



# Raybow

PHARMACEUTICAL



# A brief history

2008

Established in Linhai, Taizhou, started CDMO service for European multinational pharmaceutical companies



2012

Started CDMO service for US multinational pharmaceutical companies

2018

Re-branded as Raybow Pharmaceutical

2019

Constructed R&D facility Hangzhou  
Acquired GMP API facility in Suzhou  
Acquired GMP US facility in Brevard, North Carolina







# Highlights of Raybow Pharma

Technical Excellence	Worldwide Recognition	Excellence in HSEQ	Track Record
<p>~ 400 experienced chemists lead by industry-renowned scientists, about 10% PhDs, and &gt;50% with MSc degrees.</p> <p>Leading technology platform</p> <ul style="list-style-type: none"> <li>-Asymmetric ligands</li> <li>-Fluorination chemistry</li> <li>-Continuous Flow Chemistry</li> </ul>	<p>300+ clients worldwide.</p> <p>70% of revenues from Western pharma and biotech.</p> <p>30% of revenues from Asia.</p>	<p>Repeatedly passed worldwide regulatory authority inspections (FDA, Europe, Japan, China, Brazil, Mexico).</p> <p>Passed strict EHS audit from multinational pharma companies.</p> <p>Continuously ranked as No.1 EHS performer in local industrial park which includes other multinational manufacturers.</p>	<ul style="list-style-type: none"> <li>- Delivered 450+ projects.</li> <li>- 98%+ on time delivery.</li> <li>- Annually deliver 400+ tons brand name APIs to top pharmaceutical companies.</li> <li>- Annually deliver 150 kg drugs for niche applications</li> <li>- Supported clients to launch 3 innovative drugs. The drug launched in 2016 has passed USD</li> </ul>

Top 100 Sales in 2016.

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# Contract Research, Development & Manufacturing Service



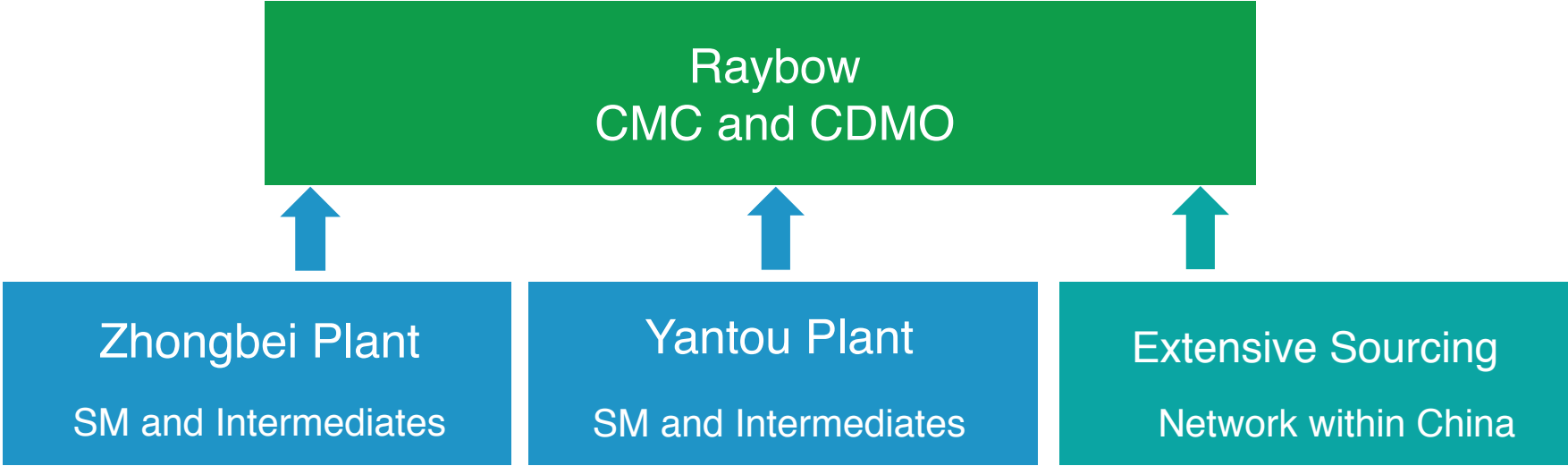
## Customized Services

Preclinical study(CMC)	Clinical stage	NDA filing support and commercial production	
<i>Process design</i> <i>Analytical method development</i> <i>Preparation of reference standard</i> <i>Preparation of toxicity batch</i> <i>Verification of impurity profile</i> <i>Verification of process parameters and quality attribute</i> <i>Creation of Specifications</i> <i>HAZOP analysis</i> <i>Preparation of IND filing batch</i> <i>Stability study and IND filing support</i>	<i>Technical transfer</i> <i>Process &amp; COGS optimization</i> <i>Analytical method optimization &amp; validation</i> <i>Verification of CMA and CQA</i> <i>Quality risk analysis</i> <i>Production safety EHS evaluation (HAZOP, ARC, DSC, TGA)</i> <i>Production of clinical API</i> <i>Stability study</i>	<i>Kilogram to Multi-ton scale production</i> <i>RSM, intermediate and API</i> <i>Process validation</i> <i>NDA filing support</i> <i>Process optimization</i> <i>Commercial production</i> <i>Long-term stability study</i>	<i>Customized production solutions as per client requirements</i>  <i>Flexible production planning</i>  <i>Worldwide on time delivery</i>  <i>Production follow up and continuous improvement</i>

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# Full vertical integration for secure sourcing and timely delivery



All major internal and external raw material suppliers have been audited by the Raybow EHS department.

# Activities in relation to international business

## **Achieved in 2019:**

- Denmark selected as European Hub, Copenhagen affiliate started
- Germany selected as Sales and Support, Munich affiliate started
- USA expansion, Acquired facility and started newco in the US
- PRC expansion, Acquired facility, started two companies in PRC

# Raybow R&D Hangzhou

Opened 2019

Assymetric Catalysis

Fluorination R&D

Green Chemistry

Continuous Flow R&D

Risk mitigation

Reaction optimization

COGS optimization

New catalyst R&D



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# Raybow Suzhou Acquired 2019



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# Activities in relation to international business

## Copenhagen site:

- ✓ Office
- ✓ Hiring staffers. Simple and easily arranged (all-in)
- ✓ Overall salary level in Denmark is moderate. (All taxes etc are paid by employee!!!)
- ✓ Legal framework is clear and easily understood
- ✓ Documents, incorporation etc are issued quickly. Mostly electronic with zero wait.
- ✓ Tax registration. Consultant probably required, but then it is done in a day
- ✓ Set up for automatic tax&salary payments. Bank/Taxation/.... All works in one automated system.
- ✓ EMA pharmaceuticals, import/export license. Local office is accessible for meetings and highly professional
- ✓ Mature service sector. Legal, Accounting, Book keeping ect all available by the hour
- ✓ Government services are accessible and EU compliant.
- ❖ Challenges:
  - ❖ Consolidate computerized and manual IT/Accounting etc systems between foreign and Danish entities
  - ❖ Setting up bank accounts



Thank you