

Raybow USA, a Jiuzhou Pharma subsidiary, is a trusted chemical CDMO specializing in custom synthesis, process development, analytical services, and cGMP production for small molecules, specialty chemicals, and polymers.

Bridge the gap between discovery and supply with Raybow's flexible solutions, regulatory expertise, and collaborative approach ---all bringing innovative products to market faster.

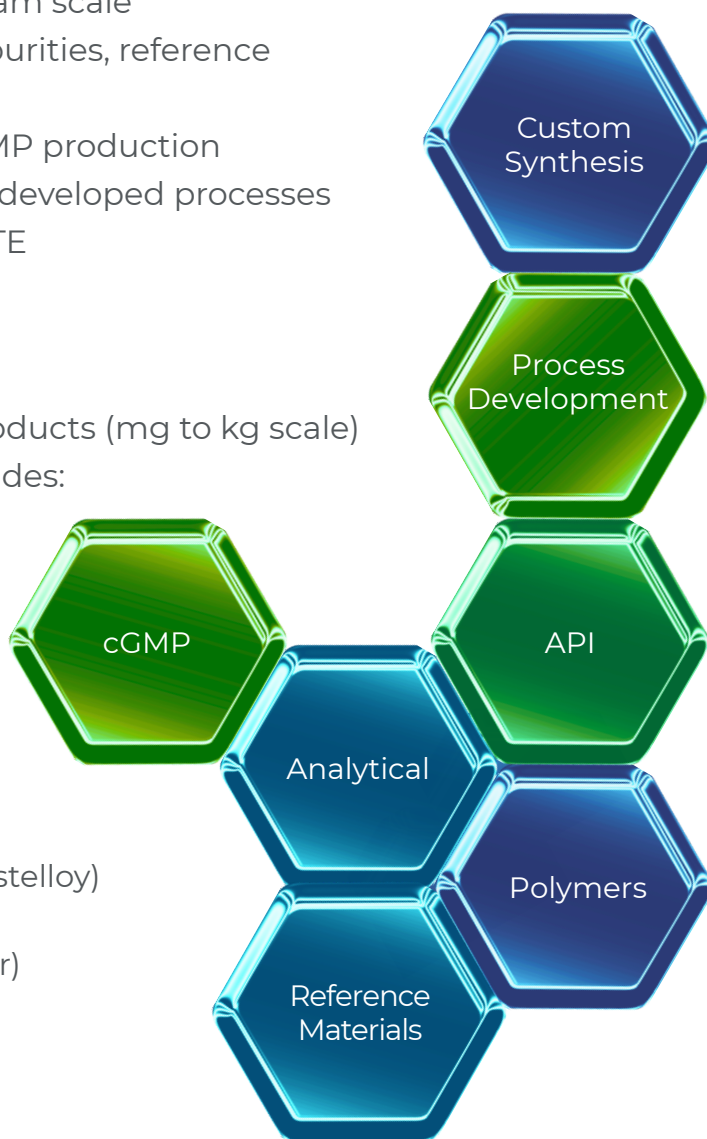
## Raybow USA Core Capabilities

### Custom Synthesis & Process Development

- Synthetic route design & optimization
- Multi-step synthesis from milligram to kilogram scale
- Final targets, intermediates, metabolites, impurities, reference materials, and focused analog libraries
- Seamless scale-up from bench to kilo for cGMP production
- Production using client-provided or Raybow-developed processes
- Flexible billing: Fixed Bid, Time & Materials, FTE
- All IP is retained by the client

### Production Capabilities

- In-house production for cGMP & nonGMP products (mg to kg scale)
- Reaction vessels & synthetic equipment includes:
  - 72 L reactors and workup stations
  - 50 L glass jacketed reactors
  - Parr pressure reactor (19 L)
  - Buchiglas reactors (0.5–2.0 L)
  - Corning bench-top flow reactor
  - 20 L rotary evaporators
  - Centrifuge (SS, 14", 7 L, 2500 G)
  - MBraun glove box
  - Filter dryer (GL Filtration Pilot 1–5 kg C22 Hastelloy)
  - Prep MPLC systems (up to 24 L silica)
  - Jet Mill (Fluid Energy Model 0101 Jet-O-Mizer)
- Full regulatory compliance



## Analytical Chemistry, Quality Control, and Quality Assurance

- On-site analytical expertise
- Product release testing
- Methods development & validation
- Reference materials qualification
- CoA review & approval
- Impurities identification
- Impurities characterization
- ICH stability studies
- Forced degradation studies

## Extended Capacities via Parent Company Jiuzhou Pharma

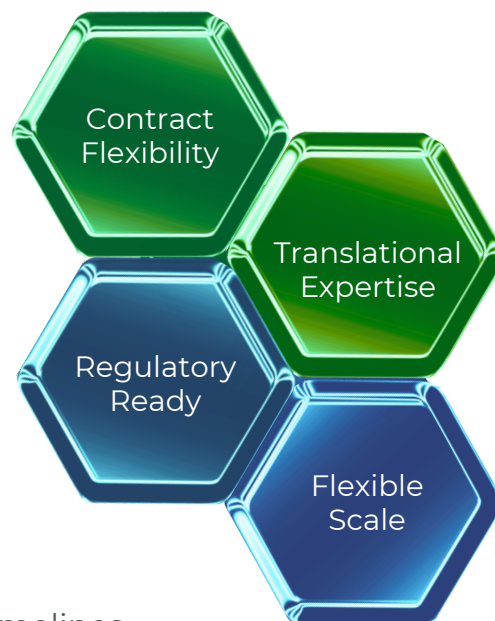
- Large-scale API manufacturing (up to 25,000 L reactors)
- Large-scale flow chemistry (100 kg – 100 ton/year)
- Large-scale chiral separations - Enabling seamless transition of early-phase projects to late-phase and commercial production
- High-potency workshop (OEB 4 & 5)
- Peptide & conjugate drug development
- Formulation R&D and production

## Why Partner with Raybow USA?

- Translational Expertise – proven path from R&D to supply
- Flexible Scale – milligrams to kilograms with responsive timelines
- Regulatory Ready – FDA registered operations

## Analytical Capabilities

- Analytical instrumentation includes:
  - LC/MS triple quad & APCI/ESI
  - HPLC (UV/DAD/ELSD/RI/CAD)
  - Prep-LC (UV & mass-selective detection)
  - GC/MS (EI) and GC (FID/headspace)
  - Particle Size Analyzer (Anton Paar PSA990)
  - Cary 3500 UV-Vis
  - 400MHz NMR (<sup>1</sup>H, <sup>13</sup>C, <sup>19</sup>F, <sup>31</sup>P)
  - DSC (Waters TA250)
  - XRPD (Bruker D2 Phaser)
  - FT-IR with ATR sampler
  - Karl Fischer



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### Who Raybow USA Serves

Biotech & Pharmaceutical Innovators

Developing APIs and Specialty Chemicals

—from early discovery through

Preclinical, Phase 1, and beyond.