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Natural Products

8,000+ Natural Products —

Optimal Solutions for Drug Lead Discovery

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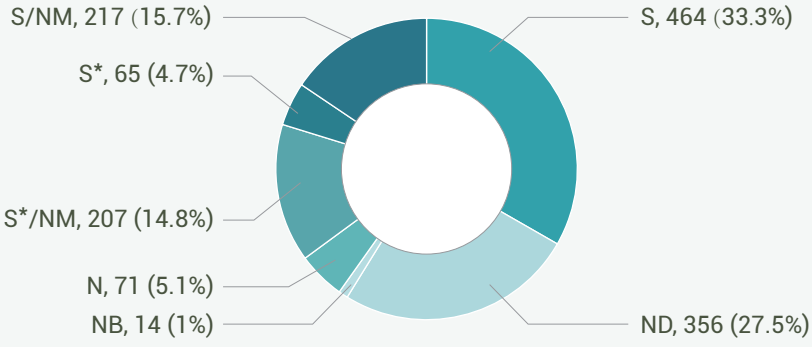
Natural Products

Introduction to Natural Products

Natural products are biological secondary metabolites isolated from **animals**, **plants**, **marine organisms** and **microorganisms**, as well as endogenous physiologically active compounds. Sertuener, a German pharmacist, first isolated morphine from poppies in 1806, after that modern medicinal chemistry began to develop. Since then, the research on natural products has deepened it all stages; from extraction, separation, structural identification, to studying the pharmacological activity of the compounds. Natural products have also become important sources for novel drug development, due to their diverse structures and extensive pharmacological activities.

Since the 1980s, due to the invention and utilization of Combinatorial Chemistry, High Throughput Screening (HTS) and other new technologies, researchers considered natural products to be a laborious and time-consuming source for drug discovery. However to date, the only new chemical entity discovered through these new technologies is Sorafenib, which was approved by the FDA in 2005 for renal cell cancer.

It was reported that from 1981 to 2019, 33.6% of small molecule-based drugs were derived from natural products or derivatives of natural products[1].



N: Natural Products
NB: Natural product "Botanical" (in general these have been recently approved)
ND: Derived from a natural product and is usually a semisynthetic modification
NM: Natural product mimic
S: Totally synthetic drug, often found by random screening/modification of an existing agent
S*: Made by total synthesis, but the pharmacophore is/was from a natural product

The sources of Approved drug from 1981 to 2019[1].

Status and Role of Natural Products in Drug Development

Natural products have always played an important role in the development of drugs, and numerous natural products have been developed into drugs:

In 1785, William Withering published his work about treating heart disease patients with the cardiotonic extract of digitalis. This work led to the discovery of **Digoxin**, which is now clinically used to treat arrhythmias and congestive heart failure. In 1806, Freidrich Serturner isolated morphine from the poppies, and this work led to the development of morphine as a dose-controlled narcotic.

In 1928, Alexander Fleming discovered **Penicillin** from penicillium. It was this unexpected discovery that opened a new chapter in the use of penicillin for the treatment of infectious diseases. Since then, numerous antibiotics have

References: [1] J Nat Prod. 2020, 83(3): 770-803.

been discovered and applicated. In 2015, Youyou Tu won the Nobel Prize in Physiology or Medicine for her work on **Artemisinin**, which is undoubtedly another remarkable achievement in the development of drugs from natural products.

In addition, natural products have been reported as anticancer drugs, such as **Paclitaxel** and its derivatives from *Taxus chinensis*, Vincristine and Conophylline from *Catharanthus roseus*, Camptothecin and its analogues from *Camptotheca acuminata*.

Natural products have irreplaceable advantages over synthetic compounds:
(1) The active substances produced by metabolism of plants and other organisms are used as a defense system and to perform various physiological functions; (2) The chemical structure of many natural products is so complex that it is difficult to obtain them by artificial synthesis; (3) Most of the natural products have natural chirality, which are more drug-like than most of the synthetic compounds without chirality; (4) They have natural affinity and "natural" feasibility of participating in various physiological processes in organisms; (5) Natural products also contribute to the discovery of new mechanisms of drug action.

All of these factors depict the incomparable advantages of natural products in influencing human physiology, giving natural products an irreplaceable status in the research and development of new drugs, as well as being an important source of discovering candidate drugs and drug lead structures.

Applications of Natural Products

Research and Development of New Drugs

Due to their diverse structures and excellent biological activities, natural products have always been an important source of drug lead compounds and play a paramount role in the development of new drugs. Drugs developed from natural products in the past were major breakthroughs, such as **Penicillin**, **Artemisinin**, **Paclitaxel**, etc. Analogs developed from natural products are also important sources of drugs, such as Rosuvastatin, which was developed from Mevastatin[2].
Moreover, the discovery of a large number of natural products provides a basis for their further optimization, development and utilization.

Cometics and Skin Care Industry

In recent years, skin care products and cosmetics with natural ingredients are increasingly favored, giving natural products a wider application prospect in the cosmetics and skin care industry. For example, plant polysaccharides have the biological potential of moisturizing[3], sunscreen, anti-oxidant[4] and anti-aging whilst; plant triterpenoids show anti-inflammatory, analgesic, bacteriostatic and anti-allergic activities[5].

Food and Health Products

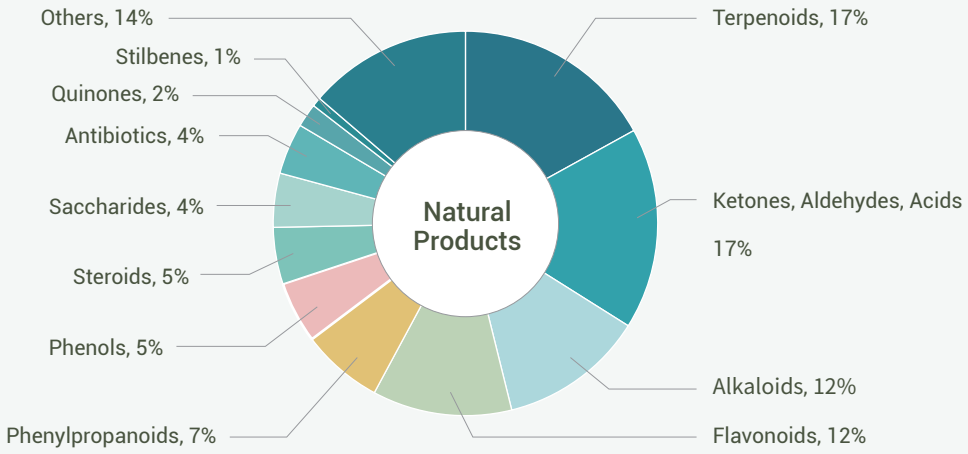
Natural pigments have been widely used in food and health products because of their reduced side effects and higher safety profile. In recent years, there are numerous health care products featuring natural ingredients. *Moringa oleifera*, for example, is rich in protein, vitamin A, essential amino acids, antioxidants and other ingredients, and has anti-inflammatory and antioxidant activity[6], hence it has become one of the important sources of health care products development.

References: [2] Nat Chem. 2016 Jun;8(6):531-41. [3] Carbohydrate Polymers, 2002, 49(2):139-144. [4] Carbohydrate Polymers, 2018, 183:91-101.
[5] Molecules, 2020, 25(17):3773. [6] Nutrients, 2018, 10(3):343.

Our Advantages

Rich in Sources and Structures

The natural products of MCE come from plants, animals, microorganisms and marine organisms; plant sources include hundreds of plants such as *Panax ginseng*, *Glycyrrhiza uralensis* and *Astragalus membranaceus*, etc. Animal origins includes toads, cantharides and musk, etc. Microbial sources include a variety of bacteria and fungi. The structural types of natural products cover almost all major structural groups of natural products, including dozens of structural categories such as flavonoids, alkaloids, quinones and many more.



Large Number of Products, Continuous Updating

MCE currently offers 8,000+ natural products which are continuously updated with 1,000+ natural products per year.

Strict Quality Standard Control System

Certified by ISO 9001 quality management system, the company has a professional quality research team, with rich experience in quality assurance and quality control, equipped with hundreds of advanced testing equipment, to ensure the high quality and purity of each product.

Citations in Prestigious Scientific Journals

The biological activity of our products have been verified by scientists from all over the world and have been cited in numerous prestigious scientific journals. Global top journals (*Nature*, *Science*, *Cell*, etc.) and pharmaceutical patents have published the scientific research achievements of MCE customers.

Publications Citing Use of MCE Products

Nature. 2022 Nov;611(7936):603-613.
Nature. 2022 Oct;610(7933):761-767.
Nature. 2022 Oct;610(7931):394-401.
Nature. 2022 Oct;610(7932):555-561.
Nature. 2022 Oct;610(7931):366-372.
Nature. 2022 Sep;609(7928):829-834.
Nature. 2022 Sep;609(7928):785-792.
Nature. 2022 Aug;608(7923):609-617.
Nature. 2022 Aug;608(7922):413-420.
Nature. 2022 Jul;607(7917):135-141.
Nature. 2022 Jun;606(7915):776-784.
Nature. 2022 May;605(7910):567-574.
Science. 2022 Dec 2;378(6623):eabo5503.
Science. 2022 Nov 18;378(6621):eabq7361.
Science. 2022 Oct 14;378(6616):eabq0132.
Science. 2022 Mar 18;375(6586):1254-1261.
Science. 2022 Jul 8;377(6602):eabg9302.
Science. 2021 Oct;374(6563):eabf3067.
Cell. 2022 Nov 17;S0092-8674(22)01370-8.
Cell. 2022 Nov 10;185(23):4361-4375.e19.
Cell. 2022 Sep 1;185(18):3356-3374.e22.
Cell. 2022 Aug 18;185(17):3124-3137.e15.
Cell. 2022 Aug 4;185(16):3008-3024.e16.
Cell. 2022 Jun 23;185(13):2234-2247.e17.
Cell. 2022 Jun 23;185(13):2354-2369.e17.
Cell. 2022 Apr 28;185(9):1521-1538.e18.
Cell. 2022 Jan 6;185(1):158-168.e11.
Cell. 2021 Oct 28;184(22):5670-5685.e23.

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MCE Global Partners

NIH National Institutes of Health
Turning Discovery Into Health

Dana-Farber Cancer Institute

Massachusetts Institute of Technology

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Institute of Biochemistry and Cell Biology
Shanghai Institutes for Biological Sciences, CAS

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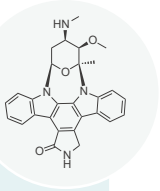
Alkaloids

Alkaloids refer to a class of nitrogenous organic matter (except vitamins, amino acids, peptides, etc.) derived from the natural sources. The vast majority of alkaloids are obtained from plants (such as camptothecin from *Camptotheca acuminata*, Vinblastine from *Catharanthus roseus*, etc.), and a few from animals (such as adrenaline in the human body).

Most alkaloids have excellent physiological activities and are effective components in many Chinese herbal medicines, such as **Morphine** (the analgesic substance in *Papaver somniferum*), and **Ephedrine** (the anti-asthmatic substance in *Ephedra sinica*), **Berberine** (an anti-inflammatory compound in *Coptis chinensis*), **Quinine** (an antimalarial compound in *Cinchona succirubra*) and **Reserpine** (anti-hypertensive agent in *Rauvolfia verticillata*), etc.

In terms of structure, most alkaloids have complex ring structures, and most of the nitrogen atoms are bound in the ring (such as indole alkaloids). Some nitrogen atoms of alkaloids exist in chain-like structures (e.g., Adrenaline). Alkaloids can be divided into several subgroups according to the difference in nitrogen-containing basic parent nuclei:

Indole Alkaloids

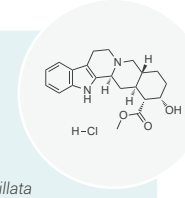


Cat. No.: HY-15141

Staurosporine

Origin: Streptomyces staurosporeus

A potent, ATP-competitive and non-selective inhibitor of protein kinases

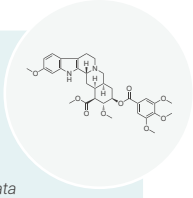


Cat. No.: HY-N0127

Yohimbine

Origin: *Rauvolfia verticillata* (Lour.) Baill.

An alpha 2-adrenoreceptor antagonist, blocks alpha-2 adrenoreceptors



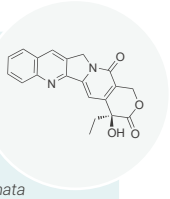
Cat. No.: HY-N0480

Reserpine

Origin: *Rauvolfia verticillata* (Lour.) Baill.

Vesicle monoamine transporter 2 (VMAT2) inhibitor

Quinoline Alkaloids

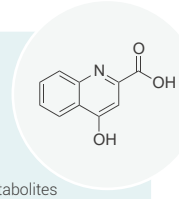


Cat. No.: HY-16560

Camptothecin

Origin: *Camptotheca acuminata*

A DNA topoisomerase I (Topo I) inhibitor, exhibits powerful antineoplastic activity

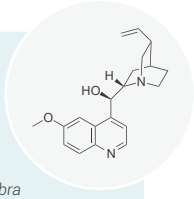


Cat. No.: HY-100806

Kynurenic acid

Origin: Endogenous metabolites

An antagonist targeting NMDA, glutamate, α7 nAChR



Cat. No.: HY-D0143

Quinine

Origin: *Cinchona succirubra* Pav. ex Klotzsch

Antimalarial activity, potassium channel inhibitor

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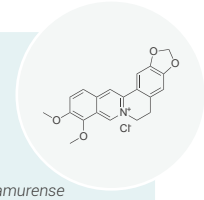
Classification according to **structures**

Alkaloids *Saccharides* *Flavones* *Terpenes* *Quinones* *Phenylpropanoids* *Steroids* *Stilbenes* *Phenols*

Isoquinoline Alkaloids

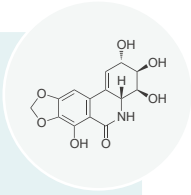


Cat. No.: HY-18258

Berberine chloride

Origin: *Phellodendron amurense* Rupr.

Induces production of ROS; DNA topoisomerase inhibitor

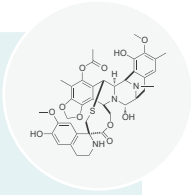


Cat. No.: HY-16563

Narciclasine

Origin: *Narcissus tazetta* Linn. var. chinensis M.Roener

Plant growth regulator, regulates Rho/LIM kinase/Cofilin signaling



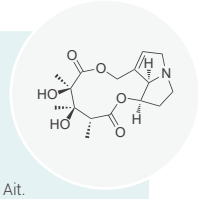
Cat. No.: HY-50936

Trabectedin

Origin: marine ascidian

Blocks transcription of stress-induced proteins, induces cancer apoptosis

Pyrrole Alkaloids

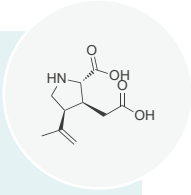


Cat. No.: HY-N0750

Monocrotaline

Origin: *Crotalaria pallida* Ait.

Induces pulmonary hypertension in rodents

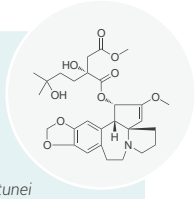


Cat. No.: HY-N2309

Kainic acid

Origin: *Digenea simplex*

Active agonist of excitatory amino acid receptor subtypes in the CNS



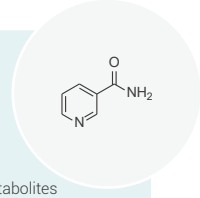
Cat. No.: HY-N0862

Harringtonine

Origin: *Cephalotaxus fortunei* Hooker

Inhibits protein synthesis, resists chikungunya virus (CHIKV)

Pyridine Alkaloids

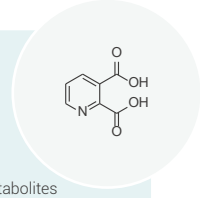


Cat. No.: HY-B0150

Nicotinamide

Origin: Endogenous metabolites

Vitamin B3, a substrate of an enzyme that catalyzes non-redox reactions

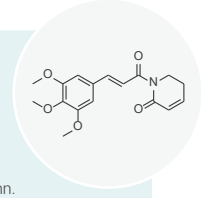


Cat. No.: HY-100807

Quinolinic acid

Origin: Endogenous metabolites

Endogenous N-methyl-D-aspartate receptor (NMDA receptor) agonist



Cat. No.: HY-N2329

Piperlongumine

Origin: *Piper longum* Linn.

Anti-inflammatory, anti-bacterial, anti-tumor and anti-diabetes activities

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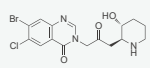
Classification according to **structures**

Piperidine Alkaloids

Cat. No.: HY-N1584

Halofuginone

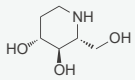


Origin: *Dichroa febrifuga* Lour.

Prolyl-tRNA synthetase inhibitor, type-I collagen synthesis inhibitor

Cat. No.: HY-13005

Fagomine

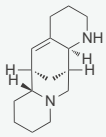


Origin: *Fagopyrum esculentum* Moench

Glycosidase inhibitor, enhances glucose-induced insulin secretion

Cat. No.: HY-13516

Aloperine



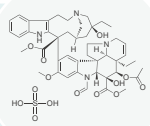
Origin: *Sophora alopecuroides* Linn.

Shows anti-cancer, anti-inflammatory and anti-virus properties

Alkaloid Dimers

Cat. No.: HY-N0488

Vincristine sulfate

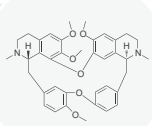


Origin: *Catharanthus roseus* (Linn.) G. Don

Inhibits microtubule formation in mitotic spindle

Cat. No.: HY-13764

Tetrandrine

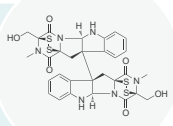


Origin: *Stephania tetrandra* S. Moore

Inhibits voltage-gated Ca^{2+} current (ICa) and Ca^{2+}-activated K^+ current

Cat. No.: HY-N2019

Chaetocin



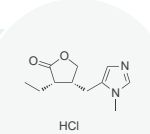
Origin: Chaetomium species

Histone methyltransferase (HMT) SU (VAR) 3-9 specific inhibitor

Other Alkaloids

Cat. No.: HY-B0726

Pilocarpine HCl

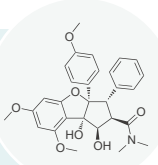


Origin: *Pilocarpus*

Effective M3 muscarinic receptor agonist

Cat. No.: HY-19356

Rocaglamide

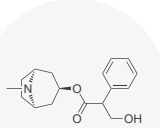


Origin: *Aglaia elliptifolia*

NF-κB activation inhibitor, heat shock factor 1 (HSF1) activation inhibitor

Cat. No.: HY-B1205

Atropine



Origin: Solanaceae

Competitive muscarinic acetylcholine receptor (mAChR) antagonist

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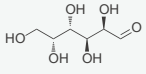
Saccharides

Saccharides are polyhydroxy aldehydes, polyhydroxy ketones and organic compounds that can be hydrolyzed into polyhydroxy aldehydes and ketones. These can be divided into monosaccharides, disaccharides and polysaccharides according to the number of sugar units they contain.

Saccharides exist widely in nature, such as cellulose and starch from plants, glucose and glycogen from animals. They play an important role in the functionality of living organisms. They are not only structural components and main energy source of organisms, but can also be converted into other substances in the body (such as amino acids, nucleotides, etc.), and can be combined with proteins to form glycoproteins becoming signaling molecules.

Cat. No.: HY-N0210

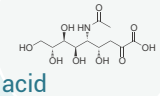


D-Galactose

Origin: Widespread

Endogenous metabolite; C-4 differential isomer of glucose

Cat. No.: HY-I0400

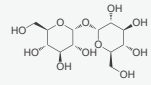


N-Acetylneuraminic acid

Origin: Endogenous metabolites

Useful biologically in neurotransmission, leukocyte extravasation and infection

Cat. No.: HY-N1132

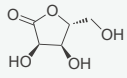


D-(+)-Trehalose

Origin: Saccharomyces cerevisiae

Used as an excipient in food and medicine

Cat. No.: HY-76691

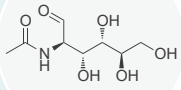


D-Ribonolactone

Origin: Endogenous metabolites

Sugar lactone and an inhibitor of β-galactosidase of *Escherichia coli*

Cat. No.: HY-A0132

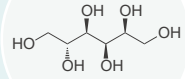


N-Acetyl-D-glucosamine

Origin: Endogenous metabolites

Autophagy inhibitor, anti-cancer and anti-inflammatory activities

Cat. No.: HY-B0400

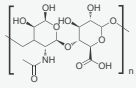


D-Sorbitol

Origin: Endogenous metabolites

A six-carbon sugar alcohol and used as a sugar substitute

Cat. No.: HY-B0633A

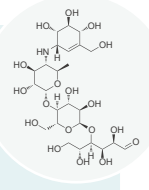


Hyaluronic acid

Origin: Endogenous metabolites

Biopolymers composed of disaccharide repeat units, widely used in many fields

Cat. No.: HY-B0089

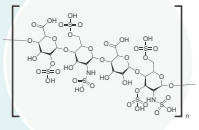


Acarbose

Origin: Actinoplanes sp

Antihyperglycemic agent, an orally active alpha-glucosidase inhibitor

Cat. No.: HY-101916



Heparan Sulfate

Origin: Endogenous metabolites

Linear polysaccharide, expressed abundantly on the cell surface

306, Agarwal City Mall, opposite M2K Pitampura, Delhi-110034 (India)

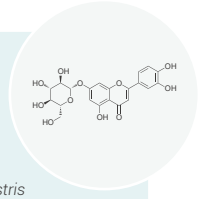
Flavonoids

Flavonoids refer to a series of compounds synthesized by connecting two benzene rings (often referred to as A ring and B ring) with three central carbons. Flavonoids widely exists in nature. Most of them combine with saccharides to form flavonoid glycosides in plants, and a few of them exist as aglycones.

Flavonoids have a wide range of activities. For example, **Rutin**, a common flavonoid in nature, has antioxidant, anti-inflammatory and antiviral activity, and Silymarin derived from *Silybum marianum* has antiviral and anti-tumor effects.

From structural perspective, the benzene ring of flavonoids is usually connected with multiple phenolic hydroxyl groups, so flavonoids also belong to a large category of phenolic compounds. Due to the presence of phenolic hydroxyl group in its structure, flavonoids mostly have antioxidant activity. Generally, flavonoids can be divided into several subgroups such as flavones, flavonones, chalcone and isoflavones.

Flavones

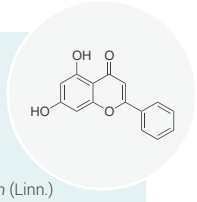


Cat. No.: HY-N0540

Cynaroside

Origin: *Anthriscus sylvestris*

RNA polymerase inhibitor; antioxidant activity

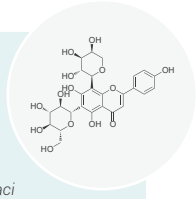


Cat. No.: HY-14589

Chrysin

Origin: *Oroxylum indicum* (Linn.) Bentham ex Kurz

The most well known estrogen blocker, antitumor activity



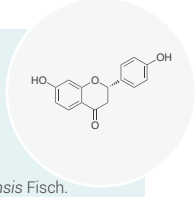
Cat. No.: HY-N0703

Schaftoside

Origin: *Desmodium styraci* foLium,(Osb.)Merr.

Inhibits apoptosis, regulates inflammation and oxidative stress

Flavonones

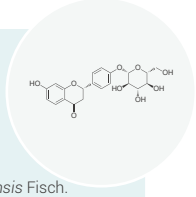


Cat. No.: HY-N0377

Liquiritigenin

Origin: *Glycyrrhiza uralensis* Fisch.

Highly selective estrogen receptor β (ERβ) agonist

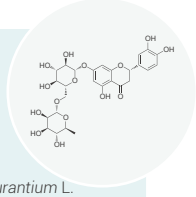


Cat. No.: HY-N0376

Liquiritin

Origin: *Glycyrrhiza uralensis* Fisch.

A potent and competitive AKR1C1 inhibitor, inhibits progesterone metabolism



Cat. No.: HY-N0636

Eriocitrin

Origin: Fruits of *Citrus aurantium* L.

Antioxidant agent, inhibits the proliferation of hepatocellular carcinoma cell lines

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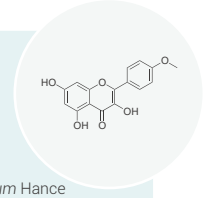
Delhi-110034 (India)

Flavonols

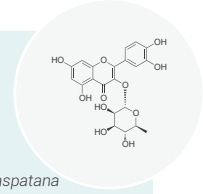


Cat. No.: HY-15449

Kaempferide

Origin: *Alpinia officinarum* Hance

Induces apoptosis, antitumor activity; activates PI3K/Akt/GSK-3β pathway

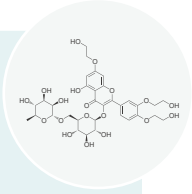


Cat. No.: HY-N0418

Quercitrin

Origin: *Grangea maderaspatana* (Linn.) Poir.

Anti-inflammatory effect, used for heart and vascular conditions study



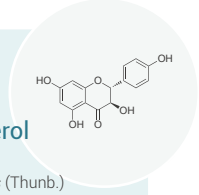
Cat. No.: HY-N0139

Troxerutin

Origin: Flower buds of *Sophora japonica* L.

Inhibits the production of ROS and depresses NOD activation

Flavanonols

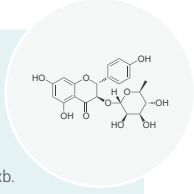


Cat. No.: HY-N2897

Dihydrokaempferol

Origin: *Euonymus alatus* (Thunb.) Sieb.

Induces apoptosis and inhibits Bcl-2 and Bcl-xL expression

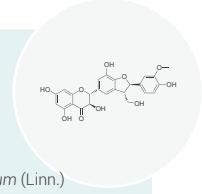


Cat. No.: HY-N0436

Engeletin

Origin: *Smilax glabra* Roxb.

Inhibits NF-κB signaling-pathway activation



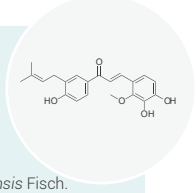
Cat. No.: HY-N0647

Silychristin

Origin: *Silybum marianum* (Linn.) Gaertn.

A potent inhibitor of the thyroid hormone transporter MCT8

Chalcones

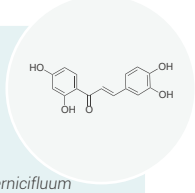


Cat. No.: HY-N4187

Licochalcone D

Origin: *Glycyrrhiza uralensis* Fisch.

A potent and orally active inhibitor of NF-kappaB (NF-κB) p65

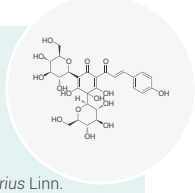


Cat. No.: HY-16558

Butein

Origin: *Toxicodendron vernicifluum* (Stokes)F. A.Barkley

cAMP specific PDE inhibitor, protein tyrosine kinase inhibitor



Cat. No.: HY-N0567

Hydroxysafflor yellow A

Origin: *Carthamus tinctorius* Linn.

Antitumor, neuroprotective, anti-fibrosis, anti-inflammatory activities

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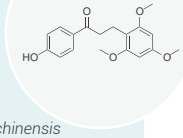
Delhi-110034 (India)

Dihydrochalcones

Cat. No.: HY-N1504

Loureirin B

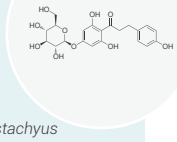


Origin: *Dracaena cochinchinensis* (Lour.) S. C. Chen

An inhibitor of plasminogen activator inhibitor-1(PAI-1)

Cat. No.: HY-N4100

Trilobatin

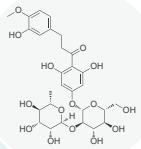


Origin: *Lithocarpus polystachyus* (Wall.) Rehd.

HIV-1 inhibitor, SGLT1/2 inhibitor; neuroprotective and antitumor activity

Cat. No.: HY-N0154

Neohesperidin dihydrochalcone



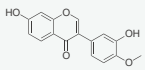
Origin: Fruits of *Citrus aurantium* L.

Low-calorie sweetener added to a variety of foods and beverages

Isoflavones

Cat. No.: HY-N0519

Calycosin

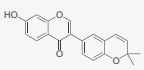


Origin: Root-bark of *Astragalus membranaceus* (Fisch.) Bunge

Active compound, anti-oxidative and anti-inflammation activity

Cat. No.: HY-N0236

Corylin

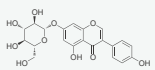


Origin: *Psoralea corylifolia* Linn.

Antibiotic; antitumor, neuroprotective and other biological activities

Cat. No.: HY-N0595

Genistin



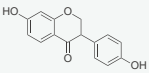
Origin: *Glycine max* (Linn.) Merr.

A potent anti-adipogenic and anti-lipogenic agent

Isoflavanones

Cat. No.: HY-N1461

Dihydrodaidzein

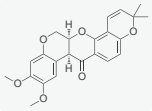


Origin: Endogenous metabolites

One of the most prominent dietary phytoestrogens

Cat. No.: HY-13425

Deguelin

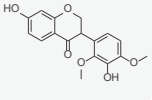


Origin: *Derris trifoliata* Lour.

A chemopreventive agent by blocking multiple pathways

Cat. No.: HY-N9842

Violanone



Origin: *Dalbergia oliveri* Gamble

Inhibits tubulin polymerization; antiparasitic activity

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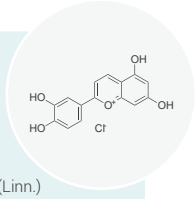
Classification according to **structures**

Alkaloids *Saccharides* *Flavones* *Terpenes* *Quinones* *Phenylpropanoids* *Steroids* *Stilbenes* *Phenols*

Anthocyans

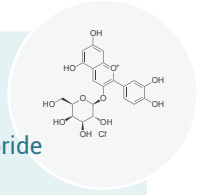


Cat. No.: HY-129997

Luteolinidin chloride

Origin: *Sorghum bicolor* (Linn.) Moench

Effective CD38 inhibitor; protects the heart from I/R damage

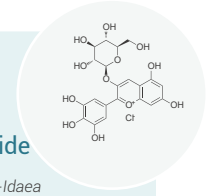


Cat. No.: HY-N4142

Cyanidin-3-O-galactoside chloride

Origin: *Vaccinium Spp*

Strong AChE inhibition activity; antioxidant and cell protective activities



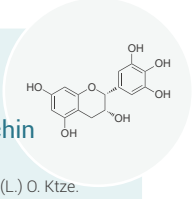
Cat. No.: HY-108052

Delphinidin 3-glucoside chloride

Origin: *Vaccinium Vitis-Idaea*

Phytoestrogen activity by binding ERβ; anti-tumor, cardiovascular protection

Flavanols

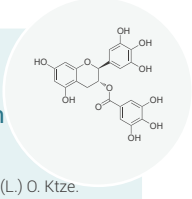


Cat. No.: HY-N0225

(-)-Epigallocatechin

Origin: *Camellia sinensis* (L.) O. Ktze.

Binds to unfolded native polypeptides and prevents conversion to amyloid fibrils

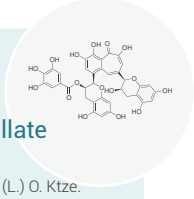


Cat. No.: HY-N0522

(-)-Gallocatechin gallate

Origin: *Camellia sinensis* (L.) O. Ktze.

A polyphenol, with cancer-preventive activities



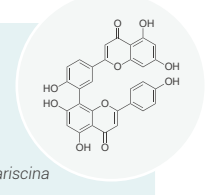
Cat. No.: HY-N0244

Theaflavin-3'-gallate

Origin: *Camellia sinensis* (L.) O. Ktze.

A prooxidant, induces oxidative stress in carcinoma cells

Biflavones

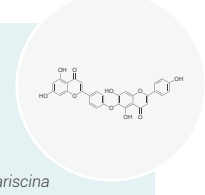


Cat. No.: HY-N0662

Amentoflavone

Origin: *Selaginella tamariscina* (P. Beauv.) Spring

A potent and orally active GABA(A) negative modulator

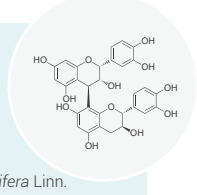


Cat. No.: HY-N2360

Hinokiflavone

Origin: *Selaginella tamariscina* (P. Beauv.) Spring

Regulator of pre-mRNA splicing; apoptosis induction and antitumor activity



Cat. No.: HY-N0795

Procyanidin B1

Origin: Seeds of *Vitis vinifera* Linn.

Binds to TLR4/MD-2 complex, and has anti-inflammatory activity

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Terpenoids

Terpenoids are derived from mevaleryl acid and their molecular formula can be written as (C5H8) n. The skeleton is usually based on five carbons, with a few exceptions (possibly due to isomerization or degradation reactions during formation). Most terpenoids are oxygen-containing derivatives; some exist in the form of glycosides, such as iridoid glycosides. Some terpenoids contain nitrogen atoms and are called terpenoid alkaloids (e.g., Aconitine). They are widely distributed in plants, animals and marine organisms.

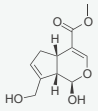
Terpenoids are characterized by diverse skeletons, a large number of species and varied structures, and a wide range of pharmacological activities, such as Paclitaxel from *Taxus chinensis*, Artemisinin from *Artemisia annua*, and Triptolide from *Tripterygium wilfordii*.

Terpenoids can be divided into monoterpenes, sesquiterpenes, diterpenoids and triterpenoids according to the number of isoprene units they contain. Monoterpenes are one of the main components of plant volatile oils, whereas iridoids are a kind of monoterpenes with special structures.

Iridoids

Cat. No.: HY-17389

Genipin

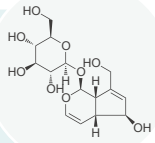


Origin: *Gardenia jasminoides* Ellis

Inhibits UCP2 (uncoupling protein 2), used for type 2 diabetes research

Cat. No.: HY-N0664

Aucubin

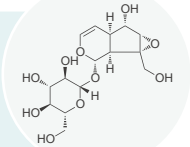


Origin: *Eucommia ulmoides* Oliver

Antioxidant, anti-aging, anti-inflammatory, antimicrobial, neuroprotective effects

Cat. No.: HY-N0820

Catalpol



Origin: *Rehmannia glutinosa* (Gaert.) Libosch. ex Fisch. et Mey.

Neuroprotective, anti-cancer, and anti-HBV effects

Other Monoterpenes

Cat. No.: HY-108943

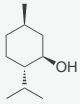
Sabinene

Origin: *Quercus ilex*

New biofuel precursor; Antioxidant and antibacterial biological activities

Cat. No.: HY-75161

(-)-Menthol

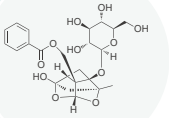


Origin: *Mentha piperita* L.

Binds and activates the transient receptor potential M8 (TRPM8)

Cat. No.: HY-N0293

Paeoniflorin



Origin: *Paeonia lactiflora* Pall.

Heat shock protein-inducing compound with various biological activities

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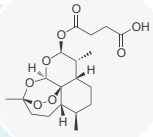
Classification according to **structures**

Sesquiterpenes

Cat. No.: HY-N0193

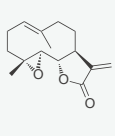


Artesunate

Origin: *Artemisia carvifolia* Buch.-Ham. ex Roxb.

An inhibitor of both STAT-3 and exported protein 1

Cat. No.: HY-N0141

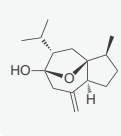


Parthenolide

Origin: *Pyrethrum parthenium* (L.) Sm.

Inhibits NF-κB activation and HDAC1 protein; anti-inflammatory activity

Cat. No.: HY-N0104



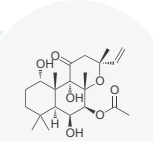
Curcumol

Origin: *Curcuma zedoaria* (Christm.) Rosc.

Antitumor, anti-microbial, anti-fungal, anti-viral and anti-inflammatory activities

Diterpenoids

Cat. No.: HY-15371

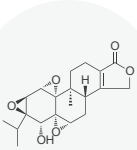


Forskolin

Origin: *Coleus forskohlii* (Willd.) Briq.

An adenylate cyclase activator; induces intracellular cAMP formation

Cat. No.: HY-32735

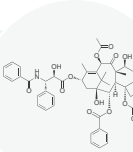


Triptolide

Origin: *Tripterygium wilfordii* Hook. f.

Antiproliferative and antitumor effects, NF-κB activation inhibitor

Cat. No.: HY-B0015



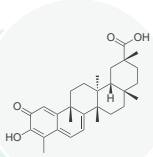
Paclitaxel

Origin: *Taxus chinensis* (Pilger) Rehd.

Antineoplastic agent and stabilizes tubulin polymerization

Triterpenes

Cat. No.: HY-13067

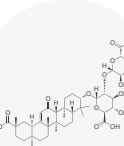


Tripterin

Origin: *Tripterygium wilfordii* Hook. f.

Inhibits the chymotrypsin-like activity of 20S proteasome

Cat. No.: HY-N0184

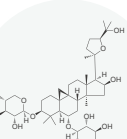


Glycyrrhizic acid

Origin: *Glycyrrhiza uralensis* Fisch.

HMGB1 antagonist; Anti-tumor and anti-diabetes activities

Cat. No.: HY-N0431



Astragaloside IV

Origin: Root-bark of *Astragalus membranaceus* (Fisch.) Bunge

Suppresses activation of ERK1/2 and JNK, downregulates matrix metalloproteases

Other Terpenoids

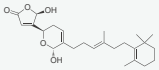
Cat. No.: HY-N0411

β-Carotene

Origin: widespread

A modulator of reactive oxygen species (ROS), an antioxidant.

Cat. No.: HY-N7487



Manoalide

Origin: Luffariella variabilis

Potent Phospholipase A2 (PLA2) and Phospholipase C (PLC) inhibitor

Cat. No.: HY-120318

Zeaxanthin

Origin: *Tagetes erecta* Linn.

A diet-obtained carotenoid, shows antioxidant effects

Quinones

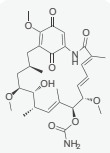
Quinones are the compounds with unsaturated cyclodiketone structures. Because quinones have unsaturated ketone structure, when these are linked with chromophores (e.g., hydroxyl, methoxyl), they produce color, hence exists as pigments in nature.

Quinones have a wide range of pharmacological activities, such as Rhein from *Rheum officinale* has anti-inflammatory, antioxidant, and anti-cancer effects, Cryptotanshinone from *Salvia miltiorrhiza* has anti-tumor effects, and Chrysophanein from *Aloe vera* has cytotoxic activity.

Quinones can be divided into benzoquinones, naphthoquinones, anthraquinones and phenanthrene quinones according to their structures.

Benzene Quinones

Cat. No.: HY-15230

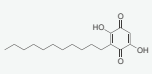


Geldanamycin

Origin: Streptomyces hygroscopicus

Hsp90 inhibitor; antibacterial and anti-influenza virus H5N1 activity

Cat. No.: HY-17473



Embelin

Origin: *Embelia laeta* (Linn.) Mez

XIAP inhibitor, inhibits cell growth, induces apoptosis, and activates caspase-9

Cat. No.: HY-D0803

Thymoquinone

Origin: *Nigella damascena* Linn.

Anti-oxidation, anti-inflammatory, anti-tumor activities and liver protection

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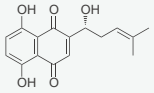
Classification according to **structures** —

Naphthalene Quinones

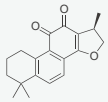


Cat. No.: HY-N0822

Shikonin

Origin: *Lithospermum erythrorhizon* Sieb. et Zucc.

TMEM16A chloride channel inhibitor; Pyruvate kinase M2 (PKM2) inhibitor



Cat. No.: HY-N0174

Cryptotanshinon

Origin: *Salvia miltiorrhiza* Bunge

Antitumor agent, inhibits STAT3 with an IC_{50} of 4.6 μM

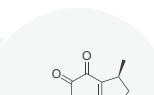
Cat. No.: HY-N1497

Plumbagin

Origin: *Plumbago zeylanica* Linn.

ROS inducer; anti-tumor, anti-bacterial and anti-fungal activities

Phenanthrenequinones

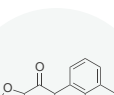


Cat. No.: HY-N0360

Dihydrotanshinone I

Origin: *Salvia miltiorrhiza* Bunge

Inhibits MERS-COV, widely used in cardiovascular disease research



Cat. No.: HY-B1919

Dihydroisotanshinone I

Origin: *Salvia miltiorrhiza* Bunge

Induces iron death and apoptosis of tumor cells; inhibits tumor metastasis

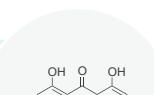
Cat. No.: HY-N6922

Danshenxinkun B

Origin: *Salvia miltiorrhiza* Bunge

An antioxidative component of tanshen

Anthraquinones

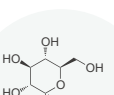


Cat. No.: HY-14393

Emodin

Origin: *Rheum palmatum* Linn.

SARS-COV and CK2 inhibitor; selective 11β-HSD1 inhibitor



Cat. No.: HY-N0123

Aloin

Origin: *Aloe vera* (Linn.) N. L. Burman var. chinensis (Haw.) Berg.

Iron chelating activity; anti-tumor and anti-inflammatory activities

Cat. No.: HY-N0365

Sennoside A

Origin: *Folium Sennae* Cassia angustifolia Vahl Cassia acutifolia Del.

HIV-1 inhibitor; anti-tumor, anti-bacterial and anti-fungal activities

Phenylpropanoids

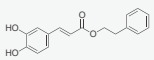
Phenylpropanoids refer to compounds with one or more C6-C3 units in the parent nucleus, which can further be divided into simple phenylpropanoids, coumarins and lignans.

Simple phenylpropanoids belong to phenylpropanoid derivatives in structure. According to the structure of their C3 side chain, they can be divided into allylbenzene, phenylpropanol, benzenepropanal, phenylpropanic acid and other types.Coumarins have the parent nuclear structure of benzo α-pyranone and can be divided into simple coumarins, furancoumarins, pyrancoumarins and so on.

Lignans are a class of natural products from the oxidative polymerization of phenylpropanoids, usually dimers, and a few trimers and tetramers. They can be divided into simple lignans, single epoxy lignans, double epoxy lignans, biphenyl lignans, biphenyl cyclooctene lignans and other types according to the different connection modes of dimers.

Simple Phenylpropanols

Cat. No.: HY-N0274

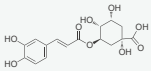


Caffeic acid phenethyl ester

Origin: Propolis

NF-κB inhibitor; antioxidant, anti-tumor and immunomodulatory activities

Cat. No.: HY-N0055

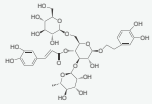


Chlorogenic acid

Origin: *Lonicera japonica* Thunb.

Hepatoprotective, cardioprotective, anti-inflammatory, neuroprotective activities

Cat. No.: HY-N0020



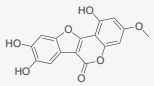
Echinacoside

Origin: *Cistanche deserticola* Ma

Inhibits Wnt/β-catenin signaling, elicits neuroprotection

Coumarins

Cat. No.: HY-N0551

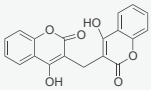


Wedelolactone

Origin: Aerial part of *Eclipta prostrata* L.

Suppresses LPS-induced caspase-11 expression by inhibiting the IKK Complex

Cat. No.: HY-N0645

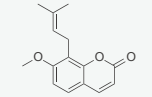


Dicoumarol

Origin: *Melilotus officinalis* (L.) Pall.

Quinone oxidoreductase 1 (NQO1) and PDK1 inhibitor

Cat. No.: HY-N0054



Osthole

Origin: Fruits of *Cnidium monnieri* (L.) Cuss.

Inhibitor of histamine H1 receptor activity; suppresses the secretion of HBV

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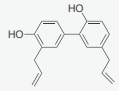
Delhi-110034 (India)

Lignans

Cat. No.: HY-N0003

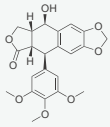


Honokiol

Origin: *Magnolia officinalis.* Rehd. et Wils.

Antioxidative, anti-inflammatory, and anticancer activities

Cat. No.: HY-15494

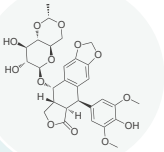


Picropodophyllin

Origin: *Dysosma versipellis* (Hance) M. Cheng ex Ying

Selective insulin-like growth factor-1 receptor (IGF-1R) inhibitor

Cat. No.: HY-13629



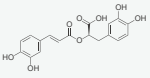
Etoposide

Origin: *Sinopodophyllum hexandrum* (Royle) Ying

An anti-cancer chemotherapy agent, inhibits topoisomerase II

Other Phenylpropanoids

Cat. No.: HY-N0529

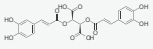


Rosmarinic acid

Origin: *Rosmarinus officinalis* Linn.

MAO-A, MAO-B and COMT inhibitor; antiangiogenesis

Cat. No.: HY-N0457

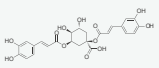


Cichoric Acid

Origin: *Echinacea purpurea* (Linn.) Moench

Anti-tumor, anti-oxidation, lipid metabolism regulation activities

Cat. No.: HY-N0359



Cynarin

Origin: *Inula japonica* Thunb.

Antioxidant, anti-radical, anti-cholinergic, anti-histamine and anti-virus activities

Steroids

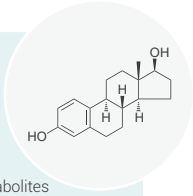
Steroids are compounds with cyclopentane polyhydrophenanthrene nucleus. Steroids widely exist in plants and animals, such as Cardenolide compounds in *Digitalis purpurea*, Prosapogenin in *Dioscorea nipponica*, Bufalin in toad venom, and steroid hormones in the human body.

Steroids have a wide range of pharmacological activities, such as Cardenolide compounds have long been used to treat heart failure, steroid hormones can be used as anti-inflammatory agents, and OSW-1 can be used against cancer.

Common steroids include Cholesterol, sex hormone Estradiol and steroidal saponins.

Classification according to **structures**

Alkaloids *Saccharides* *Flavones* *Terpenes* *Quinones* *Phenylpropanoids* ***Steroids*** *Stilbenes* *Phenols*

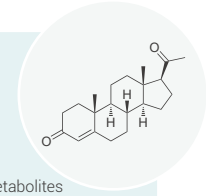


Cat. No.: HY-B0141

Estradiol

Origin: Endogenous metabolites

Steroid sex hormone, acts through estrogen receptor β (ERβ)

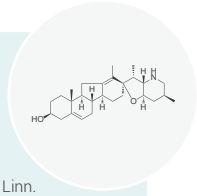


Cat. No.: HY-N0437

Progesterone

Origin: Endogenous metabolites

Steroid hormone, regulates the menstrual cycle; Immune modulator

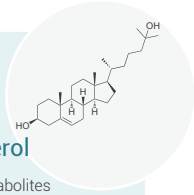


Cat. No.: HY-17024

Cyclopamine

Origin: *Veratrum nigrum* Linn.

Hedgehog pathway inhibitor, selective Smo inhibitor

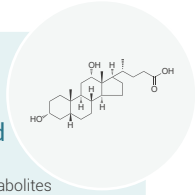


Cat. No.: HY-113134

25-Hydroxycholesterol

Origin: Endogenous metabolites

Cholesterol metabolite; inflammatory signal amplifier

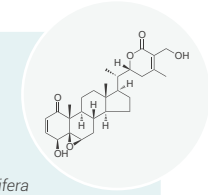


Cat. No.: HY-N0593

Deoxycholic acid

Origin: Endogenous metabolites

Activates G protein-coupled bile acid receptor TGR5

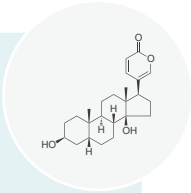


Cat. No.: HY-N2065

Withaferin A

Origin: *Withania somnifera*

Inhibits NF-kB activation and targets vimentin

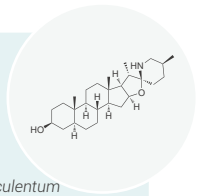


Cat. No.: HY-N0877

Bufalin

Origin: toad

Na^+/K^+-ATPase inhibitor, binds to the subunit α1, α2 and α3

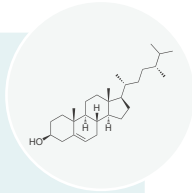


Cat. No.: HY-N2149

Tomatidine

Origin: *Lycopersicon esculentum* Miller

Blocks NF-κB and JNK signal; anti-inflammatory and antiviral activities

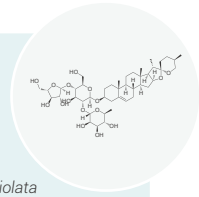


Cat. No.: HY-N1459

Campesterol

Origin: Rapeseed seeds

Phytosterol, with cholesterol-lowering, anti-tumor and anti-angiogenic activities

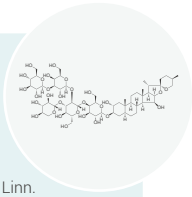


Cat. No.: HY-N0047

Polyphyllin I

Origin: Root of *Paris petiolata* Bak. Ex Forb.

Activates JNK signaling pathway; PDK1/Akt/mTOR signaling inhibitor

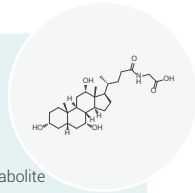


Cat. No.: HY-N4000

Digitonin

Origin: *Digitalis purpurea* Linn.

Increases cell permeability by binding to cholesterol molecules



Cat. No.: HY-N1423

Glycocholic acid

Origin: Endogenous metabolite

A bile acid with anticancer activity, used in the study of bile acid metabolism

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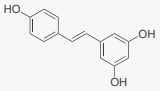
Stilbenes

Stilbenes refer to compounds containing 1, 2-stilbenes groups in their structures. These compounds are widely found in nature, such as Resveratrol and Piceatannol widely found in plants and Polydatin from *Reynoutria japonica*.

Stilbenes have a variety of pharmacological activities, such as the most studied Resveratrol, has antioxidant, anti-inflammatory, cardio-protective and anti-cancer effects; Polydatin has anti-inflammatory effect and can induce oxidative stress; Pterostilbene isolated from blueberry and *Pterocarpus marsupium* has antioxidant, anti-inflammatory, anti-cancer, anti-diabetic and anti-obesity activity.

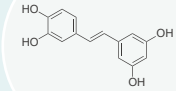


Cat. No.: HY-16561

Resveratrol

Origin: *Reynoutria japonica Houtt.*

Anti-oxidant, anti-inflammatory, cardioprotective, and anti-cancer properties

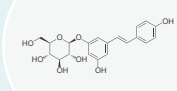


Cat. No.: HY-13518

Piceatannol

Origin: *Rheum palmatum* Linn.

Syk inhibitor; induces apoptosis and anti-inflammatory activities

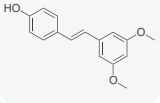


Cat. No.: HY-N0120A

Polydatin

Origin: *Reynoutria japonica Houtt.*

G6PD inhibitor; induces oxidation and endoplasmic reticulum stress

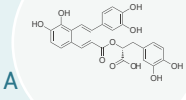


Cat. No.: HY-N0828

Pterostilbene

Origin: *Perilla frutescens* (Linn.) Britt.

Anti-oxidant, anti-inflammatory, anti-carcinogenic properties

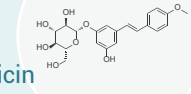


Cat. No.: HY-N0318

Salvianolic acid A

Origin: *Salvia miltiorrhiza* Bunge

MMP-9 inhibitor; protects the blood brain barrier

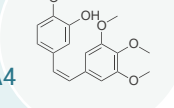


Cat. No.: HY-N2486

Desoxyrhaponticin

Origin: *Rheum rhabarbarum* Linnaeus

Fatty acid synthase (FASN) inhibitor; induces apoptosis of cancer cells

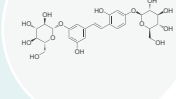


Cat. No.: HY-N2146

Combretastatin A4

Origin: *Combretum caffrum*

Microtubule inhibitor; antitumor, angiogenesis activity

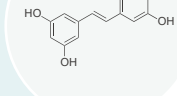


Cat. No.: HY-N0619

Mulberroside A

Origin: Root-bark of *Morus alba* Linn.

Decreases the expressions of TNF-α, IL-1β, and IL-6



Cat. No.: HY-N2229

Rhapontigenin

Origin: *Trigonella foenum-graecum* Linn.

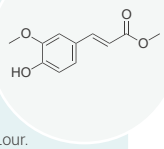
Anticancer, antioxidant, antifungal and antibacterial activities

Phenols

Phenols are compounds containing phenolic hydroxyl groups in their structure. They are widely found in plants and animals, such as Gallic acid from *Melaphis chinensis* and Ginkgolic acid from *Ginkgo biloba*, and flavonoids which are widely found in plants are also phenols. Phenols have antioxidant activity due to the phenolic hydroxyl group in their structures and can be used as free radical scavenging agents.

Phenolic compounds can be divided into monophenols and polyphenols according to the different number of phenolic hydroxyl groups, however polyphenols have more antioxidant capacity than monophenols.

Monophenols

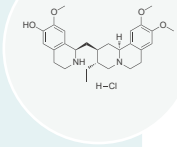


Cat. No.: HY-W018643

Ferulic acid methyl ester

Origin: *Stemona tuberosa* Lour.

Anti-inflammatory and antioxidant properties, free radical scavenging ability

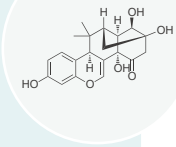


Cat. No.: HY-N2076

Cephaeline hydrochloride

Origin: *Gillenia stipulata*

Inhibits both of Zika virus (ZIKV) and Ebola virus (EBOV) infections

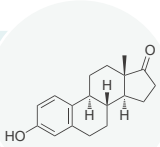


Cat. No.: HY-N9510

Miroestrol

Origin: *Pueraria mirifica*

High activity plant hormone; antioxidant and other activities

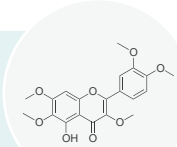


Cat. No.: HY-B0234

Estrone

Origin: Endogenous metabolites

Natural estrogenic hormone, representative of the endogenous estrogens

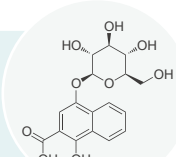


Cat. No.: HY-N3017

Artemitin

Origin: *Laggera pterodonta* (DC.) Benth.

Antioxidant, anti-inflammatory and antiviral activity

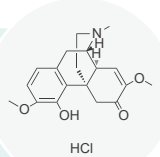


Cat. No.: HY-N8024

Rubinaphthin A

Origin: *Rubia yunnanensis*

Exhibits inhibitory activity against tobacco mosaic virus (TMV)

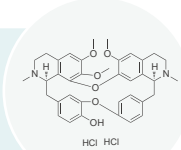


Cat. No.: HY-15122A

Sinomenine hydrochloride

Origin: *Sinomenium acutum* (Thunb.)Rehd. Et Wils.

NF-κB activation blocker; μ opioid receptor activator

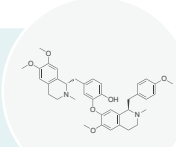


Cat. No.: HY-N0714A

Berbamine dihydrochlorid

Origin: *Berberis diaphana Maxim*

Autophagy inhibitor; anti-cancer and anti-inflammatory activities



Cat. No.: HY-N0441

Neferine

Origin: Seeds of *Nelumbo nucifera* Gaertn.

A major bisbenzylisoquinline alkaloid, strongly inhibits NF-κB activation

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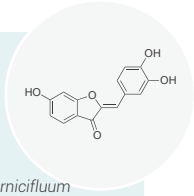
Delhi-110034 (India)

Classification according to **structures**

Alkaloids Saccharides Flavones Terpenes Quinones Phenylpropanoids Steroids Stilbenes **Phenols**

Polyphenols

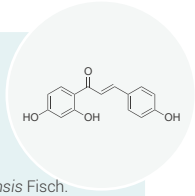


Cat. No.: HY-N1193

Sulfuretin

Origin: *Toxicodendron vernicifluum* (Stokes) F. A. Barkl.

Exerts anti-inflammatory activity by inhibiting the NF-κB pathway

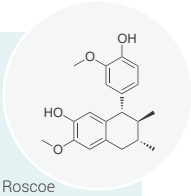


Cat. No.: HY-N0102

Isoliquiritigenin

Origin: *Glycyrrhiza uralensis* Fisch.

Inhibits aldose reductase, inhibits influenza virus replication

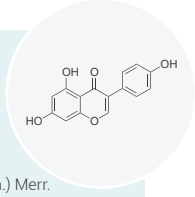


Cat. No.: HY-N2247

Guaiacin

Origin: *Zingiber officinale* Roscoe

Increases alkaline phosphatase activity and osteoblast differentiation

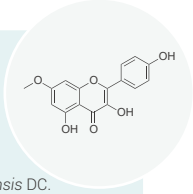


Cat. No.: HY-14596

Genistein

Origin: *Glycine max* (Linn.) Merr.

A soy isoflavone, a multiple tyrosine kinases inhibitor

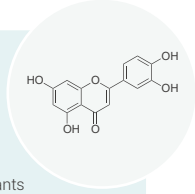


Cat. No.: HY-N1353

Rhamnocitrin

Origin: *Bupleurum chinensis* DC.

Scavenger of DPPH, anti-oxidant, anti-inflammatory activity

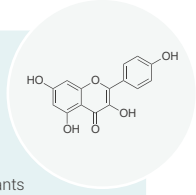


Cat. No.: HY-N0162

Luteolin

Origin: Widespread in plants

Nrf2 inhibitor; Anti-inflammatory and antitumor activities

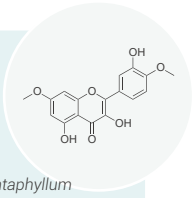


Cat. No.: HY-14590

Kaempferol

Origin: Widespread in plants

Estrogen receptor inhibitor; Anti-tumor, anti-inflammatory, antioxidant activities

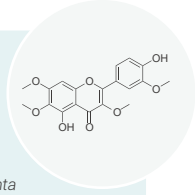


Cat. No.: HY-N3139

Ombuin

Origin: *Gynostemma pentaphyllum* (Thunb.) Makino

Antibacterial, antiviral, antioxidant and other activities

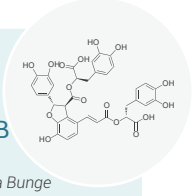


Cat. No.: HY-N1457

Chrysosplenetin

Origin: *Laggera pterodonta* (DC.) Benth.

P-gp inhibitor, artemisinin metabolism inhibitor; antimalarial activity

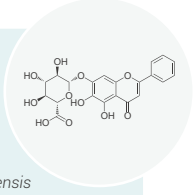


Cat. No.: HY-N1362

Salvianolic acid B

Origin: *Salvia miltiorrhiza Bunge*

Free radical scavenger, with antioxidant and anti-inflammatory activities

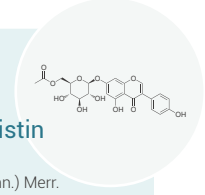


Cat. No.: HY-N0197

Baicalin

Origin: *Scutellaria baicalensis* Georgi

Allosteric carnitine palmityl transferase 1 (CPT1) activator



Cat. No.: HY-N4070

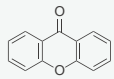
6"-O-Acetylgenistin

Origin: *Glycine max* (Linn.) Merr.

Isoflavone glycoside, inhibits lipid peroxidation in rat liver microsome

Xanthones

Cat. No.: HY-N0126

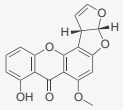


Xanthone

Origin: *Garcinia mangostana*

Controls cell division and growth, apoptosis, inflammation, and metastasis

Cat. No.: HY-N6725

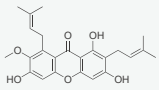


Sterigmatocystine

Origin: Aspergillus versicolor

Inhibits G1 phase and DNA synthesis; inhibits P21 activity

Cat. No.: HY-N0328

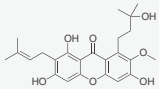


alpha-Mangostin

Origin: *Garcinia mangostana*

Autophagy inhibitor; anti-cancer and anti-inflammatory activities

Cat. No.: HY-N6953

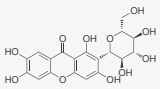


Garcinone D

Origin: *Garcinia mangostana*

Natural xanthone, promotes the proliferation of C17.2 neural stem cell

Cat. No.: HY-N0290

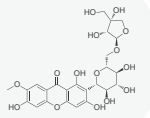


Mangiferin

Origin: *Anemarrhena asphodeloides* Bunge

Suppresses nuclear translocation of NF-κB subunits p65 and p50

Cat. No.: HY-N1407



Polygalaxanthone III

Origin: *Polygala tenuifolia* Willd.

CYP450 enzyme inhibitor; antioxidant activity

Origin: *Panax ginseng* C. A. Meyer

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0039 Ginsenoside Rb1	Triterpenes	Effective Na^+, K^+-ATPase inhibitor (IC_{50} = 6.3±1.0 μM).
Cat. No.: HY-N0835 (20S)-Protopanaxatriol	Triterpenes	Regulates the endothelium cell function by acting on glucocorticoid receptor (GR) and estrogen receptor (ER), lipid metabolism inhibitor.
Cat. No.: HY-N2515 Ginsenoside Rk1	Triterpenes	Plays an anti-inflammatory role by inhibiting of JAK2/Stat3 signaling pathway and activating of NF-κB. Antitumor activity.
Cat. No.: HY-N0596 Panaxadiol	Triterpenes	Inhibits the expression of programmed cell death ligand-1; Neuroprotective and antitumor activity.
Cat. No.: HY-N0602 Ginsenoside Rg2	Triterpenes	Inhibits the expression of VCAM-1 and ICAM-1 mediated by lipopolysaccharide, and decreases the accumulation of $Aβ_{1-42}$.
Cat. No.: HY-N0045 Ginsenoside Rg1	Triterpenes	Improves the impaired cognitive function of AD and reduces the accumulation of Aβ in hippocampus.
Cat. No.: HY-N0904 Ginsenoside C-K	Triterpenes	Plays an anti-inflammatory role by inhibiting inducible nitric oxide synthase (iNOS) and COX-2.
Cat. No.: HY-N0042 Ginsenoside Rc	Triterpenes	Enhances ion channel current mediated by GABA receptor A (GABAA), inhibits TNF-α and IL-1β expression and plays an anti-inflammatory role.
Cat. No.: HY-N0797 (20S)-Protopanaxadiol	Triterpenes	Inhibits Akt activity and induces apoptosis of tumor cells.
Cat. No.: HY-N1376 (20R)-Ginsenoside Rg3	Triterpenes	Inhibits vascular endothelial cell proliferation (IC_{50} = 10 nM); Antitumor activity.

Origin: *Panax ginseng* C. A. Meyer

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0041 Ginsenoside Rb3	Triterpenes	Inhibits NF-κB transcriptional activity induced by TNFα (IC_{50} = 8.2 μM). Antitumor activity.
Cat. No.: HY-N0908 Ginsenoside Rg5	Triterpenes	Inhibits COX-2 mRNA expression by blocking the binding of IGF-1 to its receptor (IC_{50} = 90 nM) and inhibits the DNA-binding activity of NF-κB P65.
Cat. No.: HY-N0597 Panaxatriol	Triterpenes	Relieves bone marrow suppression due to radiation damage.
Cat. No.: HY-N1401 (20R)-Ginsenoside Rh2	Triterpenes	Matrix metalloproteinase (MMP) inhibitor; Cell anti-proliferative agent; induces apoptosis with anti-inflammatory and antioxidant activity.
Cat. No.: HY-N0607 Ginsenoside Ro	Triterpenes	Ca^{2+} antagonistic antiplatelet effect; reduces TXA2 production, and inhibits COX-1 and TXAS activity weakly.
Cat. No.: HY-N0907 Ginsenoside Rg6	Triterpenes	Inhibits NF-κB transcriptional activity induced by TNF-α in HepG2 cells; induces apoptosis.
Cat. No.: HY-N0600 Ginsenoside F3	Triterpenes	Exerts the immune enhancing activity by regulating the production and expression of type 1 (IL-2, IFN-γ) and type 2 cytokines (IL-4 and IL-10).
Cat. No.: HY-N4259 Ginsenoside Ra3	Triterpenes	Anti-cancer activity.
Cat. No.: HY-N4258 Panasenoside	Flavonols	Inhibits α-glucosidase.
Cat. No.: HY-N1455 Falcarinol	Others	Orally active Hsp90 inhibitor, targets the N-terminal and C-terminal of Hsp90; induces apoptosis.

Origin: *Glycyrrhiza uralensis* Fisch.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0184 Glycyrrhizic acid	Triterpenes	HMGB1 antagonist, with the potential for tumor, diabetes and other research.
Cat. No.: HY-N4185 Licoflavone A	Chalcones	Eotaxin/CCL11 inhibitor; Acts on NF-κB, STAT6, HDAC2 and other targets
Cat. No.: HY-N0102 Isoliquiritigenin	Chalcones	Inhibits aldose reductase activity (IC_{50} = 320 nM); Effective inhibitor of influenza virus replication.
Cat. No.: HY-N0372 Licochalcone A	Chalcones	Extensive inhibitory activity against UDP-glucuronosyltransferases (UGTs). Antitumor activity.
Cat. No.: HY-N4187 Licochalcone D	Chalcones	Active inhibitor of NF-κB P65; Antioxidant, anti-inflammatory and anti-tumor activities.
Cat. No.: HY-N0373 Licochalcone B	Chalcones	Inhibits amyloid β (Aβ42) self-aggregation and decomposing of $Aβ_{42}$ fibrils against AD.
Cat. No.: HY-N2497 Isoliquiritin apioside	Chalcones	Inhibits PMA-induced MMP9, MAPK and NF-κB activities. Antitumor and antiangiogenic activities.
Cat. No.: HY-N4182 Licochalcone E	Chalcones	Inhibits transcriptional activity of NF-κB and AP-1 by inhibiting the activation of AKT and MAPK.
Cat. No.: HY-N0393 Glabridin	Isoflavanes	Activates PPAR gamma. Antioxidant, anti-diabetic, anti-tumor, anti-inflammatory, cardiovascular/neuroprotective activities.
Cat. No.: HY-N4113 Glycycoumarin	Coumarins	Exerts anti-liver cancer activity through JNK, T-LAK, endoplasmic reticulum stress and other pathways; Induces of autophagy; Antioxidation.

Origin: root-bark of *Astragalus membranaceus* (Fisch.) Bunge

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0431 Astragaloside IV	Triterpenes	Inhibits ERK1/2 and JNK activation; Anti-tumor, anti-inflammatory, cardiovascular protective activities.
Cat. No.: HY-N1485 Cycloastragenol	Triterpenes	Telomerase activator; Promotes T cell proliferation; Used in aging research.
Cat. No.: HY-N0432 Astragaloside I	Triterpenes	Stimulates osteoblast differentiation through the Wnt/β-catenin signaling pathway, with osteogenic activity.
Cat. No.: HY-N6577 Astragaloside VI	Triterpenes	Accelerates wound healing by activating of epidermal growth factor receptor/extracellular signal-regulated kinase EGFR/ERK signaling pathway.
Cat. No.: HY-N0434 Astragaloside III	Triterpenes	Enhances anti-tumor response of NK cells; Antiviral and anti-inflammatory activities.
Cat. No.: HY-N0433 Astragaloside II	Triterpenes	Reverses p-glycoprotein-mediated multidrug resistance; induces T cell activation; antiviral activity.
Cat. No.: HY-N0888 Isoastragaloside II	Triterpenes	Anti-inflammatory activity; Inhibits the formation of late glycation end products.
Cat. No.: HY-N0887 Isoastragaloside I	Triterpenes	Increases adiponectin content. Inhibits NF-κB activation; Anti-inflammatory activity.
Cat. No.: HY-N0183 Formononetin	Isoflavones	Active FGFR2 inhibitor; Antiangiogenesis and antitumor activity.
Cat. No.: HY-N0519 Calycosin	Isoflavones	Calcium channel mechanism agent; Neuroprotective, anti-oxidation, anti-inflammatory, anti-tumor and apoptosis-inducing activities.

Origin: seeds of *Vitis vinifera* Linn.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N7072 Grape seed extract	Biflavones	Anti-inflammatory, anti-proliferation; inhibits lipid metabolism enzymes, pancreatic lipase and lipoprotein lipase; induces cell apoptosis.
Cat. No.: HY-N2345 Procyanidin B3	Biflavones	Histone acetyltransferase (HAT)-specific inhibitor that binds to inactive sites, selectively inhibits P300-mediated androgen receptor acetylation.
Cat. No.: HY-N0796 Procyanidin B2	Biflavones	Inhibits NLRP3 activation; induces activation of PPARγ. Anti-inflammatory and anti-tumor activities.
Cat. No.: HY-N0795 Procyanidin B1	Biflavones	Specific Kv10. 1 channel inhibitor; Anti-inflammatory and anti-free radical activities.
Cat. No.: HY-N2344 Procyanidin A1	Biflavones	Exerts anti-inflammatory effect through NF-κB, MAPK and Nrf2/HO-1 pathways.
Cat. No.: HY-N2343 Procyanidin A2	Biflavones	Antitumor, antioxidative, antibacterial and anti-inflammatory activities.
Cat. No.: HY-107208 Procyanidol B4	Biflavones	Anti-inflammatory and antiviral activities.
Cat. No.: HY-N0729 Linoleic acid	Ketones, Aldehydes, Acids	A part of a membrane phospholipid; Damages red blood cells and hemoglobin through oxidation.
Cat. No.: HY-N0523 Gallic acid	Phenols	Inhibits COX-2 free radical scavenging. Antibacterial, anti-inflammatory, anti-tumor and other activities.
Cat. No.: HY-N0172 Caffeic acid	Phenols	A TRPV1 ion channels and 5-lipoxygenase (5-LO) Inhibitor.

Origin: *Ginkgo biloba* Linn.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N4176 Ginkgolide K	Diterpenoids	Induces protective autophagy through AMPK/mTOR/ULK1 signaling pathway; Neuroprotective activity.
Cat. No.: HY-N0786 Ginkgolide J	Diterpenoids	Protects beta-amyloid from synaptic dysfunction and cell death.
Cat. No.: HY-N3075 Phytol	Diterpenoids	Anti-schistosomiasis, anti-injury, anti-oxidation, anti-inflammation, anti-allergy activities.
Cat. No.: HY-N0785 Ginkgolide C	Diterpenoids	A variety of biological functions, reduces platelet aggregation and improves Alzheimer's disease and so on.
Cat. No.: HY-B0355 Ginkgolide A	Diterpenoids	A GABA inhibitor.
Cat. No.: HY-N0419 Quercimeritrin	Flavonols	Obvious amylase activity and anti-inflammatory activity.
Cat. No.: HY-N2117 Isoginkgetin	Biflavones	An inhibitor of MMP9 and pre-mRNA Splicing.
Cat. No.: HY-N0889 Ginkgetin	Biflavones	Antitumor, anti-inflammatory, neuroprotective, antifungal effects; Effective Wnt signaling inhibitor.
Cat. No.: HY-N0077 Ginkgolic Acid	Ketones, Aldehydes, Acids	Inhibits SUMOylation and HIV protease activity; Antitumor activity.
Cat. No.: HY-N2020 Anacardic Acid	Ketones, Aldehydes, Acids	Histone acetyltransferase inhibitor; Antioxidative and antitumor activities.

Origin: *Epimedium brevicornu* Maxim.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0014 Icariin	Flavonols	A PDE5 inhibitor (IC_{50} = 432 nM); PPARα activator.
Cat. No.: HY-N0678 Icaritin	Flavonols	Regulates MAPK/ERK/JNK and JAK2/STAT3/AKT signal transduction; Antitumor activity.
Cat. No.: HY-N0011 Baohuoside I	Flavonols	CXCR4 inhibitor; Induces apoptosis induction and antitumor activity.
Cat. No.: HY-N0257 Epimedin A	Flavonols	ERα and ERβ mediated estrogen activity; Used in osteoporosis research.
Cat. No.: HY-N1940 β-Anhydroicaritin	Flavonols	Antiosteoporosis, estrogen regulation and antitumor activity.
Cat. No.: HY-N0861 Ikarisoside F	Flavonols	Binds and inhibits AdoHcy hydrolase activity.
Cat. No.: HY-N2626 Epimedoside A	Flavonols	Antioxidative, anti-tumor, anti-osteoporosis activities.
Cat. No.: HY-N4111 Wushanicaritin	Flavonols	Significant antioxidant activity; Antitumor and anti-inflammatory activities.
Cat. No.: HY-N1413 Noricaritin	Flavonols	Anti-coronavirus activity; promotes bone growth.
Cat. No.: HY-N8086 Korepimedoside C	Flavonols	Antioxidant activity and inhibits acetylcholinesterase.

Origin: *Rhodiola rosea* Linn.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N2186 Leucoside	Flavonols	Affects the motor ability and emotion of BALB-C mice, and causes smooth muscle bleeding.
Cat. No.: HY-N0240 Herbacetin	Flavonols	Allosteric inhibitor of Ornithine decarboxylase (ODC) with antioxidant, anti-inflammatory and antitumor activities.
Cat. No.: HY-N0241 Rhodionin	Flavonols	Specific non-competitive cytochrome P450 2D6 inhibitor; Antioxidant activity.
Cat. No.: HY-N3431 Kaempferol-7-O-rhamnoside	Flavonols	Effective α-glucosidase activity inhibitor; inhibits PD-1/PD-L1 interaction; Antioxidant, vascular relaxation and antiviral activities.
Cat. No.: HY-119917 Gossypetin	Flavonols	Potent MKK3 and MKK6 inhibitor, strongly attenuates the MKK3/6-P38 signaling pathway.
Cat. No.: HY-N2425 Rhodiosin	Flavonols	A specific non-competitive cytochrome P450 2D6 inhibitor; effectively inhibits acetylcholinesterase (AChE). Effective DPPH free radical scavenging activity.
Cat. No.: HY-N0506 Rosarin	Simple phenylpropanoids	Inhibits the expression of iNOS, IL-1β and TNF-α; Anti-inflammatory and neuroprotective effects.
Cat. No.: HY-N0508 Rosin	Simple phenylpropanoids	Causes allergic contact dermatitis; A natural film-forming polymer used for drug delivery.
Cat. No.: HY-N0109 Salidroside	Phenols	Prolyl endopeptidase inhibitor; Antifatigue, antitumor and neuroprotective activities.
Cat. No.: HY-N5079 Lotaustralin	Saccharides	A cyanoside compound; Histamine releasing inhibitor.

Origin: *Panax pseudo-ginseng* Wall. var. notoginseng (Burkill)Hoo & Tseng

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0046 Notoginsenoside Fe	Triterpenes	Inhibits diet-induced obesity; activates paraventricular hypothalamic neurons.
Cat. No.: HY-N0615 Notoginsenoside R1	Triterpenes	Alleviates cardiac dysfunction in mice with endotoxemia; alleviates atherosclerotic lesions in ApoE deficient mice; alleviates renal ischemia-reperfusion injury in rats.
Cat. No.: HY-N2531 Notoginsenoside Fc	Triterpenes	Alleviates vascular endothelial cell injury induced by high glucose by upregulating PPAR-γ in diabetic rats.
Cat. No.: HY-N0910 Notoginsenoside Ft1	Triterpenes	Promotes angiogenesis through VEGF secretion mediated by HIF-1α and regulation of PI3K/AKT and Raf/MEK/ERK signaling pathways.
Cat. No.: HY-N6924 Zingibroside R1	Triterpenes	Antianoxic and Antitumor activities.
Cat. No.: HY-N0909 Notoginsenoside R2	Triterpenes	Shows neuroprotective effects against 6-OHDA-induced oxidative stress and apoptosis
Cat. No.: HY-N2530 Notoginsenoside Fa	Triterpenes	Activates and restores the potential of degenerative brain function.
Cat. No.: HY-N6924 Zingibroside R1	Triterpenes	Shows excellent anti-tumor effects, anti-angiogenic activity and anti-HIV-1 activity; has inhibitory effects on the 2-deoxy-D-glucose (2-DG) uptake by EAT cells.
Cat. No.: HY-N4305 Notoginsenoside FP2	Triterpenes	Used for cardiovascular disease research.
Cat. No.: HY-N1477 Dencichine	Others	Inhibits the activity of HIF-prolyl hydroxylase-2 (PHD-2).

Origin: *Bupleurum chinensis* DC.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0250 Saikosaponin D	Triterpenes	Inhibits the activity of selectin, STAT3 and NF-KB. Anti-tumor, anti-inflammatory, immunomodulatory activities.
Cat. No.: HY-N0246 Saikosaponin A	Triterpenes	Upregulates of LXRα expression and exerts anti-inflammatory activity through NF-kB pathway; Antitumor and induces apoptosis.
Cat. No.: HY-N2922 β-Amyrin	Triterpenes	Blocks Aβ-induced enhancement damage, used in the study of AD. Antibacterial and pain relieving activities.
Cat. No.: HY-126114 Lupeol acetate	Triterpenes	Inhibits the progression of rheumatoid arthritis by down-regulating TNF-α, IL-1β, McP-1, COX-2, VEGF and Granzyme B.
Cat. No.: HY-N0248 Saikosaponin B2	Triterpenes	Invasion inhibitor of HCV virus infection; Antitumor and alleviates renal fibrosis activities.
Cat. No.: HY-N0249 Saikosaponin C	Triterpenes	In Alzheimer's disease, the main target is amyloid beta and tau proteins; Anti-HBV activity.
Cat. No.: HY-N4237 Saikogenin D	Triterpenes	Activates cyclooxygenase, converts arachidonic acid to epoxyeicanoic acid and dihydroxy eicosenotrienoic acid, whose metabolites in turn inhibit prostaglandin E2 (PGE2) production.
Cat. No.: HY-125130 Hesperetin 7-O-glucoside	Flavonones	Effective human HMG-COA reductase inhibitor; effectively inhibits the growth of Helicobacter pylori; Potent anti-inflammatory activity.
Cat. No.: HY-N1860 3-O-Methylquercetin	Flavonols	Inhibits total cAMP and cGMP-phosphodiesterase. Anti-tumor and anti-inflammatory activities.
Cat. No.: HY-N1255 Scoulerine	Isoquinoline Alkaloids	Antimitotic compound and BACE1 (amyloid precursor protein lyase 1) inhibitor. Inhibits cell proliferation, blocks cell cycle and induces apoptosis of cancer cells.

Origin: *Salvia miltiorrhiza* Bunge

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0135 Tanshinone IIA	Naphthalene Quinones	Targets the VEGF/VEGFR2 protein kinase domain to inhibit angiogenesis; Cardiovascular protection and anticancer activity.
Cat. No.: HY-119720 Neocryptotanshinone	Naphthalene Quinones	Inhibits LPS induced inflammation by inhibiting NF-κB and iNOS signaling. Cardiovascular protection.
Cat. No.: HY-N0174 Cryptotanshinone	Naphthalene Quinones	Inhibits STAT3 (IC_{50} = 4.6 μM); Antitumor and anti-inflammatory activities; induces ER stress-induced apoptosis.
Cat. No.: HY-N0134 Tanshinone I	Phenanthrenequinones	Inhibits SPLA2 and cPLA2. Antitumor activity; Radiation sensitizer.
Cat. No.: HY-N0360 Dihydrotanshinone I	Phenanthrenequinones	For cardiovascular disease research; inhibits MERS-CoV; Plays an anti-inflammatory role by inhibiting of TLR4 dimer.
Cat. No.: HY-N1913 Danshensu	Simple phenylpropanoids	Activates Nrf2 signaling pathway and protects cardiovascular system.
Cat. No.: HY-13704 NK012	Quinoline Alkaloids	Active metabolite of topoisomerase I inhibitor Irinotecan; Inhibits DNA synthesis and RNA synthesis.
Cat. No.: HY-N0318 Salvianolic acid A	Stilbenes	Protects the blood-brain barrier by inhibiting MMP-9 and anti-inflammatory effects; Cardiovascular protection.
Cat. No.: HY-125847 Salvianolic acid F	Stilbenes	The most effective and abundant compound in *Salvia miltiorrhiza* with good antioxidant activity.
Cat. No.: HY-N1362 Salvianolic acid B	Other phenylpropanoids	Commonly used to study microcirculatory diseases; Cardiovascular protection and anti-inflammatory activity.

Origin: *Schisandra chinensis (Turcz.)* Baill.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0691 Schisandrin	Lignans	Antioxidant, hepatoprotective, anti-tumor and anti-inflammatory activities; Reverses memory impairment in rats.
Cat. No.: HY-N0089 Schisandrin B	Lignans	P-glycoprotein inhibitor; Anti-inflammatory, anti-oxidation and anti-tumor activities.
Cat. No.: HY-N0693 Schisandrin A	Lignans	CYP3A inhibitor; Inhibits DNA damage and apoptosis induced by oxidative stress; Anti-inflammatory activity.
Cat. No.: HY-N6866 Gomisin N	Lignans	Induces apoptosis of cancer cells, with sedative and hypnotic effect; Anti-inflammatory and reduces fat activities.
Cat. No.: HY-N0064 Macelignan	Lignans	A variety of pharmacological activities, including anti-inflammatory, anti-tumor, anti-diabetic and neuroprotective activities.
Cat. No.: HY-N0694 Schisantherin A	Lignans	Inhibits P65-NF-κB translocation into the nucleus by IκBα degradation. Neuroprotective and anti-inflammatory activities.
Cat. No.: HY-N0859 Schisanhenol	Lignans	UGT2B7 inhibitor; Antioxidant and antitumor activities.
Cat. No.: HY-N0385 Gomisin J	Lignans	Regulates adipogenesis activating AMPK, LKB1 and Ca^{2+}/Calmodulin-dependent protein kinase II and fetuin-A; Anti-HIV, anti-tumor, anti-lipid peroxidation activities.
Cat. No.: HY-N3963 Gomisin M2	Lignans	Anti-HIV activity (EC_{50} = 2.4 μM), anti-tumor and anti-allergic activities, used for the study of Alzheimer's disease.
Cat. No.: HY-N2270 Chicanine	Lignans	Inhibits LPS-induced phosphorylation of P38 MAPK, ERK 1/2 and IκB-α; Anti-inflammatory activity.

Origin: *Siraitia grosvenorii* (Swingle) C. Jeffrey ex Lu et Z. Y. Zhang

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0501 11-oxo-mogroside V	Triterpenes	Significant inhibitory effect on reactive oxygen species.
Cat. No.: HY-N2312 Mogrol	Triterpenes	Inhibits ERK and STAT3 signaling pathway and activation of AMPK; Anti-inflammatory and anti-tumor activities.
Cat. No.: HY-N6928 Mogroside III-E	Triterpenes	Inhibits the release of NO and has anti-pulmonary fibrosis effect; Antipancreatitis activity.
Cat. No.: HY-N0502 Mogroside V	Triterpenes	Non-saccharide sweetener with antioxidant, anti-diabetic and anti-tumor activities.
Cat. No.: HY-N6942 Mogroside IV-A	Triterpenes	Obvious inhibition of EBV-EA induction; Antioxidant, anti-diabetic and anti-tumor activities.
Cat. No.: HY-N6945 Mogroside IV	Triterpenes	A triterpenoid glycoside and nonsugar sweetener; exhibits antioxidant, antidiabetic and anticancer activities.
Cat. No.: HY-N6854 Mogroside I A1	Triterpenes	Antioxidant, anti-diabetic and anti-tumor activities.
Cat. No.: HY-N0612 Siamenoside I	Triterpenes	Inhibits maltozyme; Antidiabetic activity.
Cat. No.: HY-108271 Mogroside III-A1	Triterpenes	Non-saccharide sweetener; antioxidant, anti-diabetic and anti-tumor activity.
Cat. No.: HY-N3031 Grosvenorine	Flavonols	Good antibacterial, antioxidant and immune function regulation activity.

Origin: Animals

As one of the three main sources of natural products (plant, animal, microorganism), animal is one of the important sources of natural products. Common animal sources of natural products include toad venom, musk, and cantharidin, etc., which are commonly used as Chinese traditional medicines.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N0877 Bufalin	Steroids	Effective Na^+/K^+-ATPase inhibitor; inhibits angiogenesis and antitumor activity.
Cat. No.: HY-N0815 Resibufogenin	Steroids	Inhibits oxidative stress, antitumor and induces G1 cell cycle arrest.
Cat. No.: HY-N0880 Cinobufotalin	Steroids	Cardiotonic, with diuretic and hemostatic activity; Potential anti-lung cancer drug.
Cat. No.: HY-N0421 Cinobufagin	Steroids	Induces apoptosis and G2/M cell cycle arrest; Anti-tumor activity; Reverses p-glycoprotein-mediated drug resistance.
Cat. No.: HY-N0876 Arenobufagin	Steroids	Induces apoptosis, autophagy and regulates lipid homeostasis; Antitumor activity.
Cat. No.: HY-N0878 Bufotalin	Steroids	Antitumor activity; Induces apoptosis of cancer cells, cell cycle arrest and endoplasmic reticulum stress activation.
Cat. No.: HY-N6576 Hellebrigenin	Steroids	Induces DNA damage and G2/M cell cycle arrest; Triggers mitochondria mediated apoptosis.
Cat. No.: HY-N0885 Telocinobufagin	Steroids	Promotes Th1 cell immune response; Anti-inflammatory, anti-bacterial, anti-tumor and apoptosis-inducing activities.
Cat. No.: HY-B1960 Canthaxanthin	Other Terpenoids	Red-orange carotenoid with a variety of biological activities, such as antioxidant, anti-tumor activity.
Cat. No.: HY-N0633 Muscone	Ketones, Aldehydes, Acids	Inhibits NF-κB and NLRP3 inflammasome activation; Significantly reduces the levels of inflammatory cytokines (IL-1β, TNF-α and IL-6); Cardioprotective and neuroprotective activities.

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Delhi-110034 (India)

Origin: Animals

Product Name	Structure Classification	Descriptions
Cat. No.: HY-N6905 Acetylarenobufagin	Ketones, Aldehydes, Acids	Hypoxia-inducible factor-1 (HIF-I) regulator; Vegfr-2 signaling pathway inhibitor; Antitumor activity.
Cat. No.: HY-N6574 Marinobufogenin	Ketones, Aldehydes, Acids	Na^+/K^+ -ATPase inhibitor.
Cat. No.: HY-N0879 Pseudobufarenogin	Ketones, Aldehydes, Acids	Induces cell cycle arrest and apoptosis; Antitumor activity.
Cat. No.: HY-N0883 Gamabufotalin	Ketones, Aldehydes, Acids	Targets IKKβ/NF-κB, VEGFR-2 signaling pathway; Anti-tumor and anti-inflammatory activities.
Cat. No.: HY-N0881 Desacetylcinobufagin	Ketones, Aldehydes, Acids	A natural compound used for microbial transformation; Antitumor activity.
Cat. No.: HY-125934 Allocholic acid	Ketones, Aldehydes, Acids	A typically fetal bile acid found in vertebrates and reappears during liver regeneration and carcinogenesis; a potent and specific stimulant of the adult olfactory system.
Cat. No.: HY-101848 Latrunculin B	Other alkaloids	Actin polymerase inhibitor. Antifungal and antigenic animal activities.
Cat. No.: HY-105231 Bryostatin 1	Ketones, Aldehydes, Acids	Effective PKC regulator of central nervous system (CNS) permeability; Anti-cancer, anti-inflammatory, neuroprotective, anti-HIV-1 infection properties.
Cat. No.: HY-16929 Latrunculin A	Other alkaloids	Binds to actin monomer and inhibits actin aggregation.
Cat. No.: HY-N4225 Aaptamine	Quinoline alkaloids	Competitive antagonist of α-adrenergic receptors; Activates P21 promoter independently of the p53 pathway.

Origin: Natural antibiotics

Antibiotics are secondary metabolites produced by microorganisms or higher animals and plants during their metabolic pathways which have anti-infective potential, and can interfere with the development of other living cells. The main structural classes include β-lactam, macrocyclic lipids, polyethers and so on.

Product Name	Structure Classification	Descriptions
Cat. No.: HY-10219 Rapamycin	Macrolide antibiotics	Effective and specific mTOR inhibitor; Autophagy activator; Immunosuppressant.
Cat. No.: HY-100558 Bafilomycin A1	Macrolide antibiotics	Specific reversible V-ATPase inhibitor; Late stage of autophagy inhibitor.
Cat. No.: HY-16592 Brefeldin A	Macrolide antibiotics	Protein transport inhibitor; Autophagy and mitophagy inhibitor; CRISPR/Cas9 agonist; Inhibits HSV-1 virus; Antitumor activity.
Cat. No.: HY-13756 Tacrolimus	Macrolide antibiotics	Inhibits T lymphocyte signal transduction and IL-2 transcription by binding to fK506-binding protein (FKBP) to form a complex and inhibiting calcineurin.
Cat. No.: HY-16589 Oligomycin A	Macrolide antibiotics	A mitochondrial F_0F_1-ATPase inhibitor obtained from Streptomyces; Antifungal activity.
Cat. No.: HY-15310 Ivermectin	Macrolide antibiotics	A specific Impα/β 1-mediated nuclear import inhibitor with strong antiviral activity against both HIV-1 and dengue virus; Antiparasitic activity.
Cat. No.: HY-100381 Nigericin sodium salt	Polyether antibiotics	NLRP3 agonist; H^+, K^+ and Pb^{2+} ion carrier.
Cat. No.: HY-B1743A Puromycin dihydrochloride	Other antibiotics	Amino-nucleoside antibiotic; Induces cell apoptosis; Reversible inhibition of dipeptidyl Peptidase II and cytoplasmic alanine aminopeptidase.
Cat. No.: HY-17561 G-418 disulfate	Other antibiotics	Inhibits protein synthesis in eukaryotes and prokaryotes; Commonly used as a selective antibiotic in eukaryotic cells.
Cat. No.: HY-B1907 Rifamycin sodium	Other antibiotics	Displays a broad spectrum of antibiotic activity against Gram-positive and, to a less extent, Gram-negative bacteria.

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Origin: Natural antibiotics

Product Name	Structure Classification	Descriptions
Cat. No.: HY-B0490 Hygromycin B	Other antibiotics	Aminoglycoside, inhibits prokaryotic and eukaryotic cells.
Cat. No.: HY-A0098 Tunicamycin	Other antibiotics	Inhibits N-glycosylation and blocks GlcNAc phosphotransferase; Induces endoplasmic reticulum stress; Antibacterial, anti-tumor.
Cat. No.: HY-13434 Ionomycin	Other antibiotics	Effective selective calcium ion carrier; Promotes apoptosis and Induces protein kinase C (PKC) activation.
Cat. No.: HY-13753 Streptozocin	Other antibiotics	DNA methylation; Anti-tumor and anti-diabetes activities.
Cat. No.: HY-18982 Anisomycin	Other antibiotics	Potent inhibitor of protein synthesis interfering with protein and DNA synthesis by inhibiting the peptidyl transferase 80 ribosomal system.
Cat. No.: HY-B0470 Neomycin sulfate	Other antibiotics	Aminoglycoside antibiotic, exerts antibacterial activity through irreversible binding of 30S ribosome subunits, and blocks bacterial protein synthesis.
Cat. No.: HY-B0318 Metronidazole	Other antibiotics	Nitroimidazole antibiotic; Anti-anaerobic bacteria, anti-SAR-COV-2 activity.
Cat. No.: HY-N6705 TDA	Other antibiotics	Exhibits strong antibiotic activity against a variety of bacteria, including Proteus α and γ, flavobacteria and actinomycetes.
Cat. No.: HY-A0279 Pristinamycin	Other antibiotics	Streptomycin-like antibiotics with oral activity, shows highly activity against a variety of antibiotic-resistant pathogens, especially gram-positive bacterium.
Cat. No.: HY-N8492 Monascorubrin	Other antibiotics	Shows significant antibiotic activity against Bacillus subtilis and Candida.

Cat. No.: HY-L021 & HY-L021P

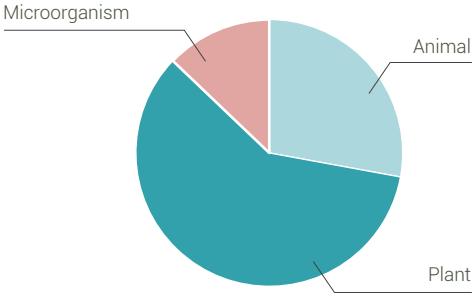
Natural Product Library

(96-/384-well plate)

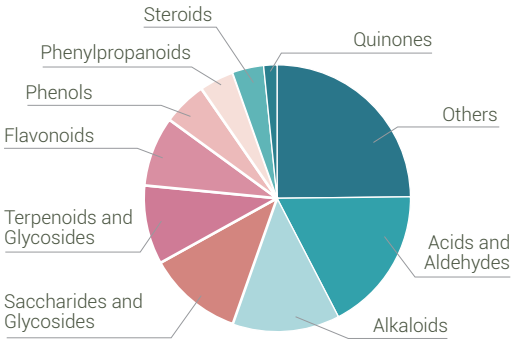
Cat. No.	Product Name	Compound Number	Supply Form
HY-L021	Natural Product Library	4,000+	Part A: Solution or powder
HY-L021P	Natural Product Library Plus	4,300+	Part A & Part B Part B: Powder only

Product Features

- All natural products have clear sources and structure classifications.
- Structurally diverse, including **Saccharides** and **Glycosides, Phenylpropanoids, Quinones**, **Flavonoids, Terpenoids** and **Glycosides, Steroids, Alkaloid, Phenols, Acids** and **Aldehydes,** etc.
- Bioactivity and safety have been confirmed by clinical trials and/or preclinical research. Some compounds have been approved by FDA.
- Bioactivity diversity, covering 200+ common targets, 20+ hot signaling pathways and a variety of research areas.
- **HY-L021P,** with a more powerful screening capability, further supplements **HY-L021** by adding some compounds with low solution stability or low solubility and some novel, rare or exclusive compounds (Part B). Supplementary compounds are provided in powder form.



Source of products in MCE Natural Product Library



Different structure types in MCE Natural Product Library

Publications Citing Use of MCE Natural Product Library Compounds

Signal Transduct Target Ther. 2022 Aug 15;7(1):288.

Cell Biosci. 2021 Feb 28;11(1):45.

Front Cell Infect Microbiol. 2021 Apr 7;11:665379.

Acta Pharm Sin B. 2021 Dec;11(12):3879-3888.

Free Radic Biol Med. 2021 Dec;177:313-325.

Molecules. 2022 Nov 11;27(22):7774.

Pharmacol Res. 2022 Aug;182:106279.

Bioorg Chem. 2021 Feb 10;109:104723.

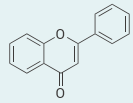
306, Agarwal City Mall, opposite M2K Pitampura,
Delhi-110034 (India)

Cat. No.: HY-L056, HY-L071, HY-L068 & HY-L057

Terpenoids, Alkaloids, Flavonoids and Phenols Product Libraries (96-/384-well plate)

Product Features

- Structurally diverse, bioactive, and cell permeable.
- Bioactivity and safety have been confirmed by clinical and/or preclinical trials. Some compounds have been approved by FDA.
- More detailed compound information with structure, target, and brief introduction.
- High purity and quality validated by NMR and LC/MS.

Product Name	Induction	Product Features	Representative Structure
HY-L056 Terpenoids Library	Terpenoids display a wide array of important pharmacological properties in the fight against **cancer, malaria, inflammation**, and a variety of **infectious diseases**.	A unique collection of **500+** natural terpenoid compounds, such as **monoterpenes, sesquiterpenes, diterpenes, ester terpenes** and **triterpenes**, etc.	
HY-L071 Alkaloids Library	Alkaloids are a large and complex group of cyclic compounds that contain N. Important alkaloids include morphine, strychnine, atropine, colchicine, ephedrine, quinine, and nicotine. They show **anti-inflammatory, anticancer, analgesics, local anesthetic** and **neuropharmacological** activities, etc.	A unique collection of **500+** natural alkaloids, such as **indoles, quinolines, isoquinolines, pyrrolidines, pyridines, pyrrolizidines, tropanes,** and **terpenoids** and **steroids**.	
HY-L068 Flavonoids Library	Flavonoids have **anti-oxidative, anti-mutagenic, anti-inflammatory,** and **anti-carcinogenic** properties coupled with capacity to modulate **key cellular enzyme function**. They have been widely used in a variety of nutrition, medicine and cosmetics.	A unique collection of **500+** natural flavonoid compounds, such as **flavones, flavonols, flavanones, flavanonols, flavanols,** etc.	
HY-L057 Phenols Library	Phenolic compounds are a diverse group of naturally occurring compounds with multiple activities, such as **antioxidant** and **antimicrobial** properties.	A unique collection of **1,200+** natural phenol compounds with a variety of biological activities.	

Cat. No.: HY-L021L

Natural Product Like Compound Library

(96-/384-well plate)

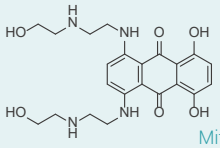
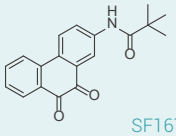
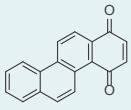
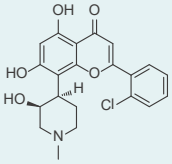
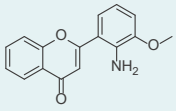
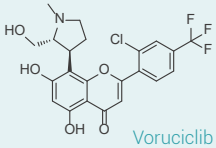
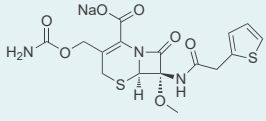
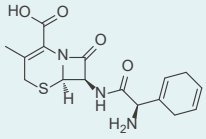
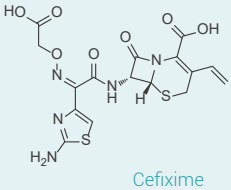
Natural products (NPs) and their molecular frameworks are the main sources of new drugs and play highly significant roles in the drug discovery and development process. Based on the source and structure analysis of 1,562 drugs approved by the FDA from 1981 to 2014, it was found that 21% of the drugs were natural product derivatives, and 61% of the drugs contained natural product pharmacophore groups. From this point, it concludes that natural product analogues and derivatives have the same screening value as natural products in the development of new drugs.

MCE provides a unique collection of **300+** natural product-like compounds that are structurally like Steroids, Tannins, Flavonoids, Isoquinolines, etc. This library is an important source of lead compounds for HTS and HCS.

Product Features

- All products are natural product analogues or derivatives and can be used in the development of new drugs.
- Structurally diverse, bioactive, and cell permeable.
- Detailed bioactivity information, including target, research areas and clinical information.
- High purity and quality validated by NMR and LC/MS.

Examples of Products in the Library

Quinones	HY-13502  Mitoxantrone	HY-15842  SF1670	HY-111441  1,4-Chrysenequinone
Flavonoids	HY-10005  Flavopiridol	HY-12028  PD98059	HY-12422  Voruciclib
Cephalosporins	HY-B1117  Cefoxitin sodium	HY-B1156  Cephradine	HY-B1381  Cefixime

Cat. No.: HY-L065

Traditional Chinese Medicine Monomer Library

(96-/384-well plate)

Traditional Chinese Medicine (TCM) has been used for centuries in China, where herbs are considered fundamental therapy for many acute and chronic conditions. Many studies indicated TCM exerted an overall regulatory effect via multi-component and multi-target network. Traditional Chinese medicine monomers are active compounds of Chinese Herbal Medicines. They possess medicinal properties such as **anti-cancer, anti-bacterial** effects may be an important source of new drugs. For example, **Artemisinin**, used in multidrug resistant malaria, was first isolated from the Chinese herb *Artemisia annua L.*

MCE designs a unique collection of **2,700+** compounds that all come from Chinese Herbal Medicines. MCE Traditional Chinese Medicine Monomer Library is a useful tool for discovering new drugs from TCM.

Product Features

- Structurally diverse, containing **Saccharides** & **Glycosides, Terpenoids** & **Glycosides, Alkaloid, Phenols, Acids** and **Aldehydes**, etc.
- Sources diverse, including ginseng, coptis, notoginseng, angelica and other 3,000+ Chinese herbal medicines.
- Clear source of traditional Chinese medicine and detailed bioactivity information is available.
- Bioactivity diverse, covering several hot research areas such as **immune inflammation, cancer, anti-infection, cardiovascular disease**, etc.

Cat. No.: HY-L055

Medicine Food Homology Compound Library

(96-/384-well plate)

Food as medicines have many benefits because of their safety. In order to ensure the safe use of functional food, National Health Commission of the People's Republic of China made specific provisions on Medicine Food Homology (MFH) items. More than 100 kinds of widely used MFH materials have been released.

Based on MFH items released by National Health Commission, PRC, MCE carefully designs a unique collection of **1,700+** Medicine Food Homology Compounds with high safety.

Product Features

- All compounds are from Medicine Food Homology materials, which have high medicinal value and safety, and can be used for HTS and HCS.
- Sources diverse, those compounds are from more than 100 kinds of Medicine Food Homology materials.
- Detailed bioactivity information, including target, research areas, clinical information.
- High purity and quality validated by NMR and LC/MS.

Cat. No.: HY-L030

Human Endogenous Metabolite Compound Library

(96-/384-well plate)

The composition of endogenous metabolite compounds is affected by the upstream influence of the proteome and genome as well as environmental factors, lifestyle factors, medication, and underlying disease. Therefore, metabolites have been described as proximal reporters of disease because their abundances in biological specimens are often directly related to pathogenic mechanisms. In more recent years, metabolomics approach has been adopted or suggested to be used in various research areas including drug discovery, neurosciences, agriculture, food and nutrition, and environmental sciences.

Product Features

- **1,000+** human endogenous metabolites for HTS and HCS.
- All compounds are human endogenous metabolites with better bioavailability.
- A useful tool for metabolomics and metabolism-related drug discovery.
- Bioactivity and safety confirmed by clinical trials and/or preclinical research. Some compouds have been approved by FDA.
- High purity and quality validated by NMR and LC/MS.

Cat. No.: HY-L084

Microbial Metabolite Library

(96-/384-well plate)

Metabolites have become important sources of lead compounds in the development of new drugs due to their safety and diversity of biological activities. Microbial metabolites, in particular, play key roles in the development of antibiotic products and non-antibiotic active compounds due to their species diversity and structural novelty.

Product Features

- **600+** microbial metabolites that are important sources of lead compounds and can be used for HTS and HCS.
- A useful tool for metabonomics and metabolism-related drug discovery.
- Structurally diverse, bioactive, and cell permeable.
- High purity and quality validated by NMR and LC/MS.

Cat. No.: HY-L067

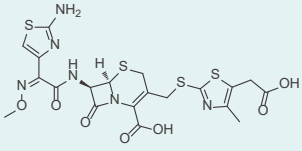
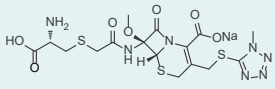
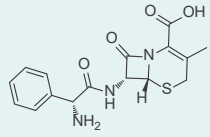
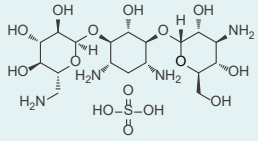
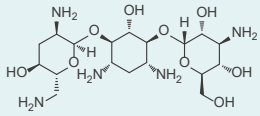
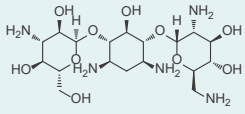
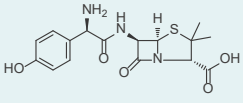
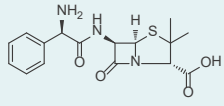
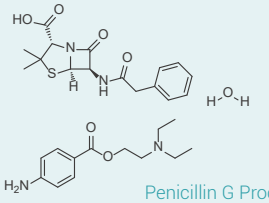
Antibiotics Library

(96-/384-well plate)

Product Features

- **600+ antibiotics** that can be used for HTS and HCS.
- Structurally diverse, including penicillins, cephalosporins, tetracyclines, macrolides, etc.
- Act on various targets on bacteria, such as **cell wall, cell membranes, ribosomes, nucleic acids, bacterial cellular metabolism** and **bacterial cellular enzymes.**
- Can be used in the study of new indications and the development of new anti-bacteria and anti-tumor drugs.
- Bioactivity and safety have been confirmed by clinical trials and/or preclinical research. Some compounds have been approved by FDA.
- High purity and quality validated by NMR and LC/MS.

Examples of Antibiotics

Cephalosporins	HY-108402  Cefodizime	HY-128932  Cefminox sodium	HY-B0200  Cephalexin
Aminoglycosides	HY-16566A  Kanamycin sulfate	HY-B0441  Tobramycin	HY-B1174  Bekanamycin
Penicillins	HY-B0467A  Amoxicillin	HY-B0522  Ampicillin	HY-N7120  Penicillin G Procaine

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