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CATO Research Chemicals Inc.

Intermediates Synthesis Expert

CATO Research Chemicals Inc.

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CRO （FTE FFS）

CDMO （FFS）

About CATO

CATO Research Chemicals Inc. is a national high-tech enterprise specializing in customized synthesis and scale-up production of highly difficult pharmaceutical intermediates. Its headquarters is in Guangzhou China, with more than 180 employees, 72% of which are technical personnel.

Based on 13 years R&D experience, CATO is able to handle various technologies, such as directional nitration, high temperature and pressure reaction, condensation, controlled oxidation, fluorination, hydrogenation reduction, non-toxic symmetric synthesis, etc.

We can also develop and optimize commercial processes through design of reaction and quality by design to ensure that the structure, index and quality of pharmaceutical intermediates meet international standards.

72+
PhD Senior Engineer Team

4000 m²
Synthesis & Analysis Lab

21600+
Research on the Synthesis of Small Molecule Compounds

Global customers

CATO Research Chemicals Inc.

Technology Platform

Platform	Corresponding technology	Advantage
Special response technology platform	Nitrification technology	* Select the appropriate nitrating agent for different reaction substrate; * Screen safe nitrification method that matches the reaction substrate; * Through fluid chemical reaction technology, screen the appropriate process; * Safety assessment for reactions.
	Hydrogenation Reaction Technology	* Screen suitable catalysts for reaction substrates; * Targeted optimization to achieve low cost, green processes; * Appropriate reaction temperature and pressure for safe production.
	Ultra-low temperature reaction technology	* Experience in Grid, lithiation, and low-temperature cyclization reaction; * Through parallel reactions to obtain the optimal process; * Equipped with 50L ultra-low temperature reactor and liquid nitrogen tank,which can meet -100℃ -200 ℃ reaction.
Computer-aided new molecule design and synthesis technology platform	Synthetic circuit development Molecular synthesis and structure confirmation	* Synthesis researchers have many years of compound design and synthesis experience, can realize reactions under various complex conditions, and realize accurate structure confirmation during the reaction process, and can perform hydrogen spectrum, carbon spectrum, fluorine spectrum and various two-dimensional spectrum detection, ensuring multi-handed Accuracy of structural confirmation of sex center compounds.
	Scale up production process development	* Independently develop intermediates from laboratory research to small-scale trial production and pilot production stage technical process routes, control the content of impurities in the batch production process of intermediates, improve yield, and find the best reaction conditions and conditions suitable for the production of industrial-grade raw materials Approach.
Production application technology platform	Microchannel continuous reaction technology	* Especially for high temperature, high pressure, and obvious heat reaction; * Multiple sets of process experiments can be completed continuously; * Safe for no amplification effect during process transformation; * Significantly lower costs and environment friendly.

CATO Research Chemicals Inc.

Main Business

Business overview

Drug discovery → Preclinical studies → Clinical → Approved

Drug Molecular Building Blocks

Catalog molecule design, compound management

CRO

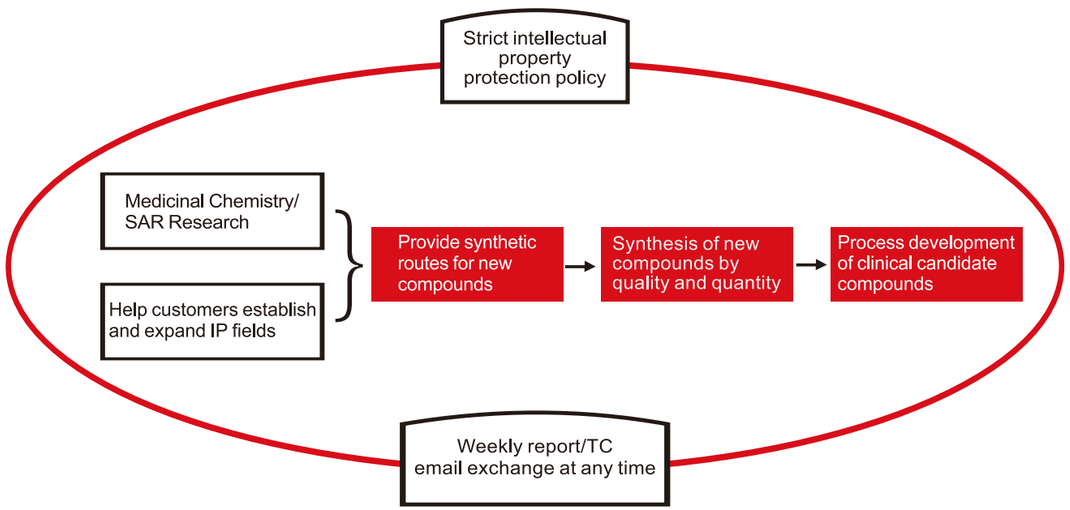
FTE

FFS

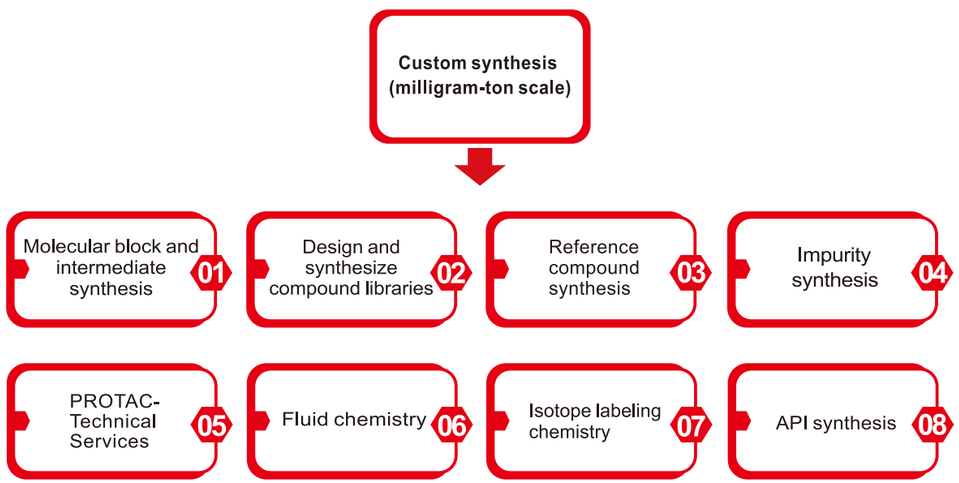
CDMO

Separation and purification of unknown compounds and structural confirmation，Genotoxic impurity research, elemental impurity research，Non-GMP API production, Non-GMP KSM/RSM production

CRO (FTE business)



CRO (FFS business)



CDMO (FFS business)

Synthesis of specialty reagents, intermediates and molecular fragments	Synthesis of API and its intermediates	Synthesis of impurities and metabolites
Isotopic label synthesis	Compound library synthesis	Synthesis of amino acid peptide compounds
Nucleoside compound synthesis		

Venue Facilities

Drug R&D stage-R&D center

Hardware equipment:

Covering an area of 4,000 m^2, equipped with 150 instruments such as NMR, LCMSMS, HPLC and 120 fume hoods.

NMR	LCMSMS	LCMS
HPLC	GC	GCMS
IR	TGA	Precision Balances (0.001 mg)
Karl Fischer Titrators	PTLC	……

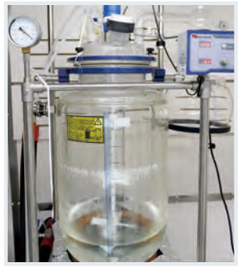
Capacity:

1-10KG/batch (small trial)

10-100KG/batch (pilot trial)

Synthetic technical capabilities:

- Hexavalent sulfur and fluorine exchange reaction active system
- Chiral chemistry such as chiral resolution, chiral catalysis, and asymmetric synthesis
- Drug small molecule deuteration technology
- -50℃ ultra-low temperature synthesis technology
- Anhydrous and oxygen-free experimental platform



Quality analysis technical capabilities:

- Development, validation and transfer of analytical methods compliant with ICH requirements
- Forced degradation studies for impurity or degradation product detection
- Stability studies based on different temperatures and humidity
- Use NMR, HPLC, PTLC , LC-MS, GC-MS, FT-IR for impurity separation and identification
- Genotoxicity and elemental impurity analysis method development and validation
- Reference standard characterization and identification

CATO Research Chemicals Inc.

Scale-up production stage-production base

Zhuhai, China:

Covered area: 28014m^2 (42 acres);

Capacity: 210 tons/year;

Features: 2 sets of 1000L hydrogenation reactors, with GMP production workshop.

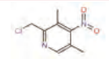
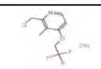
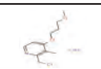
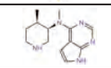
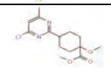
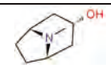
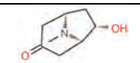
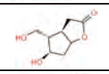
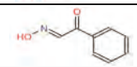
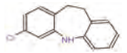
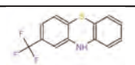
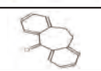
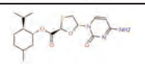
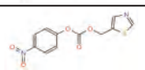
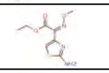
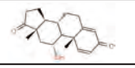
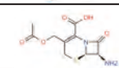
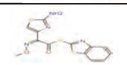
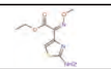
Quality & EHS

- Follow the OHSAS18001, ISO14001 and PSM, establish a sound environment, safety and occupational health management system, and obtain the certification of China 's green manufacturing enterprise;
- The production base develops and establishes a quality management process system based on ICH Q7, covering the entire quality system.

China green manufacturing enterprise

CATO Research Chemicals Inc.

Partially Delivered Products

Product type	CAS No.	Structural formula	Remark
Protonpump inhibitors	153476-68-7		Omeprazole key intermediates
	127337-60-4		Lansoprazole key intermediates
	153259-31-5		Rabeprazole key intermediates
Kinaseinhibitor	477600-74-1		Tofacitinib key intermediates
	1699727-68-8		Ruxolitinib key intermediates
	2097133-31-6		Lacitinib key intermediates
Alkaloids	120-29-6		Atropinesulfate key intermediates
	5932-53-6		Anisodamine key intermediates
Prostone	32233-40-2		Dinoprostone key intermediates
Glycosides	532-54-7		Amikacin key intermediates
Tricyclic antipsychotics	32943-25-2		Clomipramine key intermediates
	92-30-8		Trifluoperazine key intermediates
	1210-35-1		Amitriptyline key intermediates
Antiviraldrugs	147027-10-9		Lamivudine key intermediates
	144163-97-3		Ritonavir key intermediates
	426-15-3		Dexamethasone key intermediates
	7801-18-5		Prednisone acetate key intermediates
Cephalosporin antibiotics	957-68-6		Ceftriaxone key intermediates
	80756-85-0		Cefpirome key intermediates
	60846-15-3		Cefotaxime key intermediates