

About the Project

1, Relevance of the project (problems and solutions)

- 1) In 2022, the BRICS countries account for more than 29% of the world's GDP, and their population exceeds 46% of the world's total population.
- 2) The Frost & Sullivan Global Vaccine Market Size Report shows that the global human vaccine market grew from approximately US \$27.7 billion to approximately US \$46 billion between 2017 and 2021, representing a compound annual growth rate of 13.5%. As more vaccines are developed and marketed in the future, it is expected to reach about \$83.1 billion in 2025 and about \$131 billion in 2030.
- 3) With a population of around 3.68 billion people, the BRICS countries have a huge demand for vaccines. The development of the vaccine industry is uneven. Take COVID-19 vaccination for example. During the pandemic, the vaccination rate is high. The rapid supply of vaccines has become an urgent need for countries.
- 4) Westvac has the technical advantage of rapid response, iterative vaccine development, and has a capacity of 200 million doses per annum. Whether vaccine products are available during a pandemic epidemic period, or as reserves in case of acute infectious disease outbreaks, Westvac can play an important role.

2, Technical Description

- 1) WestVac currently has 5 major R&D platforms: the insect cell expression, the mRNA vaccine, the new adjuvant, the bacterial vaccine, and the tumor and immunotherapy.
- 2) 7 key pipelines and products include: Recombinant trivalent influenza vaccine (WSK-V104), Recombinant COVID-flu combination vaccine (WSK-V112), Intranasal Respiratory Syncytial Virus (RSV) vaccine (WSK-V110), Acne vaccine (WSK-V108E), New tumor situ vaccine (WSK-IM02), Therapeutic HPV cancer vaccine (WSK-IM05), Anti-fibrotic vaccine (WSK-V304).
- 3) Westvac is the 4th company in the world to have an insect cell expression platform. The other three are Sanofi (France), GSK (UK) and Novavax (USA).
- 4) Westvac enjoys advantage of production scale with quality. Westvac has built 2 manufacturing plants in Chengdu Tianfu International Biological City and Guangzhou Development Zone, with a total of 3 large-scale commercial insect cell production lines (one 3000L and two 5000L), with an annual production capacity of 200 million doses.
- 5) Westvac GMP production plants have been certified by domestic and overseas

authorities. In China, 3 recombinant COVID-19 vaccines and their variant iterations have obtained approval for emergency use.

- 6) Using the insect cell platform, Westvac is currently actively promoting the production and commercialization of Recombinant COVID-flu combination vaccine.

3, Significance of the Project in the BRICS market

- 1) Vaccines will play an important role in the prevention of a possible epidemic disease of Disease X worldwide;
- 2) We should actively promote cooperation among BRICS countries in combating X-borne diseases, and strengthen R&D, production and distribution etc.

4, Competitive Advantages

- 1) Westvac has obtained clinical trial approval for 7 COVID-19 vaccines, 3 of which them have been approved for emergency use in China.
- 2) Westvac's COVID-19 vaccine for XBB is the first variant iterations vaccine approved for emergency use worldwide;
- 3) Using the insect cell platform, Westvac is actively promoting the R&D and production of Recombinant Trivalent Fluidic Vaccine and Recombinant COVID-flu Combination Vaccine
- 4) Other BRICS countries do not have the technology. Technical cooperation is of positive significance to the sharing of vaccine technologies for influenza, COVID-19 and other respiratory and emergent infectious diseases among member countries, as well as the equitable supply of vaccines.

5, Market and economic conditions of the project

- 1) The total population of the BRICS countries is 3.68 billion, representing 46% of the world's total population. The demand for vaccines will increase rapidly as public health spending continues to increase in the future.
- 2) In the period 2020-2022, 1.11 billion doses of vaccines for adults was needed globally, in which 30% was from BRICS countries with annual requirement of 110 million doses annually. Especially during epidemics, the need for vaccines is more urgent.
- 3) With the improvement of the economies and living standards in the BRICS countries, the demand for good quality and variety of vaccines are also increasing.
- 4) Vaccine cooperation projects will also drive the upgrading and transformation of

the vaccine industry. Through the introduction of advanced production technology and management experience, the vaccine industry of BRICS countries has developed rapidly, improving the quality and efficiency of vaccine production.

- 5) Westvac will play an active role in innovative vaccine and biotechnologies.

6, The target market and its development trend, market size

- 1) Vaccine export to BRICS countries have broad market prospects and economic prospects
- 2) Westvac will continue to leverage its advantages on vaccine R&D and production capacity, strengthen cooperation with BRICS countries, and jointly address global public health challenges.
- 3) The total GDP of the 11 BRICS countries in 2022 was USD29.2 trillion, representing 29% of global GDP. The total population of the 11 BRICS countries was 3.68 billion, representing 46% of the world's total population. It is estimated that the demand for vaccines in BRICS countries will account for about 30% global demand. The market size of vaccines will exceed USD24 billion.

7, Business Model

- 1) In house model: independent operation, integrated R&D, Production, Distribution;
- 2) License-out: cooperation with strategic partners.
- 3) Business Development – pipeline cooperation
- 4) CMO Model: cooperate with foreign/domestic companies for production and supply.
- 5) License-in: cooperation with university, hospital and research institution to introduce or acquire preclinical drugs/vaccines;

8, The uniqueness of the business model and the expansion potentials in the BRICS countries:

- 1) License out to counterparties in BRICS countries.
- 2) Business Development - Pipeline cooperation, through upfront payment, clinical phase I, phase II, phase III, production and distribution.
- 3) Build up Local production plants.

9, Experience in Cooperation with BRICS Countries

- 1) Westvac has a strategic plan for technical cooperation in South Africa and has conducted field visits. COVID-19 vaccine have applied for approval in South Africa.
- 2) Westvac has cooperation with Japan and Mexico. The cooperation not only include clinical trials, but also bring forth access to the Japanese Ministry of Health issued "foreign pharmaceutical manufacturers certification - pharmaceutical biological preparation certification permit." The GMP production facility has obtained the GMP certificate issued by the Mexican Federal Agency for the Protection of Health Risks (COFEPRIS), a member of the International Organization for the Certification of Medicines (PIC / s).

10, Social significance of the project;

- 1) Westvac is able to respond to virus mutations and rapidly develop iterative vaccines;
- 2) Production capacity can enable Westvac to guarantee vaccine supply, improve access to vaccines, and equitable distribution.

11, Financials

- 1) Revenue USD 7m in 2023;
- 2) Revenue USD 25m in 2024 expected