Innovative Chemistry for a Better Future

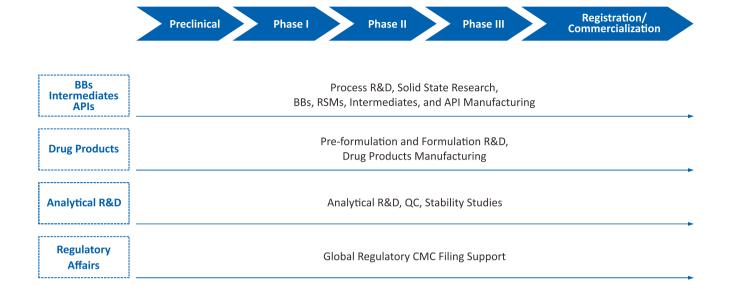


An Integrated CDMO to Advance Your Molecules from Development to Commercialization

PharmaBlock (USA), Inc.
PharmaBlock Sciences (Nanjing), Inc.

PharmaBlock

Fully Integrated CMC Platform



Our Sites



Pennsylvania CDMO Process R&D GMP Kilo-lab Inventory **Customer Service**

USA-2

Pennsylvania CDMO Process R&D GMP Kilo-lab Q4 2022

USA-3

California **Customer Service**



















Nanjing-3 Building Block R&D For 100 chemists

Nanjing-1

CDMO Process R&D For 1000 chemists



Shandong Pilot & Manufacturing Intermediates & DP



Pilot & Manufacturing (GMP) APIs & Intermediates

Drug Development & Manufacturing Solutions

Drug Substance Development and Manufacturing



1000+

 $505 \, \mathrm{m}^3$

190 m

projects delivered in 2021

chemists by Q2 2022 total reactor volume by Q2 2022

to add in Q1 2023

- FFS/FTE for process R&D of intermediates and APIs
- Fast route scouting for optimal ROS
- Robust and phase appropriate process development
- Quality improvement, cost efficient, and PMI reduction driving
- Professional chemical engineering teams working with R&D and QA for process validation
- GMP manufacturing facilities (FDA; NMPA PAI)
- Special capabilities including: HP kilo-lab; GMP compliant micropacked bed hydrogenation; spray dryer, etc.



Drug Product Development and Manufacturing

Pre-formulation

- Physicochemical properties: solubility, pKa, logP, hygroscopicity
- · Screening: polymorph, salt, cocrystal, amorphous dispersion
- Solid state/solution stability: heat, humidity, light, pH, oxidation

Formulation

- · Oral solid dosage form design, development
- Drug/excipient compatibility, stability
- · Solubility, bioavailability enhancement
- Controlled release dosage form design, patent strategy

Process Development and Manufacturing

- · Development: wet/dry granulating, tableting, coating
- · Beads drug layering/coating, lyophilizatio
- Tablets and capsules production lines (5-100 kg)
- · Bottle and blister packaging lines

Quality & Regulatory Excellence



July 2019 FDA GMP inspection no Form 483s



Oct 2021 NMPA PAI no critical/major findings



In 2021 Client **GMP** audits



By 2021 IND submission and approval experiences



By 2021 NDA/ANDA submission and approval experiences

EHS



certified



ISO45001 certified



CNAS Certified Process Safety Lab



IP

implemented



National Standard GB/T 29490-2013 implemented

What Makes PharmaBlock Stand Out

Building Blocks Enhanced CDMO

With strong accumulation and a great track record in novel building blocks design, synthesis and scale-up, PharmaBlock is supporting our partners with fast, reliable, and cost effective development and manufacturing solutions for intermediates, RSMs and APIs from discovery to development and commercial stages.

150 k+

building blocks

60+

chemical series

3 k+

bulk products supplied over kilo scale

20 k+

in stock

20 k+

delivered within 2 weeks



Strong Chemistry for Fast Delivery

- Systematically develop chemistry expertise for core structures
- Strong chemistry accumulated for challenging molecules, and ensure fast delivery

Reliable & Flexible Supply Chain

- Better supply management on BBs as intermediates and RSMs
- Qualified suppliers of raw materials accumulated from BBs synthesis

Better Cost Control

- Increase flexibility to control the cost by optimizing process of BBs
- BB's scale factor to cut down the cost on raw materials

Chemistry and Engineering Technology Enhanced CDMO

PharmaBlock has been investing in a number of innovative chemistry & engineering technologies to enable greener, safer, and more efficient processes for manufacturing. We have a dedicated chemistry and engineering technology team working closely with experts in process development and manufacturing to implement optimal process solutions from pilot to commercial scale.

Flow Chemistry

210+ projects30+ reaction types

kilo~hundred-kilo scale

Micropacked Bed Technology

300+ projects

kilo~MT scale

commercialization and GMP

projects

Catalysis

300+ heterogeneous

catalysts

200+ biocatalysis projects

kilo~hundred-kilo scale

Solid State & Crystal Engr.

330+ projects









About PharmaBlock

PharmaBlock Sciences (Nanjing), Inc. (SZSE: 300725) is an innovative contract development and manufacturing organization (CDMO). Its core businesses include a rationally designed building blocks collection, supplying from discovery, development to commercial; development and GMP manufacturing of RSMs, intermediates, APIs, and drug products for drug development and commercial. Our evolving mission is leveraging top-notch expertise and innovation in chemistry and new technologies to support partners in accelerating drug discovery and market integration.

PharmaBlock (USA), Inc., located in the Greater Philadelphia Area, is a subsidiary of PharmaBlock Sciences (Nanjing), Inc. The company opened its first US facility in the Bay Area of California in 2012 and established US headquarters in Pennsylvania in 2017. With an experienced chemistry team and state-of-the-art equipment, PharmaBlock (USA) is providing a large collection of high-quality and novel building blocks, timely customer service, and process R&D services using new technologies such as flow chemistry and micropacked bed hydrogenation to bring greener, safer, innovative, and cost-efficient solutions to the pharmaceutical industry.

PharmaBlock has partnered with most of the top 20 pharmaceutical companies and hundreds of small to medium-sized biotech companies worldwide. In addition to the US facilities, PharmaBlock has three main facilities in China. Its global headquarters is located in Nanjing, Jiangsu Province, China, with 775,000 ft² lab space focusing on the design, synthesis, and supply of lab-scale building blocks, and process R&D of key intermediates and APIs. It has two manufacturing sites located in Zhejiang and Shandong Provinces in China, with around 505 m³ combined reactor volume, ranging from 300 L to 8,000 L of reactor size.

Teams

The core management and technical team have rich experience in R&D and management. They have directly led the drug discovery and CMC projects at Roche, GSK, Boehringer Ingelheim, Merck, Agios, and other global pharmaceutical and biotech companies.

2000+

800+

100+

40%+

Employees

Well-trained scientists

PhDs

Masters & above







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