Reassortant Rotavirus Vaccine, Live, Oral, Hexavalent (Vero Cell)

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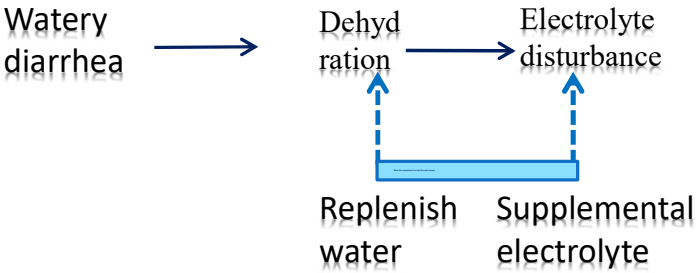
I. Etiology and Disease Burden

Pathogen and Disease Burden

- Rotavirus diarrhea is the main cause of moderate to severe diarrhea among children under 5 years old in the world.
- In the unvaccinated population, almost all babies have experienced rotavirus infection at least once before the age of 2.



"Autumn diarrhea"

Table 4. Pooled costs due to RV AGE treated at outpatient and inpatient.

Cost (US $)	Outpatient $n = 3328$ cases	Inpatient $n = 2757$ cases	Total $n = 6085$ cases
Direct costs (Mean, 95%CI)	38.7 (32.8–44.6)	387.7 (315,9–459.5)	193.8 (144.5–243.1)
Direct medical costs (Mean, 95%CI)	25.1 (21.4–28.9)	309.2 (263.0–355.5)	151.4 (112.2–190.6)
Direct non-medical costs (Mean, 95%CI)	16.8 (12.2–21.4)	89.7 (62.2–117.1)	50.8 (35.8–65.8)
Indirect costs (Mean, 95%CI)	38.3 (31.4–45.2)	117.8 (126.8–228.8)	99.3 (73.4–125.3)
Total social costs (Mean, 95%CI)	73.2 (6.3–86.1)	543.2 (426.8–659.7)	282.1 (213.4–350.7)
Total private costs (Mean, 95%CI)	6.6 (48.6–72.6)	388.6 (292.6–484.7)	206.4 (155.2–257.5)

Data are reflected as mean (95%CI) using US$ as measurements unit. The currency exchange rate is 1US $ to 7.18 RMB.

Heavy disease burden due to RV AGE Treated at Outpatient and Inpatient among Children under 5 years of age in China.

XL et al. Cost-of-illness of gastroenteritis caused by rotavirus in Chinese children less than 5 years. Human Vaccines & Immunotherapeutics. 2023 Dec 15;19(3).

Vaccination

- **Global rotavirus vaccination and supply challenges**

Country / Region	Vaccination rate%
African Region	61
Eastern Mediterranean Region	54
European Region	41
Region of the Americas	75
South-East Asia Region	68
Western Pacific Region	7

Global vaccination rate: 55%

WHO recommended vaccination rate: 90%

Data source:
1. UNICEF (United Nations Children's Fund Committee);

◆The RV market is in a low state of health characterised by a supply-demand imbalance, high-risk level of supply insecurity and fragility, and the inability to consistently supply of countries' preferred Rota products due to constraints on vaccine manufacturing capacity.

◆Global rotavirus vaccination coverage is **insufficient**! Supply **shortage**!

◆Since 2018, at **least 20 countries** have faced supply disruptions.

◆ Current vaccines on the market **do not cover** epidemic strains **completely**! The clinical protection rate is **not high**! Immunization programs are **diverse**!

It is urgent to develop rotavirus vaccine with more complete coverage and higher protection rate of epidemic strains.

II. Novel Product Snapshot

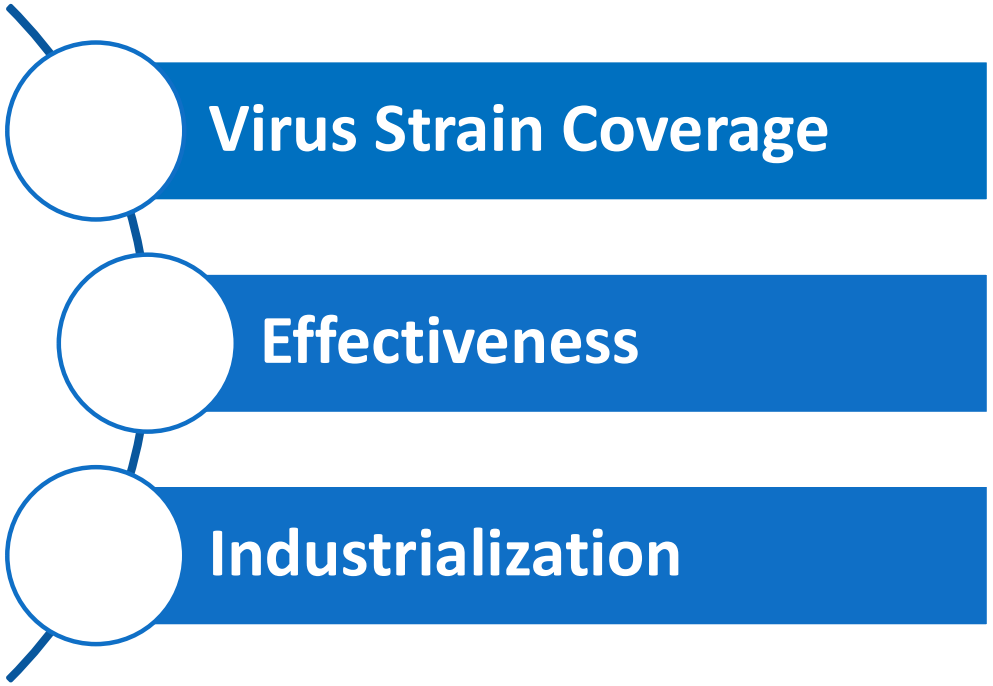
Reassortant Rotavirus Vaccine, Live, Oral, Hexavalent (Vero Cell)

Novel Product Snapshot

Reassortant Rotavirus Vaccine, Live, Oral, Hexavalent (Vero Cell)

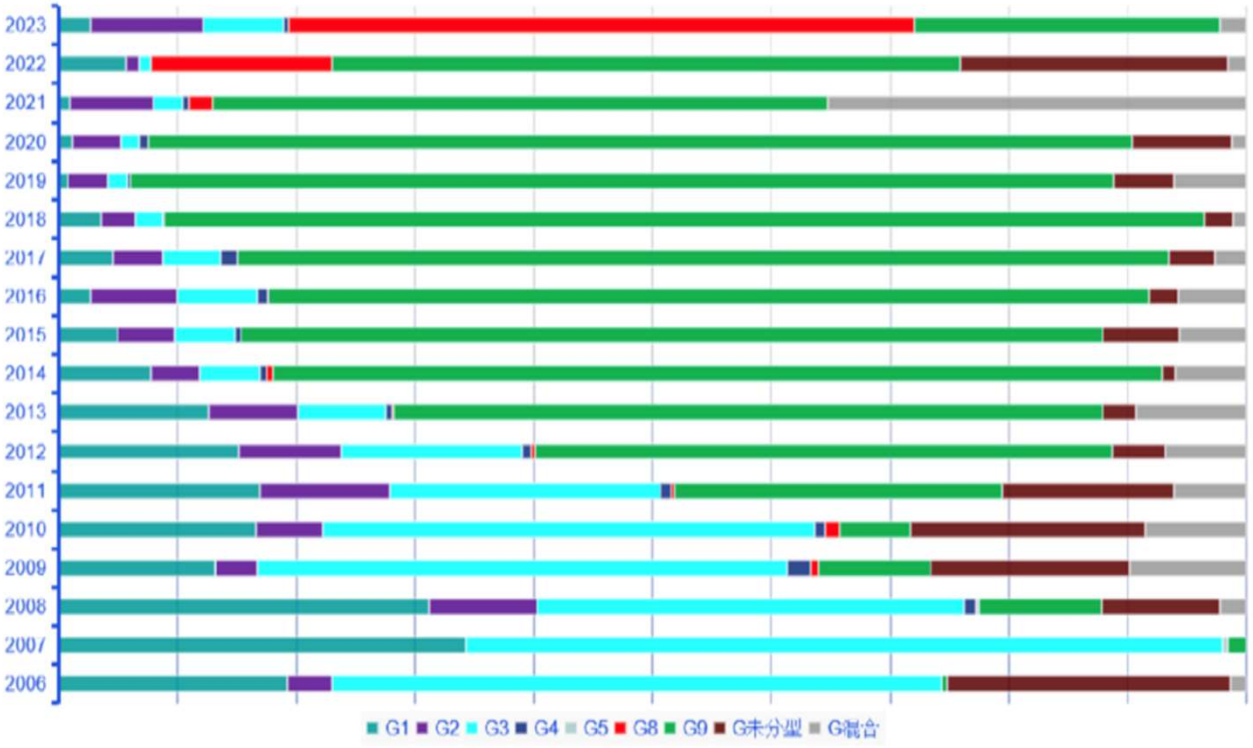
- Trade name: Rotasiro®
- Active ingredient: Human-bovine reassortant rotavirus strain [serotype: G1/G2/G3/G4/G8/G9]
- Administration method: Oral administration
- Eligibles: infants aged 6 ~ 12 weeks for 1st dose， with an minimum interval of 4 weeks
- Specification: 2.0 ml/vial.
- Validity period: 18 months (to be approved).
- Storage conditions: 2-8 ℃.
- National Class I innovative vaccine for children to prevent diarrhea in children caused by rotavirus.
- The first rotavirus vaccine with the highest coverage rate of epidemic strains in China and the world.

III. Superiority



Virus Strain Coverage

Epidemiological trend in China



Before 2010, G1, G2 and G3 were the dominant strains. After 2011, G9 has gradually become dominant in China. In the past three years, G8 has gradually increased in China.

In 2023, G8 became the dominant strain in China.

Similar trend can be observed in Vietnam and Brazil .

Data reported by the Chinese Center for Disease Control and Prevention at the Fifth International Symposium on Rotavirus and Norovirus.

Ly K.T. Lea,et al, Genetic diversity of G9, G3, G8 and G1 rotavirus group A strains circulating among children with acute gastroenteritis in Vietnam from 2016 to 2021, Infect Genet Evol. 2024 March ; 118: 105566.

Roberta Salzone Medeiros, et al. Genomic Constellation of Human Rotavirus G8 Strains inBrazil over a 13-Year Period: Detection of the Novel Bovine-lG8P8 Strains with the DS-1-like Backbone. Virus, 2023,15,664.

Efficacy--Clinical Trial List

Clinical Trial List

Item	Location	Initiation Date	Registry No.	Research status
Phase I	Zhengding, Hebei province, China	July 2016	CTR20150878	Completed
Phase II	Zhengding, Hebei province, China	June 2017	CTR20170417	Completed
Phase III	Hebei, Hunan, Guangxi and Zhejiang province, China	May 2019	CTR20180324	Completed
Lot-to-Lot Consistency	Hebei and Shandong province, China	Dec 2023	ChicCTR2500097341	On going

- Comply with all the national regulatory and ethical standards as well as the ICH GCP.
- Phase I/II/III clinical trials have been completed, and the **Phase III clinical results show that the product has good protective efficacy, safety and immunogenicity.**Now a lot-to-lot consistency study is ongoing.

Efficacy

Study endpoint	Vaccine group(N=2728)	Placebo group(N=2752)	Efficacy (%,95%CI) （mFAS）
RVGE of any severity caused by infection with rotavirus G1/G2/G3/G4/G8/G9	48	127	62.43(47.64,73.05)
SRVGE caused by natural infection with rotavirus G1/G2/G3/G4/G8/G9	9	68	86.77(73.49, 93.04)
RVGE requiring hospitalization caused by infection with G1/G2/G3/G4/G8/G9	5	33	84.78(61.00, 94.06)
RVGE of any severity caused by infection with any rotavirus serotype	51	129	60.09(49.11, 72.92)
SRVGE caused by any rotavirus serotype	10	70	85.72(72.31, 92.64)
RVGE requiring hospitalization caused by any serotype	5	33	84.78(61.00, 94.06)

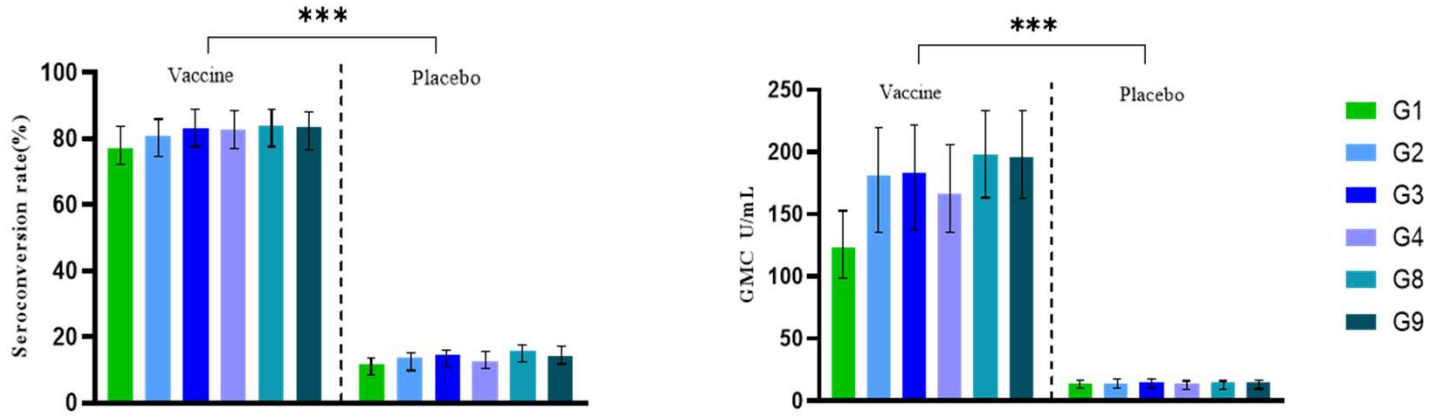
After three doses:

Protective efficacy against RVGE disease of any severity caused by vaccine serotypes: 62.43%.

Protective efficacy against severe RVGE: 86.77%.

Protective efficacy against RVGE requiring hospitalization: 84.78%.

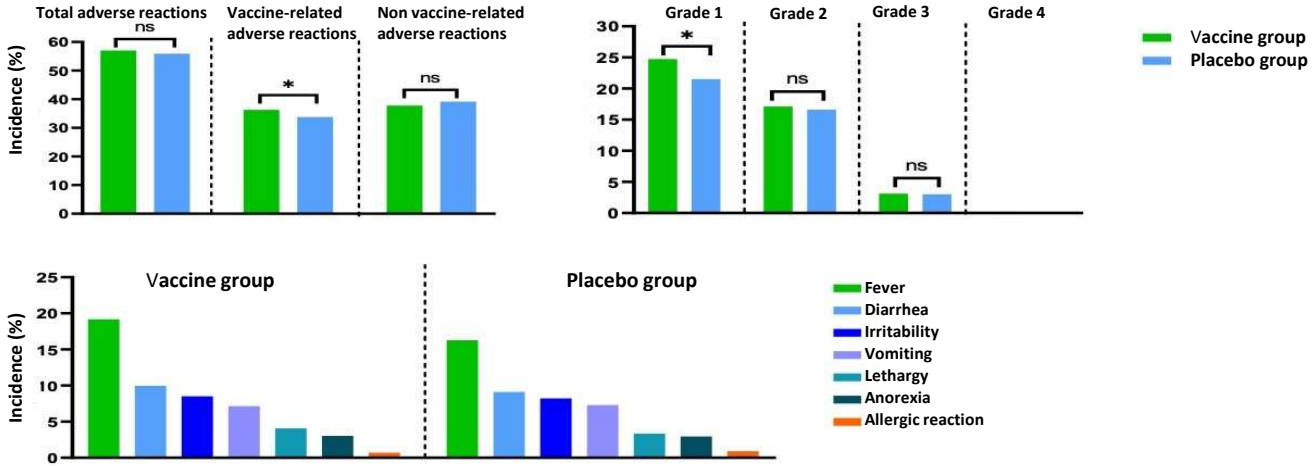
Phase III Clinical Immunogenicity Results



- Seroconversion rates (**≥4-fold rise** in IgA) were significantly higher in the vaccine group across all serotypes.
- Geometric mean concentrations (GMCs) were robust, confirming strong immune response.

Safety Profile

Phase III Clinical Safety Results



- The incidence of vaccine-related adverse reactions was 36.27% in the vaccine group and 33.76% in the placebo group, slightly higher in the vaccine group.
- Adverse reactions were primarily grade 1 or 2, with main symptoms including fever, diarrhea, vomiting, etc.
- No serious vaccine-related adverse events were reported.

Industrialization

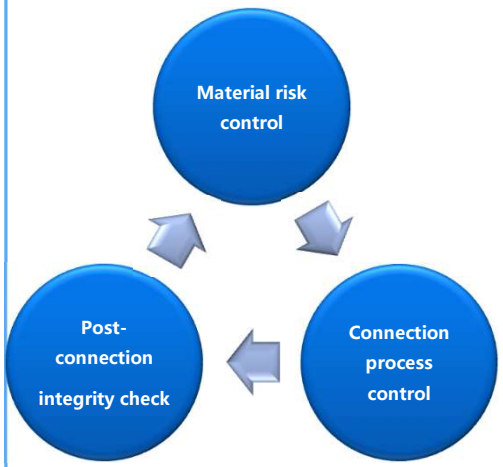
Process features and advantages

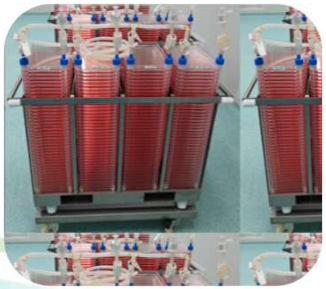
Production components

Assembly

Closure system

- Suitable for large-scale cultivation ——Single-use cell factory culture system, easy to scale up in parallel
- Low risk of contamination ——Fully enclosed operation，minimizing contamination risks
- High safety standards——Low-serum cultivation, no antibiotics or preservatives added throughout the process
- Massive production capacity--24 million doses per year

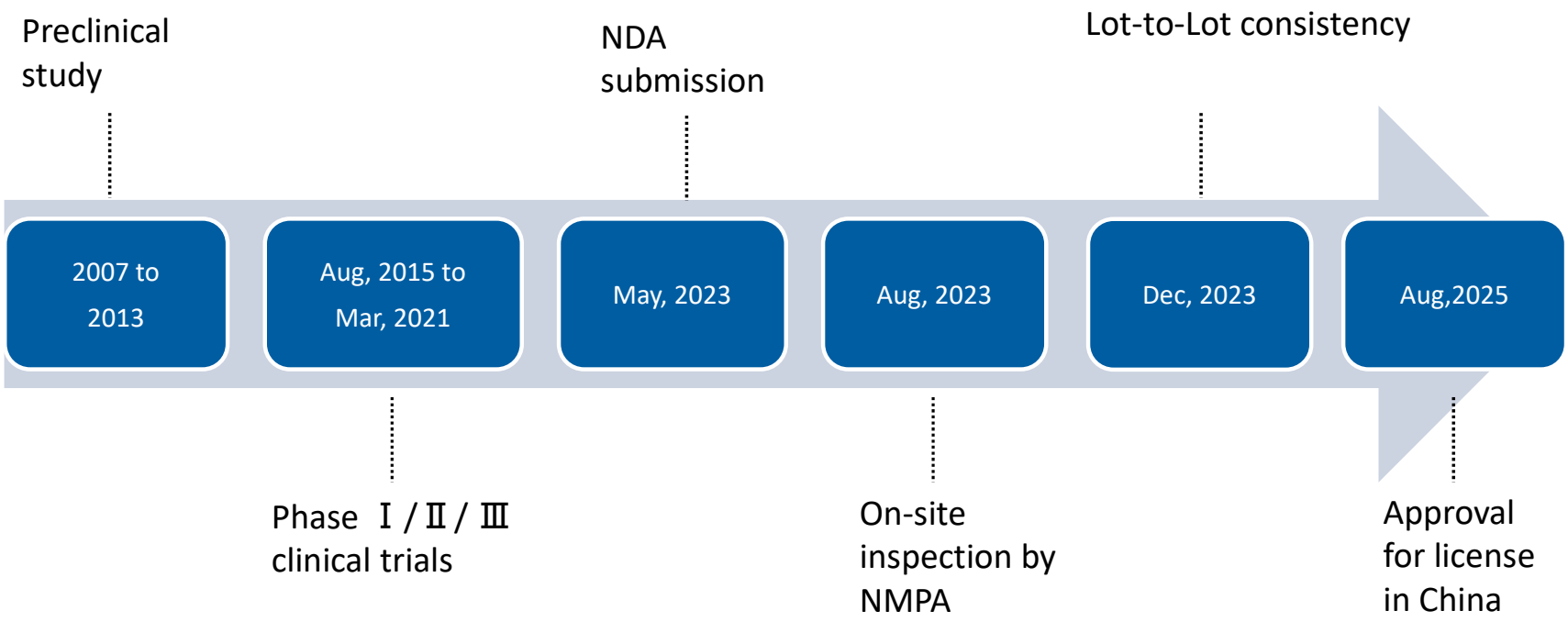




Closure system contamination risk control

IV. Globalization

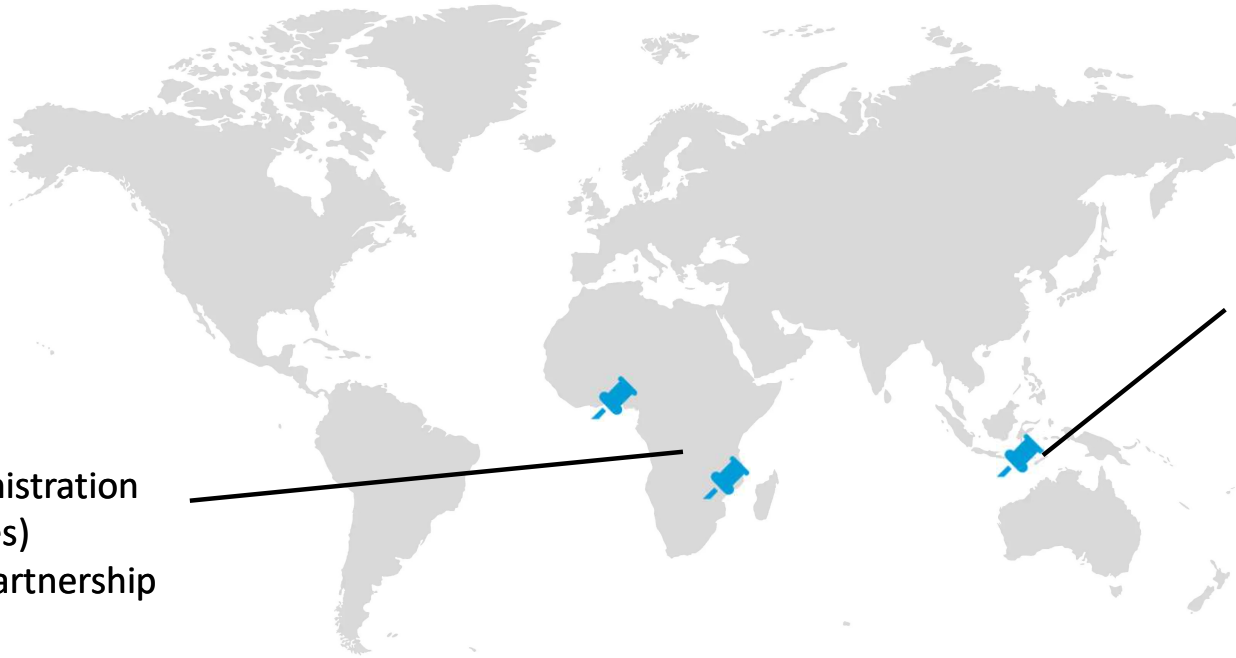
Timeline



- **2025. Aug： Approved by the NMPA of China**
- **2028. Q1： Submission of PQ application**

Marketing

Building partnerships in Africa and Asia



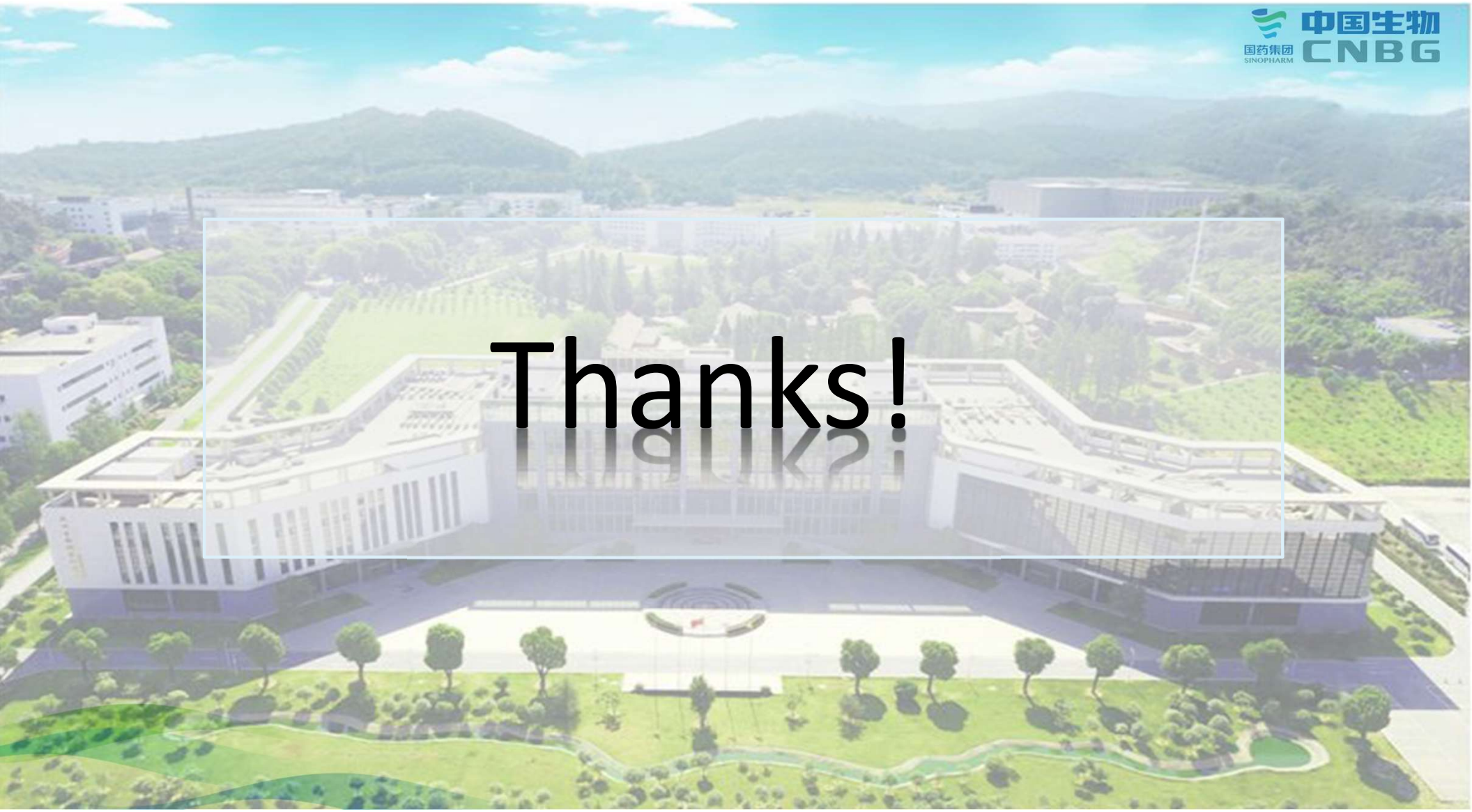
Asia
Comprehensive global registration partnership

Africa
Kenya:
Clinical trial (co-administration study with EPI vaccines)
Explore registration partnership

Our goal: equitable access for low- and middle-income countries.

Summary

- Rotasiro® is China's first-in-class, WHO-aligned hexavalent rotavirus vaccine, delivering the broadest global strain coverage (G1, G2, G3, G4, G8, G9).
- Phase-III data demonstrate **high efficacy** against severe RVGE (86 %) and hospitalization (84 %).
- With an annual capacity of 24 million doses, it ensures high-quality supply.
- Rotasiro® is positioned to **close the worldwide supply gap** and become the vaccine of choice for national immunization programs.


Thanks!