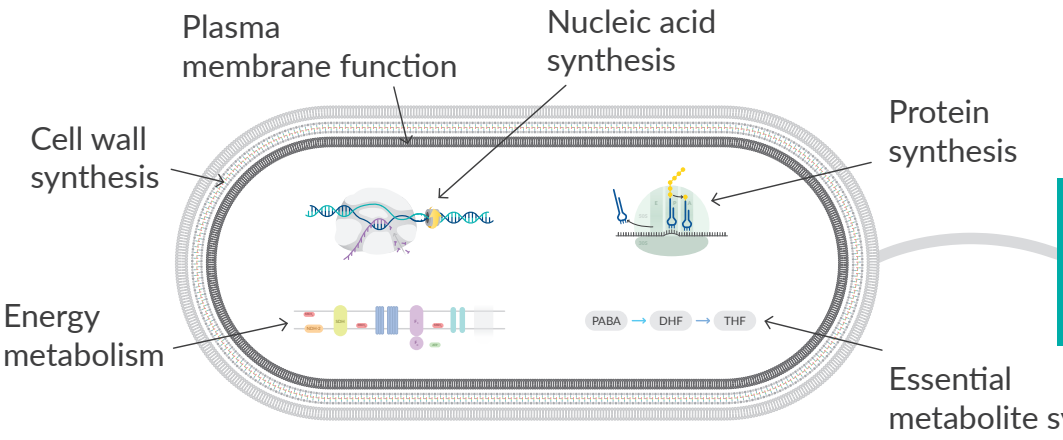
Antibiotic Research Tools

Cayman offers a wide array of antibiotics that can be used to study the treatment, prevention, and antibiotic resistance of bacterial infections. These tools can also be used to manipulate and/or further elucidate aspects of bacterial biology, such as cell wall biosynthesis, membrane function, and protein synthesis.

Distributed by labclinics



Explore inhibitors of these bacterial cell processes inside this brochure

Plasma Membrane Function Disruptors

Ionophores

Ionophores act by transporting Na^+ or K^+ across the cell membrane, disrupting the transmembrane ion concentration gradient required for proper functioning.

Item No.	Product Name
17457	Enniatin A1
9002040	Enniatin Complex
25742	Monactin
19447	Narasin (sodium salt)

See all ionophore antibiotics at www.caymanchem.com

Polymyxins

Polymyxins are members of a chemically diverse class of non-ribosomal peptides that disrupt outer and inner membrane stability through their cationic properties.

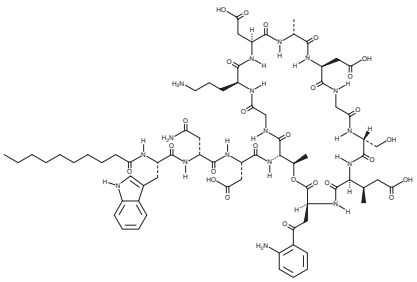
Item No.	Product Name
17584	Colistin (sulfate)
14157	Polymyxin B (sulfate)
14074	Polymyxin B_1

See all polymyxin antibiotics at www.caymanchem.com

FEATURED PRODUCT

Daptomycin - Item No. 15615

Daptomycin is a naturally occurring cyclic lipopeptide that is effective against resistant Gram-positive bacteria (MIC_{90}s = 0.25-16 mg/L). It binds to bacterial plasma membranes to disrupt multiple aspects of function, including altering membrane potential and redirecting proteins essential for cell division and cell wall synthesis.



LEARN MORE ABOUT HOW ANTIBIOTICS WORK

READ THE ARTICLE
www.caymanchem.com/howantibioticswork

Cell Wall Synthesis Inhibitors

β-Lactam Antibiotics

Distinguished by a lactam ring in their molecular structure, these antibiotics act by inhibiting the activity of species-specific membrane-bound penicillin-binding proteins that facilitate cross-linking of the peptidoglycan cell wall.

Penicillins

Item No.	Product Name
19188	Amoxicillin (hydrate)
14417	Ampicillin (sodium salt)
20871	Carbenicillin (sodium salt)
20766	Piperacillin (sodium salt)

Carbapenems

Item No.	Product Name
16934	Doripenem (hydrate)
20523	Ertapenem (sodium salt)
16039	Imipenem (hydrate)
16068	Meropenem (hydrate)

Cephalosporins

Item No.	Product Name
16040	Cefotaxime (sodium salt)
18866	Ceftriaxone (sodium salt hydrate)
14828	Ceftazidime (hydrate)
16127	Cefsulodin (sodium salt)

See all β-lactam antibiotics at www.caymanchem.com

Combating Antibiotic Resistance: β-Lactamase Inhibitors

Bacteria develop resistance to β-lactam antibiotics by synthesizing β-lactamase, an enzyme that attacks the β-lactam ring to inactivate the antibiotic. β-Lactamase inhibitors can be used to overcome this resistance.

Item No.	Product Name
22825	Avibactam (sodium salt)
19456	Clavulanate (potassium salt)
17185	Tazobactam (sodium salt)
23962	Vaborbactam

See all β-lactamase inhibitors at www.caymanchem.com

Glycopeptides & Lipoglycopeptides

These antibiotics form complexes with the C-terminal D-Ala-D-Ala dipeptides in nascent peptidoglycan in Gram-positive bacteria, preventing transglycosylation and transpeptidation reactions during cell wall synthesis.

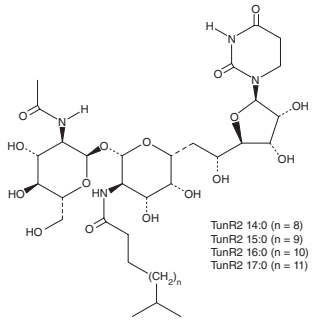
Item No.	Product Name
21161	Dalbavancin
15511	Teicoplanin Complex
15327	Vancomycin (hydrochloride)

See all glycopeptide & lipoglycopeptide antibiotics at www.caymanchem.com

FEATURED PRODUCT

TunR2 - Item No. 31538

TunR2 is a tunicamycin derivative that is active against *B. subtilis* (MIC = 0.3 µg/ml) and increases the efficacy of several β-lactam antibiotics against *B. subtilis* when used at a concentration of 0.4 µg/ml. Unlike tunicamycin, TunR2 is non-toxic to *S. cerevisiae* (MIC = >10 µg/ml) and does not inhibit glycosylation in a protein N-glycosylation assay.



Additional Tunicamycin Derivative & Mixtures

Item No.	Product Name
31537	TunR1
28355	Tunicamycin 14:1 Mixture
28356	Tunicamycin 15:1 Mixture
28357	Tunicamycin 16:1 Mixture
28358	Tunicamycin 17:1 Mixture
11445	Tunicamycin Mixture

DISCOVER OUR LATEST NEWS

- Tunicamycin Analogs Advance Antibiotic Development
- Branched Chain Lipid Metabolism as a Determinant of the *N*-Acyl Variation of *Streptomyces* Natural Products

Find these articles & more at www.caymanchem.com/news

Protein Synthesis Inhibitors

Tetracyclines

Tetracyclines bind reversibly to the 30S ribosomal subunit at a position that blocks the binding of the tRNA to the acceptor (A) site on the mRNA-ribosome complex.

Item No.	Product Name
14422	Doxycycline (hyclate)
14454	Minocycline (hydrochloride hydrate)
14328	Tetracycline (hydrochloride)

See all tetracycline antibiotics at www.caymanchem.com

Aminoglycosides

Aminoglycosides bind to the active site of 16S rRNA within the 30S ribosomal subunit, interfering with the accurate recognition of tRNA by rRNA during translation.

Item No.	Product Name
15321	Kanamycin A (sulfate)
15322	Kasugamycin (hydrochloride)
16227	Nourseothricin (sulfate)
14324	Spectinomycin (hydrochloride hydrate)

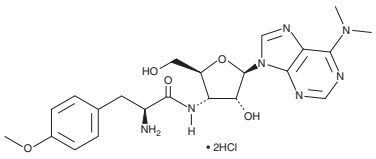
See all aminoglycoside antibiotics at www.caymanchem.com

FEATURED PRODUCT

Puromycin (hydrochloride)

Item No. 13884

A portion of this aminonucleoside antibiotic resembles the 3' end of aminoacylated tRNA. It enters the A site of the ribosome, attaches to the growing polypeptide chain at the peptidyl transferase center, and causes premature chain release in both prokaryotes and eukaryotes.



See all protein synthesis-inhibiting antibiotics, including nitrofurans and amphenicols, at www.caymanchem.com

Learn about our Custom Synthesis services at
www.caymanchem.com/customsynthesis

Macrolides

Macrolide antibiotics interact with 23S rRNA within the 50S ribosomal subunit, blocking the approach to the elongating peptide's exit tunnel, which results in a premature release of peptidyl-tRNA intermediates.

Item No.	Product Name
15004	Azithromycin
20587	PC-766B
19202	Tulathromycin A
15377	Venturicidin A

See all macrolide antibiotics at www.caymanchem.com

Streptogramins

Type A streptogramins block the peptidyl transferase center on the 50S subunit, preventing the earliest event of elongation. Type B streptogramins interfere with the formation of long polypeptides and cause premature detachment of incomplete peptide chains.

Item No.	Product Name
9002172	Virginiamycin M1
17455	Virginiamycin S1

See all streptogramin antibiotics at www.caymanchem.com

Oxazolidinones

Oxazolidinones bind at the P site of the ribosomal 50S subunit, inhibiting tRNA binding and preventing initiation complex formation.

Item No.	Product Name
15012	Linezolid

See all oxazolidinone antibiotics at www.caymanchem.com

Lincosamides

Lincosamides act as structural analogs of portions of tRNA and interrupt peptide chain initiation in the 50S subunit.

Item No.	Product Name
15006	Clindamycin
20138	Pirlimycin

See all lincosamide antibiotics at www.caymanchem.com

Nucleic Acid Synthesis Inhibitors

Quinolones & Fluoroquinolones

These antibiotics target DNA synthesis by inhibiting bacterial type II topoisomerases (DNA gyrase and topoisomerase IV).

Item No.	Product Name
14286	Ciprofloxacin (hydrochloride)
17798	Evitegravir
21047	Gemifloxacin (mesylate)
14830	Moxifloxacin (hydrochloride)
25975	Norfloxacin

See all quinolone & fluoroquinolone antibiotics at www.caymanchem.com

Rifamycins

Rifamycins are a subclass of ansamycins that bind to bacterial DNA-dependent RNA polymerase and suppress transcription.

Item No.	Product Name
16468	Rifabutin
14423	Rifampicin
21441	Rifamycin SV (sodium salt hydrate)
20307	Rifapentine

See all rifamycin antibiotics at www.caymanchem.com

Essential Metabolite Synthesis Inhibitors

Sulfonamides

Sulfonamides are structural analogs of 4-aminobenzoic acid that inhibit folate synthesis by targeting dihydropteroate synthase in the folic acid pathway.

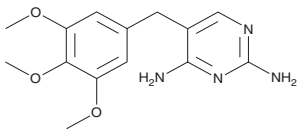
Item No.	Product Name
23613	Sulfamethoxazole
23723	Sulfanilamide

See all sulfonamide antibiotics at www.caymanchem.com

FEATURED PRODUCT

Trimethoprim - Item No. 16473

This inhibitor of bacterial dihydrofolate reductase (IC_{50} = 5 nM) is commonly used in combination with sulfonamides to minimize acquired resistance.



Energy Metabolism Disruptors

Oligomycins

These macrolides form a complex with the oligomycin-sensitivity-conferring protein, which decouples the F_O and F_1 portions of the mitochondrial ATP synthase complex.

Item No.	Product Name
11341	Oligomycin Complex
11342	Oligomycin A
11343	Oligomycin B
19162	Oligomycin C
20184	Oligomycin D
20185	Oligomycin E

Mycobacterial Energy Metabolism Disruptors

The following three antimycobacterial compounds target type II NADH dehydrogenase, disrupt the proton motive force, and inhibit ATP synthase, respectively.

Item No.	Product Name
23301	Clofazimine
23416	Pyrazinamide
20247	TMC207