Outline

- Sinovac and HepA Vaccine-Healive
- Clinical Studies Program
- Preparation of PQ Application
Sinovac-A leading vaccine company in China

We are:
1st company to develop inactivated hepatitis A vaccine in China
1st company to develop combined hepatitis A and B vaccine in China
1st company to complete phase I clinical trial on SARS vaccine worldwide
1st company to develop H5N1 vaccine in China
1st company to develop and get license of H1N1 vaccine worldwide
1st and only Chinese vaccine company listed in Nasdaq
Our Mission

Supply Vaccines To Eliminate Human Diseases

• Provide Chinese Population with International Quality Vaccines
• Provide Vaccines Made in China to Worldwide

Our Products:
- Hepatitis
- HFMD
- Influenza

Inlive
International R&D Platform
Manufacturing Facilities

Manufacturing Plants

**Headquarter - Beijing**
- **Healive production plant**
  - Capacity: 10 million
- **Filling & Packaging Plant**
  - Capacity: 20 million
- **Anflu Production plant**
  - Capacity: 8 million
- **R & D Center**

**Dalian**
- **Vero Cell Cultured Vaccine and Live Attenuated Vaccine**
  - Capacity: 6-15 million
  - Building Area: 95,000 square meters

**Tangshan**
- **Yi’an Animal Vaccine**
  - Capacity: 5-20 million
  - Building Area: 13,500 square meters

**Changping District, Beijing**
- **Novel Vaccine Production Base**
  - Capacity of Filling and Packaging: 100 million
  - Capacity of EV71: 10-20 million
  - Building Area: 29,000 square meters
Hepatitis A vaccine —— Healive

- Liquid injection, single dose in vial or syringe;
- Each dose containing 1.0 ml (over 16) or 0.5 ml (1-15 years old);
- Immunization schedule: 0, 6 month, i.m.;
- Storage condition: 2-8°C protection from light;
- Shelf life: 42 months;
Healive has been registered in China, Nepal, Mongolia, Chile and Turkey.

Healive is being registered in India, Mexico, Korea, Philippine, Pakistan…

More than 40 million doses of Healive have been distributed in the world.
WHO Position and Recommendation

- WHO position paper on Hepatitis A vaccine Published in the weekly epid.2012
- Inactivated Hep A vaccine are safe and induce long-lasting, possibly life-long protection against A in all age groups
- Vaccination should be part of comprehensive plan for prevention/control of viral hepatitis
- If indicated (cf local EPI and cost effectiveness data) Hep A vaccination for children ≥1y should be integrated into NIP
- Inactivated HepA vaccine are licensed for IM use in a 2-dose schedule. May be co-administered with other vaccines.
- As of today only one HepA vaccine WHO prequalified (Havrix) in 2013.
Strains Used for Hepatitis A vaccine

Table 1: Monovalent inactivated hepatitis A vaccines available worldwide.

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Attenuated HAV strain</th>
<th>Adjuvant</th>
<th>HAV antigen dose/injection</th>
<th>Manufacturers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pediatric</td>
<td>Adult</td>
</tr>
<tr>
<td>HAVRIX®</td>
<td>HM-5</td>
<td>Alum hydroxide</td>
<td>720 EU</td>
<td>1440 EU</td>
</tr>
<tr>
<td>VAQTA®</td>
<td>CR-326</td>
<td>Alum hydroxide</td>
<td>25 U</td>
<td>50 U</td>
</tr>
<tr>
<td>AVAXIM®</td>
<td>GBM</td>
<td>Alum hydroxide</td>
<td>80 U</td>
<td>160 U</td>
</tr>
<tr>
<td>EPAXAL®</td>
<td>RG-SB</td>
<td>Virosome</td>
<td>12 U</td>
<td>24 U</td>
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</tbody>
</table>

Source: Adapted from WHO 2011

Table 2: Monovalent inactivated and live attenuated hepatitis A vaccines available in China.

<table>
<thead>
<tr>
<th>Trade name</th>
<th>HAV strain</th>
<th>Adjuvant</th>
<th>HAV antigen dose/infection</th>
<th>Manufacturers</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pediatric</td>
<td>Adult</td>
</tr>
<tr>
<td>Healive®</td>
<td>TZ84</td>
<td>Alum hydroxide</td>
<td>250 U</td>
<td>500 U</td>
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<tr>
<td>Weisairuian</td>
<td>Lv-8</td>
<td>Alum hydroxide</td>
<td>320 EU</td>
<td>640 EU</td>
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<tr>
<td>Weisairuiji</td>
<td>H2</td>
<td>None</td>
<td>6.5lg TCID50</td>
<td>6.5lg TCID50</td>
</tr>
<tr>
<td>NA</td>
<td>H2</td>
<td>None</td>
<td>6.5lg TCID50</td>
<td>6.5lg TCID50</td>
</tr>
<tr>
<td>NA</td>
<td>L-A-1</td>
<td>None</td>
<td>6.5lg TCID50</td>
<td>6.5lg TCID50</td>
</tr>
<tr>
<td>HAVAC</td>
<td>L-A-1</td>
<td>None</td>
<td>6.5lg TCID50</td>
<td>6.5lg TCID50</td>
</tr>
</tbody>
</table>
Healive : Clinical Development Plan

- Pre-licensure Studies
  - Safety
  - Immunogenicity, step down design for age group, dose and schedule immunization selection

- Post-Marketing Studies
  - Non inferiority with Havrix®
  - Lot to Lot consistency
  - Long term immunogenicity persistency
  - Interchangeability between Healive® and Havrix®
  - …

- Total 26 clinical trial were conducted in China since 1998, and one trial in India is in the process.
## Summary of Clinical Experience

<table>
<thead>
<tr>
<th>Section</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td>Safety</td>
<td>- More than 60,000 subjects in 27 trials</td>
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<tr>
<td></td>
<td>- Similar safety profile with reference vaccine</td>
</tr>
<tr>
<td>Efficacy</td>
<td>- Non-inferiority with reference vaccine</td>
</tr>
<tr>
<td></td>
<td>- Lot to lot consistency</td>
</tr>
<tr>
<td>Application</td>
<td>- Long term persistency Interchangeability with reference vaccine</td>
</tr>
</tbody>
</table>
Preparation of PQ Application

Objective Definition

- Business plan/purpose
- Flu vaccine or Hepatitis A vaccine

Process Analysis

- Priority list checking
- Key tasks definition
- …

Plan

- Key tasks working plan
- Guidelines learning
- Consultants
- …
Clinical data sufficiency is the most important task for our hepatitis A vaccine due to the timeline and cost;
  ◦ Take use of Pre-submission meeting to confirm this key task
  ◦ Communication with PQ team in Geneva
  ◦ Meeting materials preparation
  ◦ Meeting on Feb 27, 2015
  ◦ Post submission meeting on Feb 26, 2016
为人类消除疾病提供疫苗
Supply vaccines to eliminate human diseases

谢谢！

让中国儿童使用国际水平的疫苗
世界儿童使用中国生产的疫苗
Provide Chinese children with international quality vaccines
Provide children in the world with vaccines made in China