



MEDICILON
PRECLINICAL RESEARCH

20 Years of Excellence

**High Quality Integrated
Drug R&D Services**

www.medicilon.com

COMPANY PROFILE

From its inception in 2004, Medicilon Inc. (STAR Market, stock code: 688202.SH) has been committed to providing comprehensive research and development (R&D) services to biopharmaceutical companies, research institutions, and other organizations working in the preclinical space, with the primary objective of supporting and accelerating pharmaceutical, biopharmaceutical and medical device R&D worldwide.



A Comprehensive CRO for Pre-Clinical Pharmaceutical R&D

- End-to-end services and solutions covering the entire spectrum of preclinical biopharmaceutical R&D. Supporting everything from target discovery, candidate development, preclinical screening and drug safety evaluation through IND submission
- Focus on communication and collaboration with clients in a variety of target indication areas such as neoplasms, neurological diseases, diabetes, inflammation, etc

State-of-the-Art Facilities

- Three R&D centers with 910,000+ square feet of lab space in Shanghai, China
- AAALAC accredited animal facilities
- GLP/GMP compliant facilities and instrumentation operated in accordance with both FDA and NMPA regulations

High-Performance Teams

- 3,000+ scientists and service personnel
- Led by internationally trained scientists with Ph.D. degree and/or with 10+ years of R&D and management experience
- Provide timely support and consultations through one-on-one communication

IP Protection

- Strict adherence to rigorous internal policies and an excellent historical track record



Medicilon (Zhangjiang) High-tech Park



Medicilon (Chuansha) Headquarters



Medicilon (Nanhui) Bio-tech Park



Medicilon (Hangzhou)

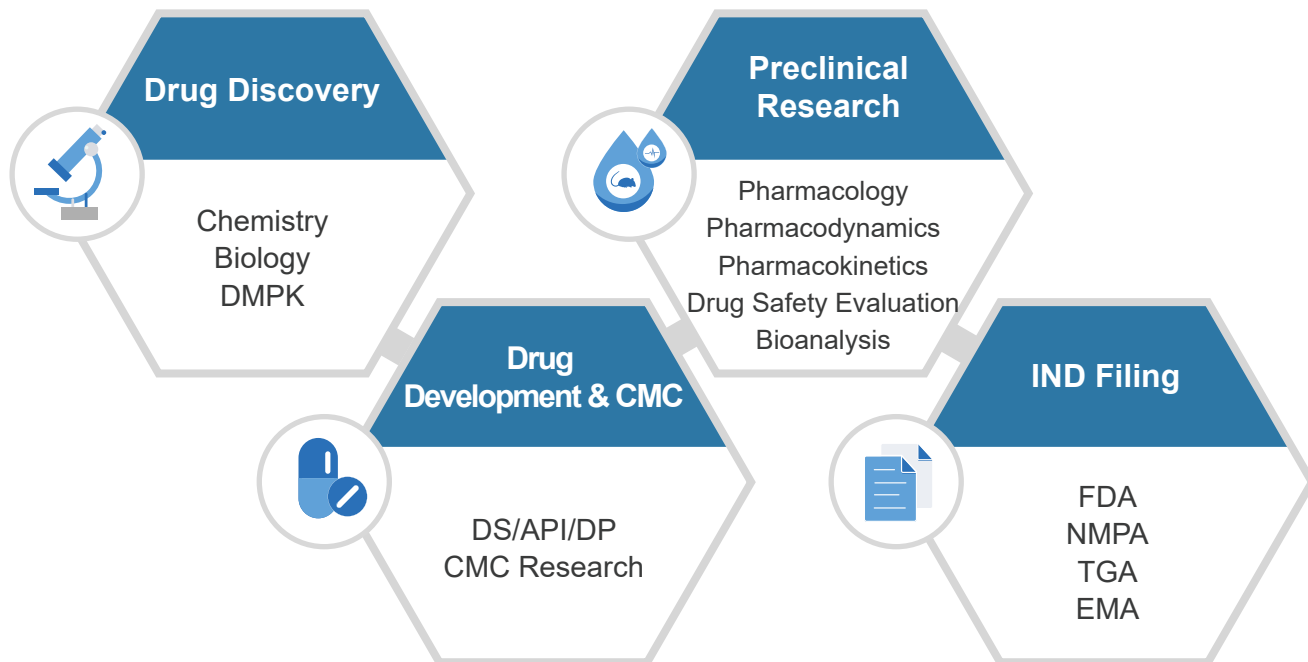


Medicilon (Baoshan)



Medicilon (U.S. Boston)

SERVICE SCOPE



MEDICILON

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Global Headquarters: No. 585, Chuanda Road, Pudong, Shanghai, 201299, China

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DRUG DISCOVERY

Medicilon's Discovery Chemistry and Biology divisions have established a strong track record assisting thousands of clients worldwide with the discovery and development of small molecules and biologics as well as cell- and gene-therapies. Combining the most cutting-edge instrumentation with high-performance, experienced scientists, Medicilon has the expertise, capabilities and capacity to support projects of any size.

Chemistry Service Model



Full-Time Equivalent (FTE)



Fee For Service (FFS)

Chemistry Service Scope

Medicinal Chemistry

- Compound Library
- Activity Screening
- Conventional/AI drug design
- Structure activity relationship (SAR) studies
- Lead compound identification
- Preclinical Candidate Compound (PCC) Identification

Custom Synthesis

- Preparation of special reagents, intermediates and molecular fragments
- Preparation of standards
- Synthetic design and preparation of impurities or metabolites
- Synthesis of stable isotope internal standards
- Synthesis of deuterated compounds

Scale-up Synthesis

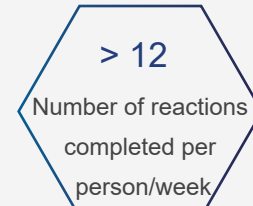
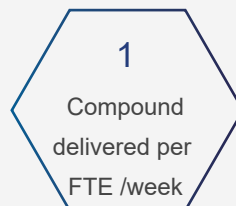
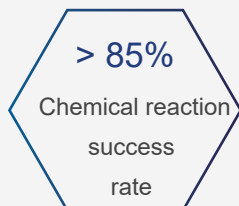
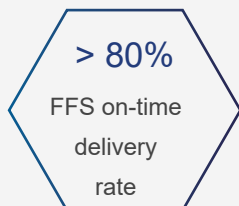
- Reference compound synthesis
- Hundred-gram scale high purity compound synthesis for animal studies
- Process development of target compound
- Synthesis of kilogram-scale compound

New Drug R&D Services Platform

- PROTAC R&D service platform
- ADC R&D service platform
- Small nucleic acid R&D service platform
- AI-enabled drug discovery platform
- Photoreduction platform
- Electrochemistry platform
- Green chemistry platform
- Catalyst screening platform



Service Advantages



Biology Services

Recombinant Protein Expression & Purification

- *E. coli* expression system
- Yeast protein expression system
- Baculovirus expression system
- Mammalian cell protein expression systems
- Recombinant kinase preparation
- Recombinant antibody expression

Structural Biology Platform

- Protein crystallization screening
- Protein-small molecule co-crystallization condition screening
- FBDD service
- Three-dimensional structure analysis
- Protein crystallization, co-crystallization with ligands, and structure determination
- Selenomethionine (SeMET) medium

In Vitro Biology

- Enzyme-based assays
- Cell-based assays
- PROTAC molecular screening
- High throughput screening
- siRNA and mRNA drug discovery
- Gene therapy/cell therapy drugs
- Radioisotope analysis (^3H , ^{33}P , ^{32}P , ^{35}S , ^{125}I , ^{14}C)
- Intermolecular interaction force detection/assay (Biacore 8K based)

Antibody Discovery Platform

- Hybridoma screening platform
- Phage display platform
- Single B-cell sequencing platform
- ADA positive antibody preparation
- Antibody engineering modification
- Expression cell line construction



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CMC DEVELOPMENT

Process & Scale-up Services

- Process development and optimization
- Pharmaceutical process scale-up
- Formulation process scale-up
- Chemical project R&D outsourcing

CMC Services

Formulation Form

- **Solid:** tablets, capsules, granules
- **Semi-solid:** ointments, creams, gels
- **Liquid:** injections, eye-drops, suspensions, tinctures
- **New forms:** slow-releaser, spray, inhalation, emulsion

Stage of Service

- Investigational new drug (IND) application (China-U.S.)
- New drug clinical trial phase II/III
- New drug application (NDA)
- New drug post-market changes

Content of Service

- Pre-formulation study
- Formulation process development
- Scale-up
- Quality and stability study
- Preparation of application materials

Filing Category

- Class 1 new drugs
- Class 2 improved new drugs
- Class 3, 4 generic drugs
- Consistency evaluation
- Supplementary application



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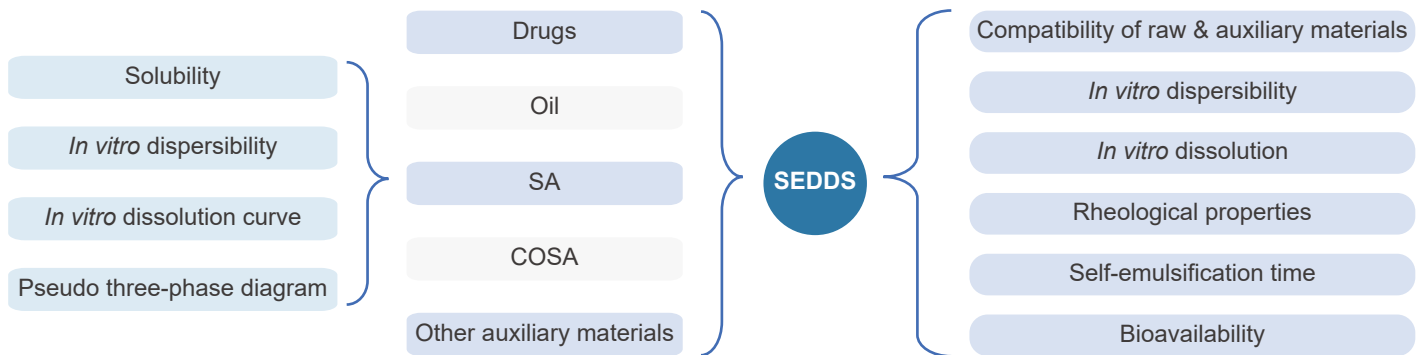
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Formulation Department R&D Platform

Self- Emulsifying Drug Delivery System (SEDDS)

- SEDDS is a solid or liquid formulation consisting of a drug, an oil, a surfactant (SA) and a co-surfactant (COSA). It is usually formulated as a soft or hard capsule. Due to the low free energy of emulsification, SEDDS can generate emulsion spontaneously by peristaltic action of the gastrointestinal tract. Subsequently, the emulsion formed is absorbed via the lymphatic route. The oral bioavailability of SEDDS drugs is increased due to bypassing the first-pass effect in the liver. Therefore, SEDDS has become an important strategy to improve the oral bioavailability of poorly water-soluble drugs.
- Typically, SEDDS include self-emulsifying drug delivery systems (SNEDDS), self-microemulsifying drug delivery systems (SMEDDS), and conventional self-emulsifying drug delivery systems (CSEDDS). SNEDDS (< 100 nm), SMEDDS (100 nm - 250 nm), and CSEDDS (> 300 nm) are often judged by the size of the emulsion particles formed after the addition of water.



GMP Workshop of Formulation Department

GMP workshop (Class D cleanroom), GMP analysis laboratory, perfect QA system

- GMP standard
- 10,000+ square feet oral solids workshop
- GMP workshop for oral solid formulation
- Managed according to GMP regulations
- 10,000+ square feet GMP analysis lab
- Fully functional & flexible production
- Especially suitable for the preparation of Phase I clinical study samples
- GMP workshop - Topical semi-solid formulations
- Release testing, analytical method validation, stability study





PRECLINICAL RESEARCH

Medicilon's Preclinical Research Division services include pharmacology, pharmacodynamics, DMPK, drug safety evaluation and bioanalysis for small molecules, biologics, and medicinal herbs. Medicilon maintains a large in-house library of animal disease models to meet the research demands in different therapeutic areas. Medicilon can also assist clients in the preparation of a preclinical safety evaluation package.

Equipped with Ph.D. level scientists as well as the most innovative technology and platforms, Medicilon is committed to providing high-quality customer-oriented service support and delivering high-quality results.

Professional Qualifications

 AAALAC Certificated	 NMPA GLP Certificated (2011, 2012, 2015, 2019, 2023)	 US FDA GLP listed (2017)	 International RQAP-GLP
 Clinical Pathology SCCL Certificated	 Bioanalysis Lab NCCL Certificated	 Bioanalysis Lab NIFDC Certificated	 Radiation Safety License



PHARMACOLOGY

The Pharmacology department combines strong technical expertise with extensive experience in consulting, conducting, and evaluating efficacies of small molecule and biologic drugs using a wide variety of *in vitro* and *in vivo* research models. Our focused therapeutic areas include, but are not limited to oncology, CNS, cardiovascular and metabolic diseases, inflammation, immunological diseases, and digestive diseases.

Experimental Animal Capacity

- NHP
- Dog
- Rabbit
- Rodent
- Mini-pig

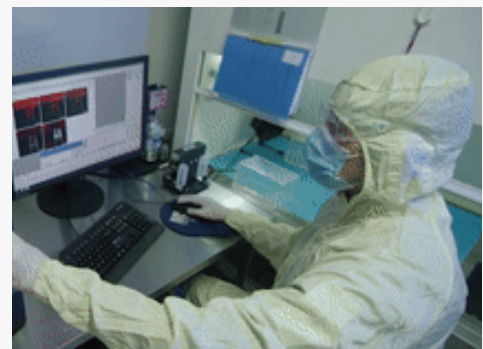
Tumor Animal Models

- ~ 150 Xenograft models
- ~ 30 Humanized models
- ~ 30 Syngeneic models
- ~ 35 Orthotopic models
- ~ 100 PDX models

Non-tumor Animal Models

- ~ 40 CNS disease models
- ~ 10 Inflammation & immune system models
- ~ 20 Cardiovascular & metabolic models
- ~ 10 Digestive system disease models
- ~ 10 Ocular disease models
- ~ 5 Others diseases models

Oncology Research Center
Pharmacology Equipment & Facilities



For more model details, please see the end of this booklet.



DMPK & BIOANALYSIS

Medicilon's DMPK&BA department offers our clients a broad spectrum of high quality services in the areas of *in vitro* ADMET, *in vivo* DMPK & BA, non-GLP Tox, and bioanalysis services for both small and large molecule drugs, such as proteins, antibodies, oligonucleotides, ADC and new modalities. We have available all common laboratory animal species such as non-human primates, canines, minipigs, mice, rats, rabbits, etc.

In Vitro ADMET

- Liver microsomes / S9 / Hepatocyte metabolic stability
- CYP450 enzyme inhibition & TDI
- CYP450 enzyme induction
- Enzyme phenotype analysis
- Plasma protein binding
- Plasma (serum) stability
- *In vitro* MetID and metabolic pathways
- GSH-trapping
- Whole blood / plasma distribution
- Permeability and efflux
- Transporters
- (P-gp/BCRP/OATs/OCTs/OATPs/MATEs/BSEP/MRPs)
- BBB penetration, K_{p,uu}
- hERG
- Mini-Ames, Ames

In Vivo PK & Tox

- Species: Mouse (ICR, C57, balb/c, SCID, Nude mouse), Rat (SD, Wistar), Guinea pig, Mini-pig, Rabbit, Canine (beagle dog), Cynomolgus monkey
- Administration Routes: Intravenous (IV), Oral (PO), Subcutaneous (SC), Intramuscular (IM), Intraperitoneal (IP), Topical, Transdermal, IT etc.
- Dose Strategies: Single, multiple and cassette dosing
- Serial blood microsampling
- *In vivo* metabolite identification and quantitation
- Tissue distribution
- Mass balance with excretion
- Pre-formulation screening
- PK/PD & human PK modeling
- Tox, MTD, DRF
- ¹²⁵I/¹⁴C/³H labeled isotope drug metabolism and mass balance studies
- Surgical techniques: Venous cannulation, biliary cannulation, infusion pump, liver/muscle biopsy and implantation

Bio-analytical Services (BAS)

The Bioanalysis Department of Medicilon provides comprehensive bioanalytical services which includes PK/PD, ADA and NAB assay development and sample analysis for small molecule, biologics and vaccine bioanalytical development. Our lab implements a comprehensive management system for sample accessioning and experimental data processing, tracking and storage. All of our bioanalysis studies are in compliance with FDA/OECD/NMPA GLP regulations.



Sample Analysis
Analytical Method Validation
Analysis Method Development

Small Molecule Bioanalysis

- DMPK *in vitro* & *in vivo* screening
- Preclinical GLP pharmacokinetic assays
- Global clinical trials
- Generic bioequivalence (BE) trials

Equipment

- Sciex Triple Quad 7500
- Sciex Triple Quad 6500+
- Sciex Triple Quad 5500
- Sciex Triple Quad 4000
- Shimadzu MS 8050
- Thermo Orbitrap Exploris 240
- Sciex API 4000
- Waters Acquity UHPLC
- Shimadzu UHPLC
- Thermo Vanquish UHPLC
- Waters Acquity UPLC Xevo TQ-XS
- Thermo Q Exactive HF-X

Large Molecule Bioanalysis

- For proteins, antibodies, ADCs, polypeptides, vaccines, and various cell and gene therapies
- More than 200 bio-analytical methods for various macromolecules, CAR-T, CAR-NK, lytic virus, etc. have been developed and validated
- PK/TK/ immunogenicity (Total ADA, Nab)/ biomarker/cytokine analysis was supported
- Comprehensive support for bioassays from early screening through preclinical and clinical stages

Equipment

- MSD Sector Imager 6000/SQ120
- Molecule Devices M4/M5e/i3X Plate Reader
- BioTek ELx405 Plate Washer
- Gyrolab xPlore
- CytoFlex FACS
- CTL ELISPOT
- QIAcuity One 5 Plex ddPCR
- Nanodrop NP-80
- Vi-CELL XR cell Counter
- PE Envision plate reader
- Luminex
- Biacore 8K
- ABI7500 qPCR



Biacore 8K



BD LSRFortessa
Flow Cytometer



MSD
electrochemiluminescence
analyzer

Bioanalytical Platform

- Nucleic Acid Drugs
- ADC Drugs
- Metabolite Identification



PRE-CLINICAL TOXICITY EVALUATION

Medicilon's state-of-the-art facilities are fully AAALAC-accredited. With state-of-the-art platforms and experienced scientists, Medicilon ensures that drug efficacy and safety assessments are conducted in the most professional manner while meeting the global regulatory standards. From stand-alone preclinical studies to comprehensive IND-enabling packages, Medicilon provides flexible service options to assist biopharmaceutical clients efficiently to reach their development milestones.

Toxicology Services (GLP & Non-GLP)

- Single and repeated-dose toxicity studies
- Reproductive/developmental and juvenile toxicity studies
- Genotoxicity studies
- Toxicokinetic studies
- Safety pharmacology research
- Immunogenicity studies
- Local toxicity studies
- Carcinogenicity studies
- Long-term toxicity studies

Histopathology Studies

- HE staining
- Special staining
- Immunohistochemistry (IHC)
- Tissue Cross-Reactivity Test (TCR)

Clinical Pathology Studies

- Hematology Analysis
- Urinalysis
- Clinical Biochemistry Analysis
- Hemocoagulation Analysis
- Lymphocyte typing

New Drug Delivery Technology



Inhalation Formulation
Safety Assessment



Ophthalmology
Safety Assessment



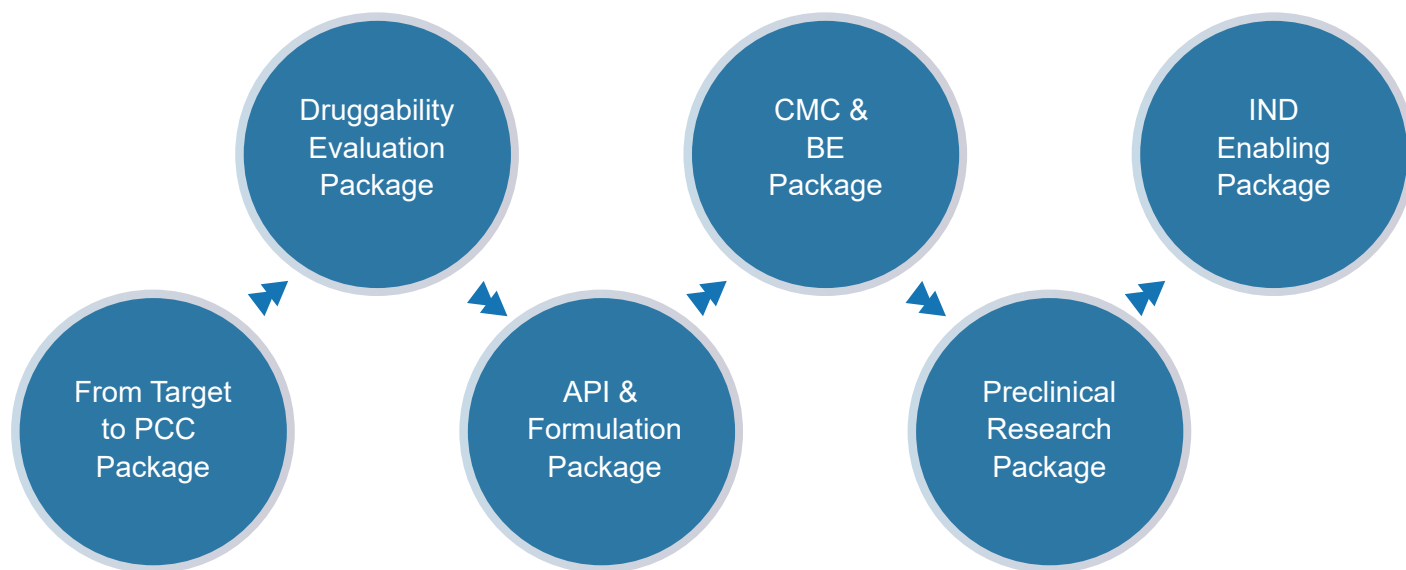
IND Enabling Services

Medicilon provides the IND application for the preclinical services. Medicilon is one of the leading CRO that fulfills both the Chinese and US GLP standards. Since 2004, we have successfully helped our clients submit hundreds new drug application to FDA and NMPA and met the requirements of the FDA and NMPA. We have undergone several inspections and passed all of them. Medicilon has provided an efficient, cost-effective and professional service to help our clients achieve their goals.

A close-up photograph of a red ink stamp on a white document. The stamp is rectangular with a double-line border and contains the word "APPROVED" in a bold, sans-serif font. The stamp is slightly tilted. In the background, a hand is visible, holding a red ink pad and a pen, suggesting the stamping process is being completed.



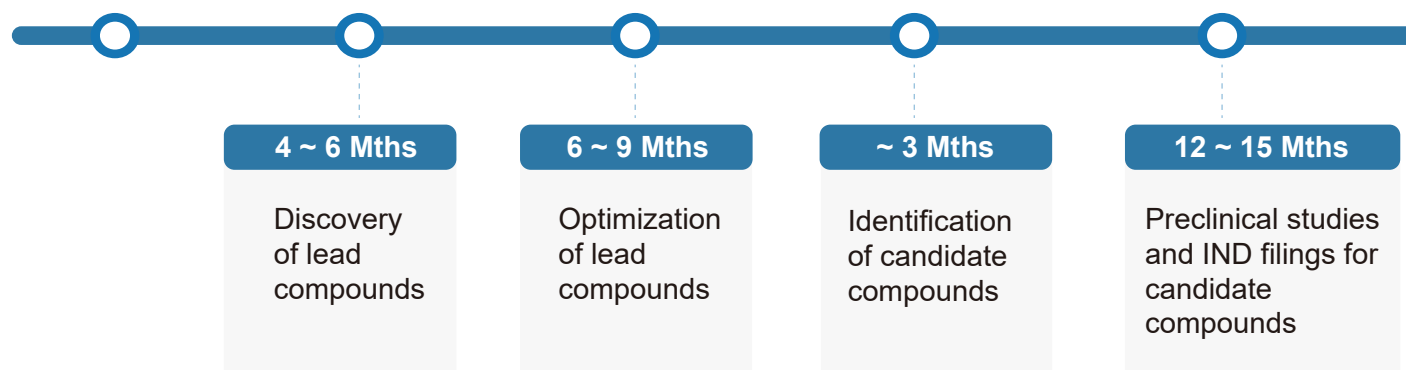
Chemical & Biologics Drug Development



From Target to IND

Cooperation Model: Risk-sharing

- Medicilon is responsible for the overall progress of the project (chemistry, biology, pharmacodynamics, DMPK, CMC, preclinical studies, filings).
- Payment by milestone
- Medicilon does two projects at the same time, one official and one as backup; to ensure the completion of at least one project.





Case: Lead Compound → Preclinical Candidate Compounds

Cooperation Type:

FTE

Project Background:

Clients: US-based biopharmaceutical company

Project Team: 38 FTEs (32-24 chemical researchers + 6-14 biological researchers) + preclinical researchers

Starting Point: 2-3 novel targets in metabolic diseases, starting with HTS lead compounds

Results: 5 preclinical candidates over ~2 years, 1 of which is in clinical testing

Chemistry

- **Medicinal chemistry:** lead compound screening and optimization
- **Efficiency:** 1 compound/week/FTE, total of ~2000 compounds synthesized
- **Process development & Scale-up synthesis:** Synthesis of 1 Kg compounds to support US non-GLP and GLP toxicology studies



Biology

- **Gene vector construction:**
3 assays, 3 lentiviral vectors, 8 adenoviral vectors, 2 stable cell lines
- **Analysis of 1 novel crystal structure, 8 co-crystalline structures with ligands**
- **Production of 20-30 mg protein for testing**



Preclinical

- PK testing of 65 compounds
- In vivo activity studies of 9 compounds
- Non-GLP toxicity screening of 9 compounds

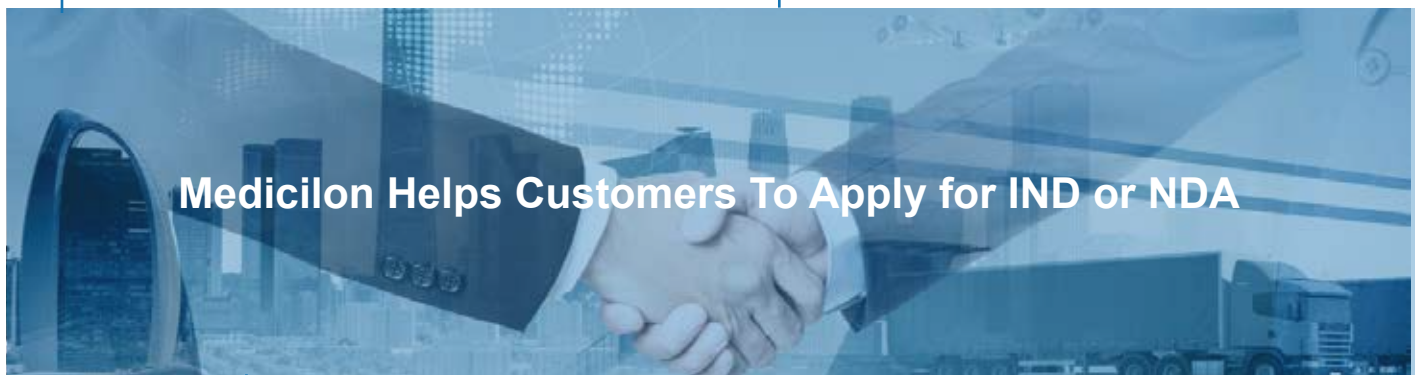


Medicilon Helps Customers To Apply for New Drugs

In-depth understanding of Chinese and US regulatory environments and their requirements for IND application, able to provide IND/ANDA application services for NMPA and US FDA for domestic and foreign clients

With professional IND and NDA research teams, we can provide one-stop research, full project management and filing services

With rich resources of NMPA and FDA review experts, we can provide targeted technical, regulatory and application strategy advice



Medicilon Helps Customers To Apply for IND or NDA

Medicilon's IND filing service platform can provide customers with customized registration strategies, avoid potential registration risks, ensure timely and accurate submission of filings, and track the progress of reviews



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Pharmacologic Models

Tumor

Head & neck cancer	Oral epithelial cancer
Nasopharyngeal carcinoma stem cells	Prostate cancer
Lung cancer	Bladder cancer
Breast cancer	Ovarian cancer
Gastric cancer	Endometrial cancer
Pancreatic cancer	Cervical cancer
Kidney cancer	Skin cancer
Liver cancer	Melanoma
Glioblastoma	Sarcoma
Fibroma	Rhabdomyosarcoma
Colon & appendix cancer	Myeloma
Leukemia	Lymphoma

Neurological Disease

Depression model	Pain model
Convulsive model	Dementia model
Sedative-hypnotic-anxiolytic model	Schizophrenia model
Parkinson's disease model	

Inflammatory & Immune Disease

Arthritis and osteoarthritis model	Atopic dermatitis model
Osteoporosis model	Multiple sclerosis model
Psoriasis model	Acute inflammation model

Cardiovascular Disease

Thrombosis, anticoagulation model	Atherosclerosis model
Stroke model	Anemia model

Metabolic Disease

Obesity and diabetes model	Dyslipidemia model
Hyperuricemia model	Non-alcoholic fatty liver model
Liver fibrosis model	Hepatobiliary model
Pulmonary fibrosis model	

Digestive System Disease

Gastric acid secretion model	Ulcerative colitis
Gastric ulcer model	Gastrointestinal dynamics model

Other Disease Models

Skin trauma model	Gynecological disease model
Kidney failure & kidney injury model	



Xenograft Models

Cancer Type	Cell Lines
Breast cancer	2LMP, Bcap-37, BT-474, HCC1806, HCC70, HCC1569, HCC1954, HCC70, JIMT-1, MCF-7, MDA-MB-231, MDA-MB-361, MDA-MB-468, MX-1, SUM159, SUM149PT, ZR-75-1, ZR-75-30, HT-1197, HT-1376, RT4, SCaBER, SW780, T24
Bladder cancer	HT-1376, RT4, SCaBER, SW780, T24
Colon and cecum cancer	COLO 201, COLO 205, COLO 320 DM, CW-2, DLD-1, HCT-8, HCT-15, HCT-116, HT-29, LoVo,
Cervical cancer	LS1034, LS174T, LS411N, LIM-1215, NCI-H716, NCI-H508, RKO, SW48, SW620, SiHa, Hela
Endometrium/Hystero carcinoma	AN3 CA, HEC-1-A, ME-180, MFE-280
Fibrosarcoma	HT-1080
Gastric cancer	BGC-823, HGC-27, MKN-45, MKN-28, NCI-N87, NUGC-3, SCH, SGC-7901
Glioblastoma	U-87MG, U-87 MG-Red-Fluc(PE), LN-229
Hepatocellular cancer	Bel-7402, Hep-3B, Huh-7, PLC/PRF/5, QGY-7703, SK-HEP-1, SMMC-7721
Head and neck cancer	FaDu, Detroit 562, CAL-27
Lung cancer	95-D, A-549, Calu-1, Calu-3, Calu-6, DMS114, HCC827, MSTO-211H, NCI-H1299, NCI-H146, NCI-H1581, NCI-H1650, NCI-H1688, NCI-H1975, NCI-H209, NCI-H2122, NCI-H2228, NCI-H226, NCI-H292, NCI-H3122, NCI-H358, NCI-H446, NCI-H460, NCI-H520, NCI-H526, NCI-H69, NCI-H727, PC-9
Leukemia	CCRF-CEM, HEL, HL-60, K-562, Karpas-299, MV-4-11, MOLT-4, MOLM13, THP-1
Muscle, Striated	SJCRH30
Myeloma	KMS-11, KMS-26, RPMI-8226, MM.1S
Melanoma	A375, A2058, C32, HMCB, MDA-MB-435s, SK-MEL-30, WM-226-4
Ovarian cancer	ES-2, HO-8910PM, PA-1, SK-OV-3, OVCAR-3
Oral epithelial cancer	KB
Osteosarcoma	MG-63, SJSA-1
Prostate cancer	DU145, PC-3, LNCap, CL-1
Pancreatic cancer	AsPC-1, BxPC-3, Capan-1, Capan-2, CFPAC-1, HPAF-II, MIAPaCa-2
Pharynx	FaDu
Renal cancer	ACHN, OS-RC-2, 786-O, A498
Skin cancer	A431, Colo829
Thyroid gland medullary	TT

CDX Models

Cancer Type	Cell Lines
Brain cancer	U-87 MG, LN-229, SH-SY5Y
Breast cancer	BT474, HCC1569, HCC1954, HCC70, JIMT-1, MCF7, MDA-MB-231, MDA-MB-468, MX-1, SUM149PT, ZR-75-1
Colon cancer	COLO 205, DLD-1, HCT-116, HCT-15, HT-29, LIM-1215, LoVo, Ls174T, NCI-H580, RKO, SW480, SW620
Endometrium	AN3 CA, HEC-1-A
Fibrosarcoma	HT-1080
Gastric cancer	Hs 746T, MKN-45, NCI-N87, SNU-16
Head and neck cancer	TT, FaDu
Leukemia	CCRF-CEM, HEL, HL-60, K-562, MV-4-11, THP-1
Liver cancer	Hep G2, HuH-7
Lung cancer	A549, Calu-1, Calu-3, Calu-6, HCC827, MOTO-211H, NCI-H1299, NCI-H1650, NCI-H1975, NCI-H2122, NCI-H358, NCI-H460, NCI-H520, NCI-H2228, NCI-H526, NCI-H69, NCI-H727, PC9, A427
Lymphoma	SU-DHL-4, DB, SU-DHL-6, Mino, Daudi, JeKo-1, Raji, TMD-8, WSU DLCL2, DOHH2, OCI-LY19, OCI-HL10, MOLM13, U-937
Melanoma	A375
Myeloma	MM.1S, NCI-H929, RPMI-8226
Osteosarcoma	SJSA-1
Ovarian cancer	A2780, OVCAR-3, SK-OV-3
Pancreatic cancer	AsPC-1, Bx PC-3, Capan-1, Capan-2, CFPAC-1, HPAF-II, Mia PaCa-2, PANC-1, SU.86.86
Prostate cancer	DU145, PC-3
Renal cancer	786-O, OS-RC-2, A498
Skin cancer	A-431



Syngeneic Models

Cancer Type	Cell Lines
AML	C1498,L1210, WEHI-3
Bladder cancer	MB49
Breast cancer	EMT6, JC,EO771(ATCC), 4T1,4T1-luc, C1271
Colon cancer	CT26.WT, CT26.WT-luc, MC-38, Colon26, CMT-93
DLBCL lymphoma	A20,P388D1, L5178-R (LY-R),E.G7-OVA
Hepatoma	H22
Kidney cancer	RENCA
Leukemia	C1498, L1210, WEHI-3
Liver cancer	H22, H22-Luc, Hepa 1-6
Lung cancer	LLC1, LLC1-luc, KLN205
Lymphoma	A20, EL4, L5178-R, E.G7-OVA
Mastocytoma	P815
Melanoma	B16-F10, Clone-M3
Myeloma	J558
Renal cancer	RENCA
Pancreatic cancer	Panc 02
Plasmacytoma	MPC-11

Humanized Models

(PBMC + CD34⁺ HSC Humanized Models)

Cancer Type	Cell Lines
Brain cancer	U-87 MG
Breast cancer	HCC1954, MDA-MB-231, JIMT-1
Bladder cancer	UM-UC-3
Colon cancer	HT29, LoVo, Ls174T
Endometrium cancer	Ishikawa
Gastric cancer	NCI-N87
Liver cancer	Hep G2
Lung cancer	HCC827, NCI-H1975, NCI-H292, A549
Leukemia	THP-1
Lymphoma	Raji, TMD8, MOLM-13
Myeloma	RPMI-8226, NCI-H929, MM.1S
Melanoma	A375
Ovarian cancer	OVCAR-3
Prostate cancer	PC-3
Pharynx	FaDu
Pancreatic cancer	Capan-2
Renal cancer	786-O
Skin cancer	A431
Thyroid/medulla	TT

Orthotopic Models

Cancer Type	Cell Lines
Brain cancer	U87-MG, G261, U251, U87-MG-luc, G261-luc, U251-luc
Breast cancer	MDA-MB-231, MDA-MB-231-luc, 4T1, 4T1-luc, HCC1954, HCC70, MDA-MB-361, MCF7
Bladder cancer	UM-UC-3, MB49
Colon cancer	HCT-116, LoVo, HT29-luc, HT29, MC38, MC38-luc, CT26.WT-luc
Glioblastoma	U87-MG, U87-MG-luc
Gastric cancer	Hs 746T
Kidney cancer	A498
Leukemia	K562, K562-luc, MV-4-11, MV-4-11-luc, THP-1, Nalm-6, Nalm-6-luc, MOLM-13, MOLM-13-luc, RL, MAVER-1, Karpas299, HL-60
Liver cancer	H22, H22-luc, HuH-7, HuH-7-luc, Hep G2, Hep G2-luc
Lung cancer	NCI-H460, NCI-H1650, NCI-H1975, NCI-H1975-luc, A549, A549-luc, LLC1, LLC1-luc
Lymphoma	Raji, Raji-luc
Melanoma	B16-F10, B16-F10-luc
Myeloma	NCI-H929, MM.1S, NCI-H929-luc, MM.1S-luc
Osteosarcoma	SJSA-1
Ovarian cancer	SK-OV-3, SK-OV-3-luc
Pancreatic cancer	Mia-Paca 2, Mia-Paca 2-luc
Pancreas cancer	Mia-Paca 2, Mia-Paca 2-luc, Panc02, Panc02-luc
Prostate cancer	PC3, PC-3-luc
Renal cancer	A498

PDX Models

Cancer Type	Cell Lines
Breast cancer	PDXM-201B, PDXM-202B, PDX-203B
Bladder cancer	PDXM-231U, PDXM-232U
Colon cancer	PDXM-008C, PDXM-016C, PDXM-020C, PDXM-021C, PDXM-057C, PDXM-060C, PDXM-075C, PDXM-076C, PDXM-087C, PDXM-104C, PDXM-095C, PDXM-084C, PDXM-072C, PDXM-069C, PDXM-015C, PDXM-002C
Gastric cancer	PDXM-091Ga, PDXM-092Ga
Lung cancer	PDXM-028Lu, PDXM-047Lu, PDXM-050Lu, PDXM-053Lu, PDXM-054Lu
Lymphoma	PDXM-241Ly, PDXM-242Ly
Liver cancer	PDXM-211Li, PDXM-212Li
Pancreatic cancer	PDXM-221Pa, PDXM-222Pa



Neural System Disease Models

Disease	Type	Species
Antidepressant Test	Inhibition of 5-HT, NA and DA uptake by brain synaptosomes (sample screening, IC ₅₀ determination)	Rat
	Forced swimming assay (rats/mice, Noduls software, video screen analysis)	Mouse/Rat
	Tail suspension assay (Noduls software, video screen analysis)	Mouse
	5-Hydroxytryptamine enhancement assay	Mouse
	Risperdalin-induced eyelid ptosis assay	Mouse
	Yohimbine toxicity enhancement assay	Mouse
	High-dose apomorphine antagonism experiment	Mouse
	Chronic mild unpredictable stimulus (CUMS) model	Rat
	New environment feeding inhibition experiment	Mouse/Rat
	Determination of MAO-A and MAO-B activity of monoamine oxidase in the brain	Mouse
	Effects on the synthesis and secretion of BDNF by SH-SY5Y cells	SH-SY5Y cell
Anticonvulsant Test	Protective effect on hippocampal neuronal cells in neonatal rats (glutamate damage, hydrogen peroxide damage, glucose hypoxia damage, dexamethasone damage, etc.)	Neonatal Rat
	Yohimbine toxicity enhancement test	Mouse
Sedative-hypnotic Anti-anxiety	Pentetrazol convulsions	Mouse
	Hordeum vulgare convulsions	Mouse
	Convulsions with Indocin	Mouse
	Synergistic effects with pentobarbital	Mouse
Anti-Parkinson Test	Effect on subthreshold hypnotic dose of barbiturates	Mouse
	Re-sleeping test	Mouse
	Open-field experiment (full camera monitoring, software processing)	Mouse/Rat
	Elevated cross-maze method (camera monitoring, software processing)	Mouse/Rat
	Light and dark shuttle box method (camera monitoring, software processing)	Mouse
Analgesia Test	MPTP causes subacute PD model (bilateral disruption PD model)	Mouse
	Chronic PD model with MPTP+probenecid (bilateral PD model)	Mouse
	Oxidative tremor induced fibrillation model	Mouse
	Hot plate method, photothermal tail shaking method, pressure pain method	Mouse/Rat
	Von Frey hairs method, bipedal balance pain measurement method	Mouse/Rat
	Acetic acid twisting model	Mouse
	Formalin-induced pain model	Mouse
	Adjuvant CFA-induced toe pain model	Mouse/Rat
	Carrageenan gum-induced toe pain model	Mouse/Rat
Anti-dementia Test	LPS-induced pain model	Mouse/Rat
	Spinal nerve selective ligation (L5/L6)	Rat
	Sciatic nerve branch selective injury model (SNI)	Mouse/Rat
	Diabetic pain, incisional pain, cancer pain model	Mouse/Rat
	Memory acquisition disorder model (6-channel mouse jumping stage video screen analysis system)	Mouse
	Poor memory consolidation model (6-channel mouse jumping platform video screen analysis system)	Mouse
	Memory reproduction disorder model (6-channel mouse dark-avoidance video screen analysis system)	Mouse
	Mouse bright and dark box method (4-channel mouse bright and dark box video screen analysis system)	Mouse
	Rat acquired memory impairment model (Morris water maze video screen analysis system)	Rat
	Determination of acetylcholinesterase activity in the brain	Mouse
Anti-schizophrenia Test	D-galactose-induced dementia model in mice	Mouse
	New object recognition experiment	Rat
	APP/PS1 mice (Morris water maze, Cognition Wall)	Transgenic Mouse
	Cellular level, molecular biology level	In vitro test
	MK801 causes negative symptoms, positive symptoms of schizophrenia	Mouse
	Ketamine causes negative symptoms of schizophrenia	Mouse
Anti-schizophrenia Test	Stiffness test in rats	Rat
	Lower lip retraction test in rats	Rat
	Amphetamine-induced increased activity in rats	Rat
	Phencyclidine increased activity in rats	Rat

Inflammatory & immune diseases models

Disease	Type	Species
Arthritis	Acute joint inflammation model in rats caused by carrageenan gum	Rat
	CIA-induced ankylosis model	Mouse/Rat
	CFA-induced gout-like arthritis (AIA) model	Rat
	Sodium urate-induced gouty arthritis model	Rat
	Hypocretin-induced arthritis model in rats (PIA)	Rat
Osteoarthritis model	Sodium iodoacetate (MIA)-induced osteoarthritis model	Rat
	pMMx-induced osteoarthritis model	Rat
	pMMx+ACLt-induced osteoarthritis model	Rat
Osteoporosis model	Osteoporosis model in desiccated female rats	Rat
	Glucocorticoid-induced osteoporosis model	Rat
	Retinoic acid A-induced osteoporosis model	Rat
Psoriasis	Mouse vaginal epithelial mitosis model	Mouse
	Mouse tail scales model	Mouse
	IL-23 induced aberrant epidermal hyperplasia model in mouse auricle	Mouse
	Imiquimod-induced psoriasis-like model in mice	Mouse
Atopic Dermatitis (AD)	DNFB-induced chronic atopic dermatitis model	Mouse
	DNCB+OX-induced chronic atopic dermatitis model	Mouse
	DNFB-induced subacute eczema-like model	Mouse
	Fluport-induced acute eczema-like model	Mouse
Multiple sclerosis model (MS, ALS)	EAE experimental allergic encephalomyelitis mouse model	Mouse
	Cuprizone-induced demyelination model of mouse brain tissue	Mouse
Inflammatory swelling model	Mouse auricular swelling model	Mouse
	Rat toe swelling model	Rat
	Capillary permeability assay	Mouse/Rat
	Carbon contouring assay	Mouse
	Yeast-induced fever model	Mouse
	Passive skin allergic reaction (PCA)	Mouse/Rat

Cardiovascular & metabolic diseases models

Disease	Type	Species
Thrombosis & anemia model	Arteriovenous bypass thrombosis	Mouse/Rat
	Tail vein thrombosis in mice caused by carrageenan	Mouse
	Deep vein thrombosis in rats	Rat
	Carotid artery thrombosis	Mouse/Rat
	Coagulation time measurement	Mouse
	Renal failure induced anemia model in rats	Rat
MCAO Model	Iron deficiency anemia model	Rat
	Cerebral ischemia-reperfusion model	Mouse/Rat
	Study of the time window of cerebral ischemia-reperfusion	Mouse/Rat
Anemia Model	Study of neuroprotective effect of cerebral ischemia/reperfusion	Mouse/Rat
	Iron deficiency anemia model	Rat
	Nephrectomy (5/6) induced nephrogenic anemia model	Rat
	Adenine induced renal anemia model	Rat
Dyslipidemia	High-fat/cholesterol/fructose diet-induced hyperlipidemia model	Hamster
	Hereditary atherosclerotic APOE mice + high-fat feeding	APOE Mouse



Digestive System Disease Models

Disease	Type	Species
Gastric acid secretion & Gastric ulcer disease model	Model of pylorus ligation-induced gastric acid secretion and gastric ulcer	Rat
	Histamine-induced gastric acid secretion model	Rat
	Model of gastric ulcer caused by ethanol	Mouse/Rat
	Model of gastric ulcer induced by non-steroidal anti-inflammatory drugs	Rat
	Model of gastric ulcer induced by water bundle stress	Rat
	Acetic acid-induced gastric ulcer model	Rat
	Cysteine-induced duodenal mucosal ulcer model in rats	Rat
	Reflux esophagitis model	Rat
Ulcerative colitis	TNBS-induced ulcerative colitis (cellular immunoassay)	Rat
	Ulcerative colitis caused by DNBS (cellular immunoassay)	Rat
	Ulcerative colitis model by DSS drinking method	Mouse
Gastrointestinal dysmotility	Gastric emptying model (carbon emptying method)	Mouse/Rat
	Intestinal dynamics measurement model	Mouse/Rat
	Functional dyspepsia model	Rat
	Diarrhea model	Mouse

Endocrine & Metabolic Disease Models

Disease	Type	Species
Obesity & diabetes	High-fat, high-sugar diet-induced obesity model	Mouse/Rat/Hamster
	Streptozotocin-induced diabetes mellitus	Mouse/Rat
	Spontaneously diabetic mice db/db, ob/ob	db/db Mouse, ob/ob Mouse
	ZDF in spontaneously diabetic rats	ZDF Rat
Hyperuricemia	Potassium oxyhydrogenate-induced hyperuricemia	Mouse/Rat
	Adenine/hypoxanthine + potassium oxyhydrogenate induced hyperuricemia	Rat
	Uric acid-induced hyperuricemia	Mouse
	Hypoxanthine-induced hyperuricemia in mice	Mouse
	Adenine + ethambutol-induced hyperuricemia in rats	Rat
	Yeast-induced hyperuricemia	Mouse

Ocular Diseases Models

Disease	Type
Ocular Diseases Models	Conjunctival tissue proliferation and NV
	Diabetic retinopathy (DR)
	Choroidal neovascularization (CNV) and subretinal fibrosis
	Corneal neovascularization (Corneal NV)
	Retinal neovascularization
	Acute ocular inflammation models
	Dry eye



Other Disease Models

Disease	Model	Species
Chronic nephritis model	Heymann nephritis model	Rat
	IgA nephritis model	Mouse
	Serum disease nephritis model	Rat
Renal failure & kidney injury model	Cisplatin-induced acute renal failure model	Rat
	Acute kidney injury model caused by rhabdomyolysis	Mouse
	Ischemic kidney injury model	Rat
	Nephrectomy (5/6)-induced renal failure model	Rat
	Adenine induced renal failure model	Rat
	Diabetic renal failure model	ZDF Rat, db/db Mouse
Leukocyte reduction model	Cyclophosphamide induced leukocytopenia model	Mouse/Rat
	Leukocyte reduction by cytarabine model	Rat
	Adriamycin leukopenia model	Rat
	Cisplatin leukocyte reduction model	Rat
Hair loss, baldness model	Paraffin rosin + topical application of testosterone propionate induced alopecia model	Mouse
	Testosterone propionate-induced alopecia model	Mouse/Rat
	Imiquimod-induced alopecia areata model	Mouse
	Cyclophosphamide induced baldness model	Mouse
Allergic rhinitis model	OVA+aluminum hydroxide induced model	Mouse
	OVA+Paclitaxel cell-free vaccine induction model	Rat
Respiratory system model	Expectorant sputum experiment (phenol red excretion method)	Mouse
	Tracheal cupped cell staining count	Rat
	LPS-induced acute pulmonary edema model	Mouse
Sexual dysfunction model	Sexual behavior test experiment (back climbing experiment)	Rat
	Erectile function test in normal rats	Rat
	Erectile function test in desiccated rats	Rat
	Prostate hyperplasia model	Mouse/Rat
Gynecological disease model	Uterine fibroid model	Rat
	Endometriosis	Mouse/Rat
	Mammary gland hyperplasia	Rat
Hyperthyroidism model	Secondary hyperthyroidism model	Mouse/Rat
Skin healing	Full-layer skin cut injury model	Mouse/Rat
	Skin burn injury model	Rat
	Diabetic foot ulcer model	db/db Mouse
Leukocyte reduction model	Cyclophosphamide induced leukocytopenia model	Mouse/Rat
	Leukocyte reduction by cytarabine model	Rat
	Adriamycin leukopenia model	Rat
	Cisplatin leukocyte reduction model	Rat
Pruritus model	Pruritus model caused by chloroquine, dextran, histamine, etc.	Mouse/Rat



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