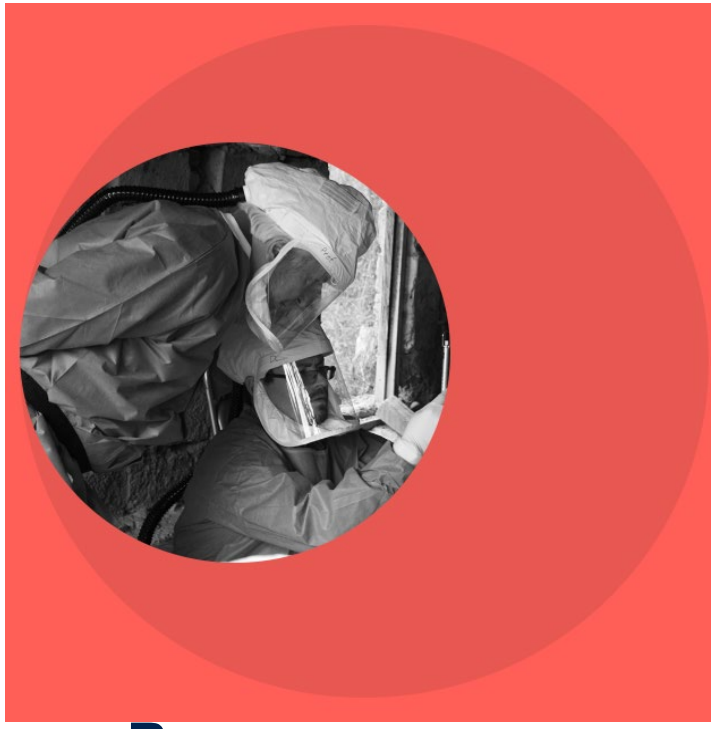
Our mission

CEPI accelerates development of vaccines against emerging infectious diseases and enables equitable access to these vaccines for affected populations during outbreaks

Our Strategic Objectives

Preparedness

Advance access to safe and effective vaccines against emerging infectious diseases



Response

Accelerate the research, development and use of vaccines during outbreaks

Sustainability

Create durable and equitable solutions for outbreak response capacity

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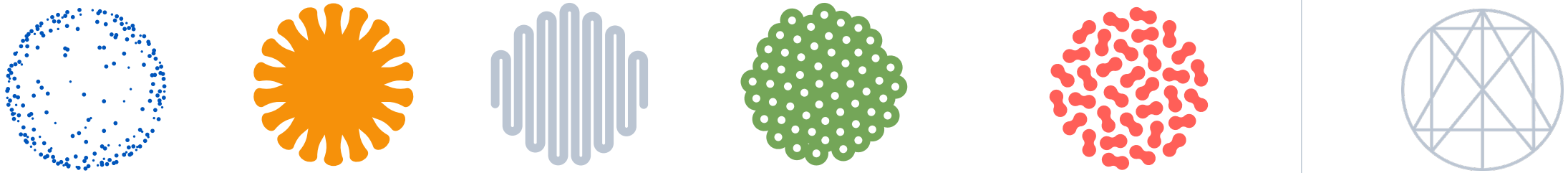
A sustainable partnership

1 DISCOVERY	2 DEVELOPMENT / LICENSURE	3 MANUFACTURE	4 DELIVERY / STOCKPILING	5 LAST MILE
Academia	Industry	Industry	GAVI	Countries
Governments	Governments	BARDA	UNICEF	WHO
Wellcome Trust	Regulators	CMOs	PAHO	UNICEF
NIH	Wellcome Trust	Regulators	Governments	Responding
IMI	NIH	Governments	WHO	Organisations (eg,
GLOPID-R	EC	WHO	Industry	MSF)
Industry	IMI	GHIF	Pandemic Emergency	
Regulators	BMGF		Facility (World Bank)	
Biotech	BARDA/DTRA etc.		WHO Contingency	
	WHO		Fund	
	Biotech			
	PDPs			

CEPI's strategic portfolio targets



Lassa | MERS-CoV | Nipah | Rift Valley Fever | Chikungunya | Disease X

Advance at least one vaccine for each pathogen through phase IIa and stockpile within five years of funding

Support activities enabling late stage development, prequalification and access

Advance through phase I multiple rapid response platforms with potential to significantly improve speed of vaccine development against multiple pathogens

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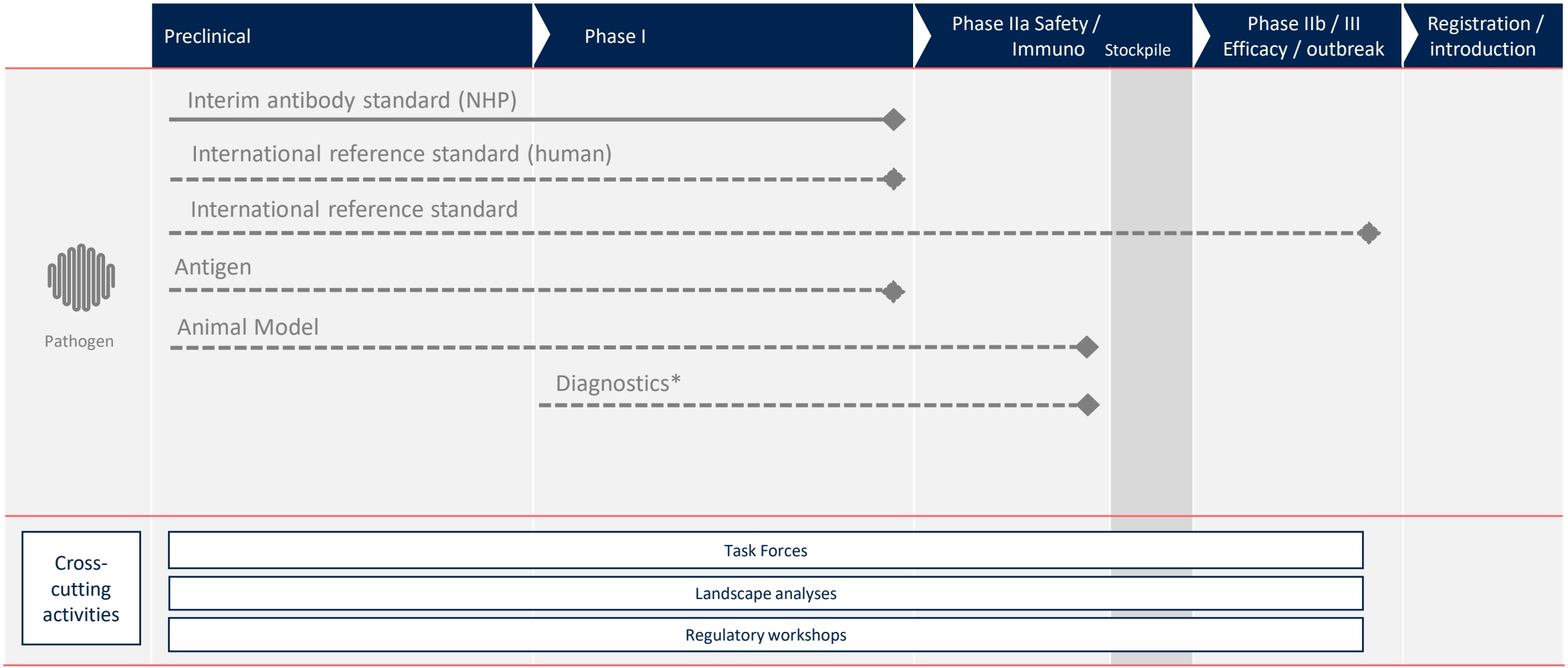
CEPI's enabling sciences portfolio support advancement of vaccine candidates



Lines show timelines for ongoing (filled line) and planned (dotted line) projects; diamond show deliverable deadlines

* Funding not yet allocated

CEPI's Rapid response platforms Reducing vaccine development time

CEPI will **accelerate** development by use of **vaccine technology platforms**

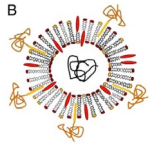
Aspirational goals

- 16 weeks from identification of pathogen to product for clinical trial
- 6 weeks from first dose to clinical benefit
- 8 weeks to manufacture 100,000 doses

CEPI funding approach

- Test platform versatility on three pathogens, two into phase I
- Characterize the safety and immunology profile
- Live fire exercise – for disease X

Platforms



- mRNA - Curevac
- SA RNA - Imperial

- Recombinant proteins – molecular clamp

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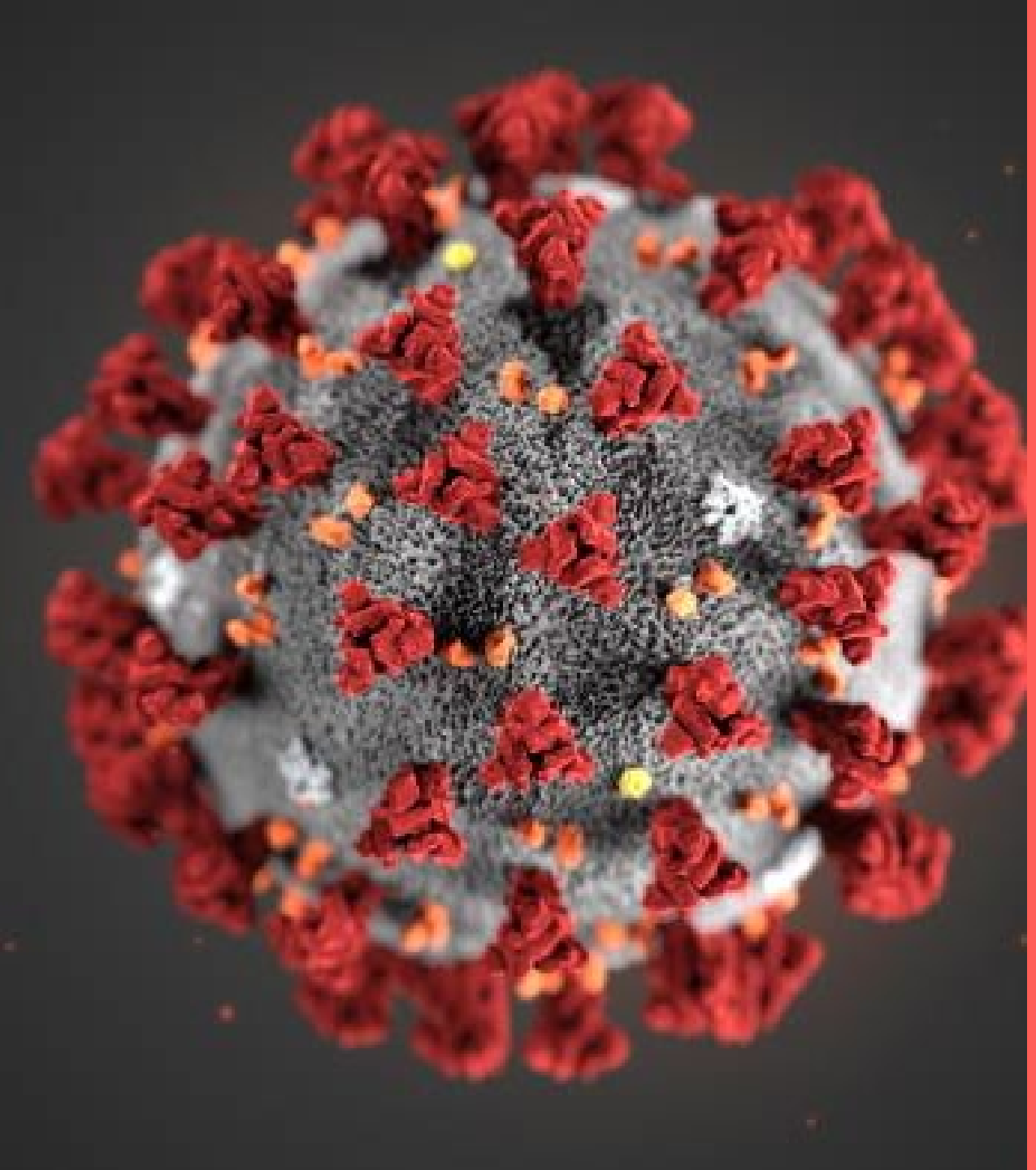

Disease X: COVID-19

As of 01 April:

CONFIRMED CASES: > 750,000

DEATHS: >36,000

The rapid global spread and unique epidemiological characteristics of the novel coronavirus disease, COVID-19, is deeply concerning.

CEPI has moved with great urgency and in coordination with WHO, who is leading the development of a coordinated international response.

We have initiated several programmes which will leverage our work on MERS and innovative new technologies to speed up vaccine development against COVID-19.

CEPI's response to COVID-19

speed, scalability and access

- **Rapid response platforms**
- **More proven vaccine technology already at scale**
- **Adjuvants**
- **Enabling sciences**
- **Global manufacturing capacity**

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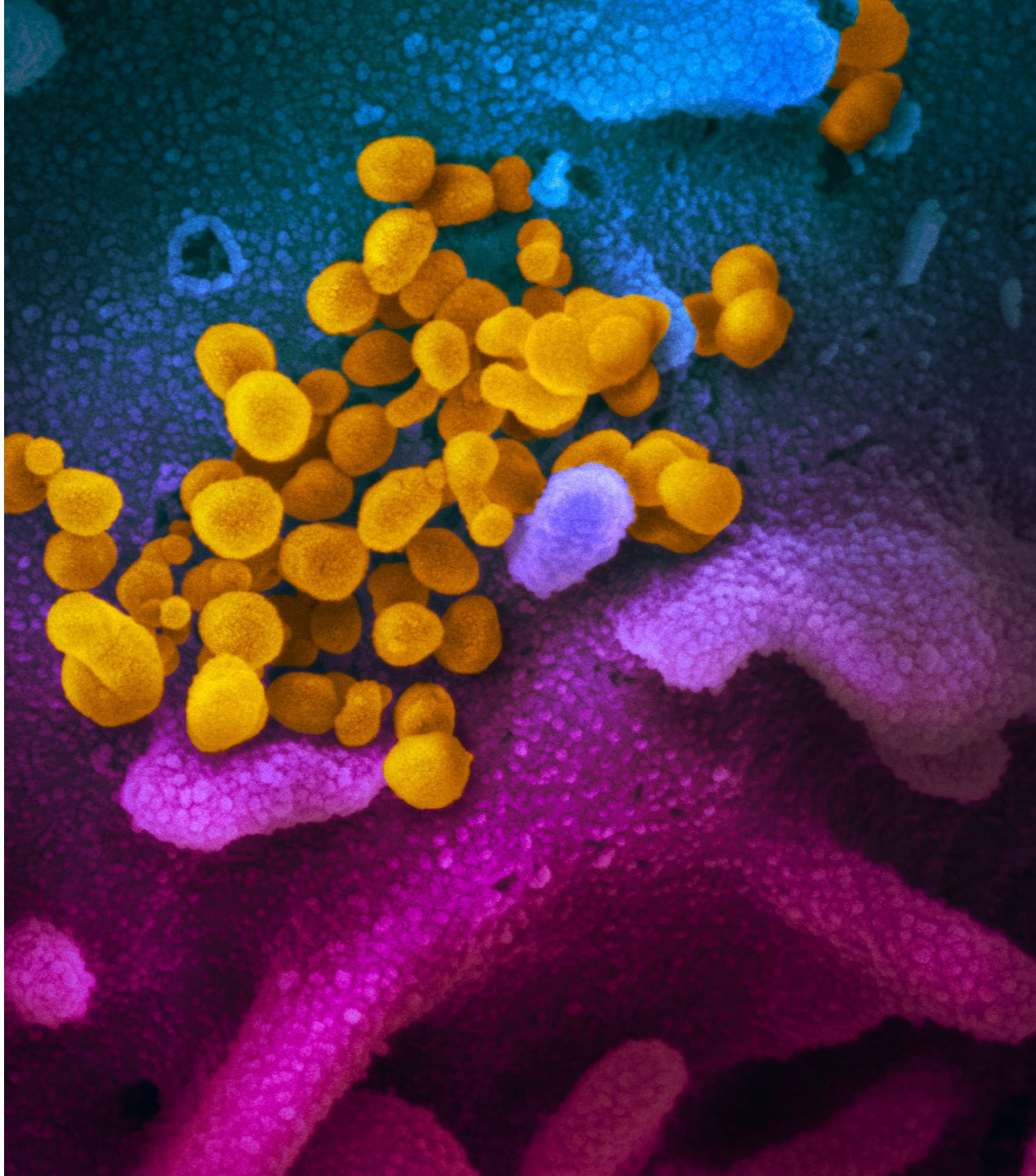
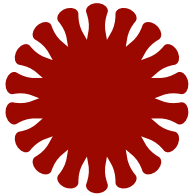


Current CEPI COVID-19 portfolio

	Technology platform	Antigen	Partner type	Geo allocation	Manufacturing scalability (High/medium/low)
Inovio	DNA	Spike	Biotech	US	Medium/Low
Moderna	mRNA	Spike	Biotech	US	High
CureVac	RNA	Spike	Biotech	EU	Proprietary
Queensland	Subunit	Spike	Academic	Australia	High
Novavax	VLP	Spike	Biotech	USA	High
University of Oxford	ChadOX	Spike	Academic	UK	Low
University of HongKong	Viral vector	Spike RBD	Academic	Hong Kong	High
IP Themis	Viral vector	Spike	Academic/Industry	France/Germany/India	High

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Moderna already in first in human clinical trial – in just 63 days

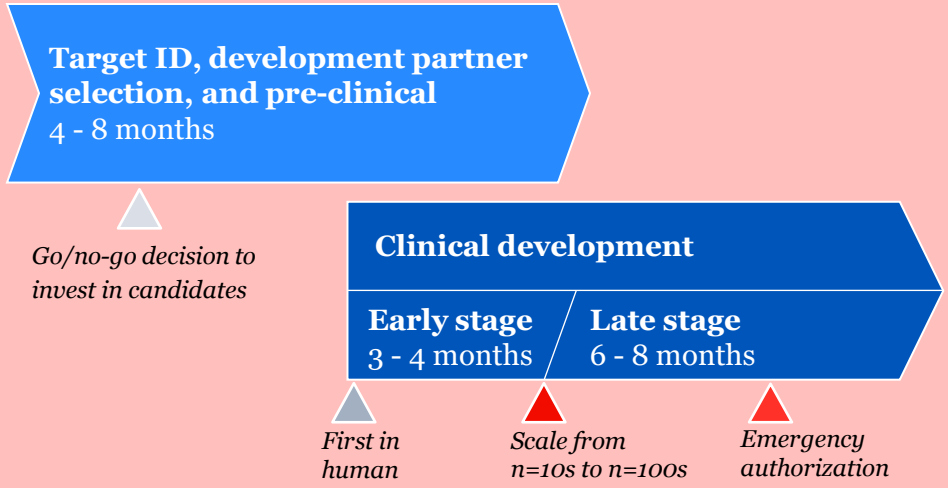
Platform attributes

Vaccine Platform Type	Attributes			
	Single dose	Licensed technology	Speed	Current scale
Inactivated	No	Yes	Medium	Medium/high*
Recombinant protein	No	Yes	Medium/Fast	High*
Live attenuated	Yes	Yes	Slow	High
DNA	No	No	Fast	Medium
RNA	No	No	Fast	Low/medium
Vector based	Yes	Yes	Medium	High

Only a fundamental paradigm shift provides potential of rapid vaccine development with appropriate safety standards

Traditional paradigm
6- 11.5 years

Outbreak paradigm
12 - 18 months



Major shifts

Speed: Accelerate and advance development stages in parallel with continuous risk-benefit monitoring; quickly raise and deploy funds

Scale: Adaptive versus rigid development process and earlier launch of scale-up

Access: Geographic spread of manufacturing and development sites and pursuit of emergency authorization before licensure

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