

Supplementary Information Guide

Sophisticated natural products as antibiotics

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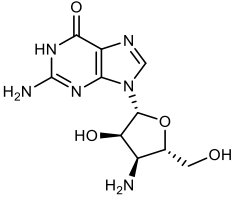
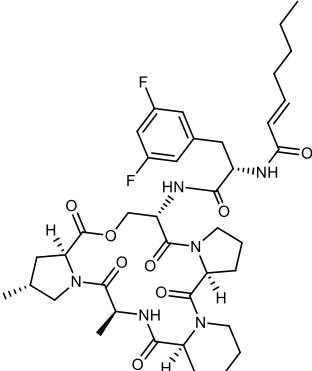
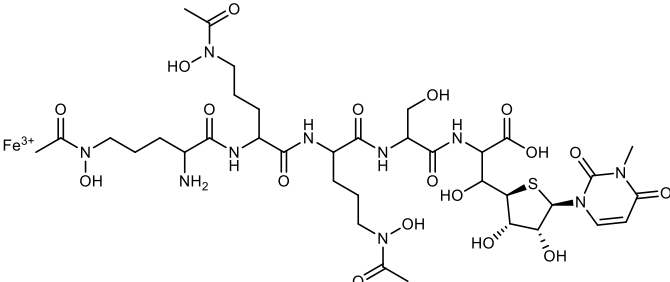
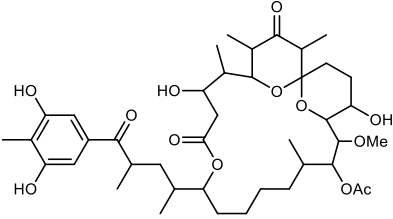
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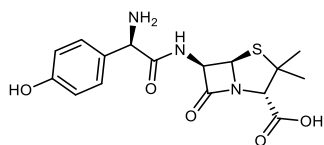
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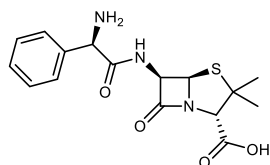
Supplementary table 1. An alphabetical listing of all discussed antibiotics and their corresponding chemical structures

Name	Structure
3-amino 3'-deoxyguanosine (ADG)	
ADEP4	
Albomycin	
Amicobactin	

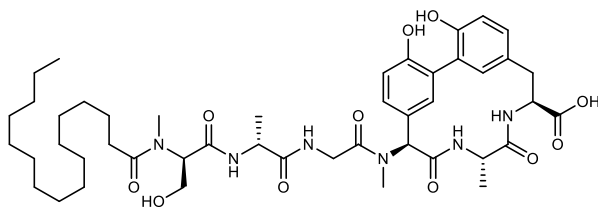
Amoxicillin



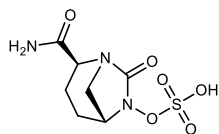
Ampicillin



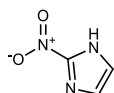
Arylomycin A-C₁₆

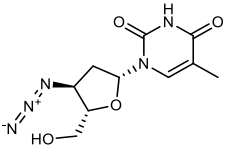
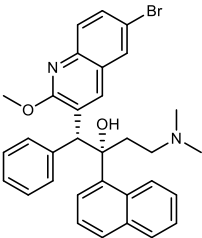
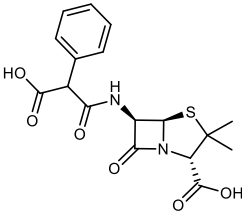
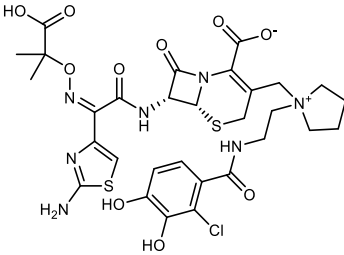
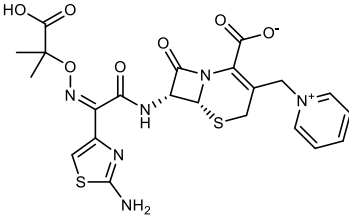


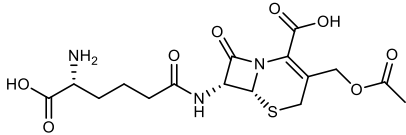
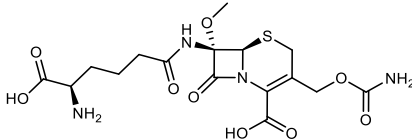
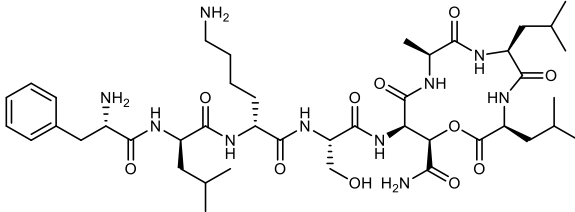
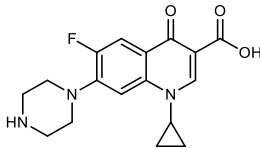
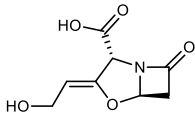
Avibactam

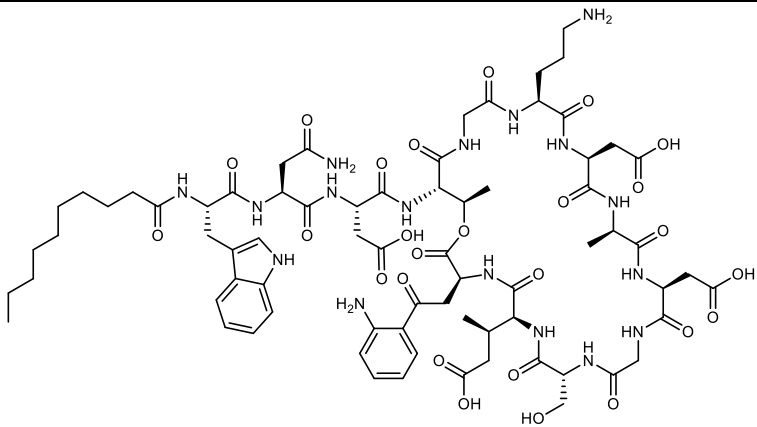
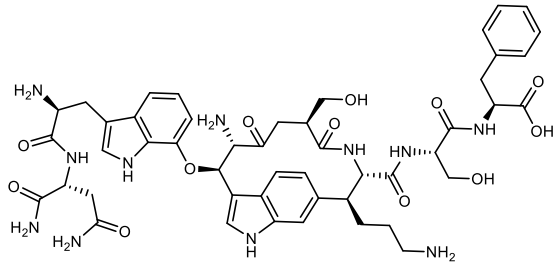
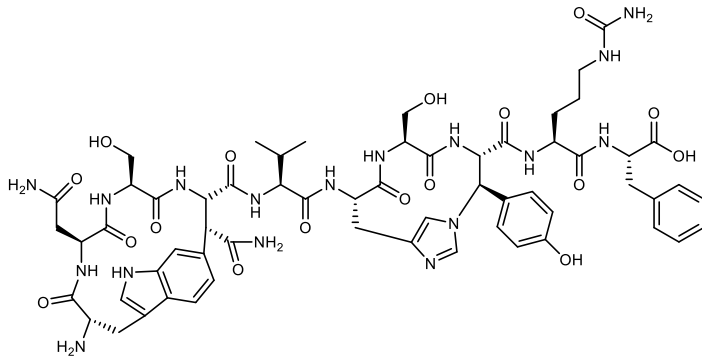
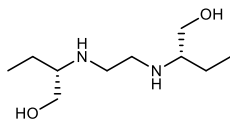
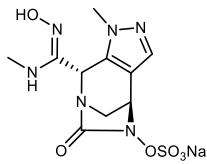


Azomycin

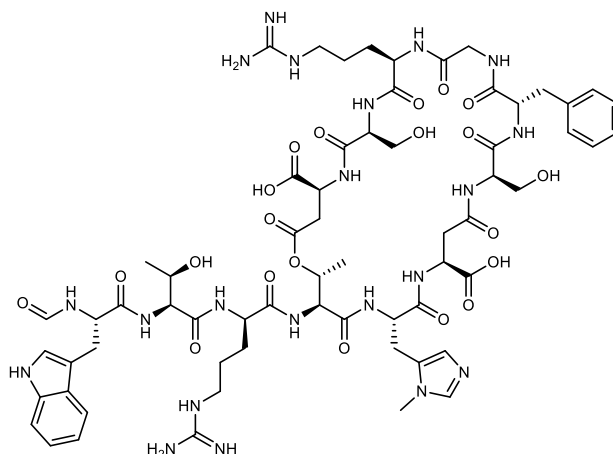


<p>AZT (azidothymidine)</p>	 <p>The chemical structure of AZT (azidothymidine) consists of a thymine base (a pyrimidine ring with a methyl group at position 5 and carbonyl groups at positions 2 and 4) attached via its N1 atom to a deoxyribose sugar. The sugar has an azido group (-N₃) at the C3 position and a hydroxyl group (-OH) at the C4 position.</p>
<p>Bedaquiline</p>	 <p>The chemical structure of Bedaquiline features a central chiral carbon atom bonded to a phenyl ring, a 4-bromo-2-methoxyphenyl ring, a 1-hydroxy-2-(dimethylamino)ethyl group, and a 1,2,3,4-tetrahydronaphthalen-1-yl group.</p>
<p>Carbenicillin</p>	 <p>The chemical structure of Carbenicillin is a penicillin derivative. It features a phenylacetamido group attached to the 6-aminopenicillanic acid core. The side chain of the penam ring is a 1,1-dimethyl-2-oxoethyl group.</p>
<p>Cefiderocol</p>	 <p>The chemical structure of Cefiderocol is a siderophore cephalosporin. It features a cephalexin core with a 2-amino-5-thiazolyl group at position 3, a 4-chloro-3,5-dihydroxyphenyl group at position 4, and a 2-(2-amino-5-thiazolyl)-2-methylpropanoyl group at position 6. The side chain of the penam ring is a 2-(2-amino-5-thiazolyl)-2-methylpropanoyl group.</p>
<p>Ceftazidime</p>	 <p>The chemical structure of Ceftazidime is a third-generation cephalosporin. It features a cephalexin core with a 2-amino-5-thiazolyl group at position 3, a 4-chloro-3,5-dihydroxyphenyl group at position 4, and a 2-(2-amino-5-thiazolyl)-2-methylpropanoyl group at position 6. The side chain of the penam ring is a 2-(2-amino-5-thiazolyl)-2-methylpropanoyl group.</p>

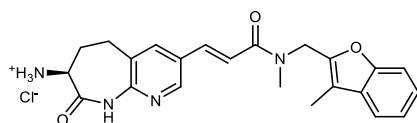
Cephalosporin C	
Cephamycin C	
Clovibactin	
Ciprofloxacin	
Clavulanic acid	

Daptomycin	 <p>The chemical structure of Daptomycin is a complex cyclic lipopeptide. It features a 14-membered macrocyclic ring composed of various amino acids, including L-alanine, L-phenylalanine, L-proline, L-threonine, L-serine, L-valine, L-isoleucine, L-methionine, L-leucine, L-isovaline, L-homoserine, and L-homocysteine. A long, branched fatty acid side chain is attached to the ring via an ester linkage.</p>
Darobactin A	 <p>The chemical structure of Darobactin A is a cyclic peptide with a 12-membered macrocyclic ring. It contains several amino acids, including L-alanine, L-phenylalanine, L-proline, L-threonine, L-serine, L-valine, L-isoleucine, L-methionine, L-leucine, L-isovaline, L-homoserine, and L-homocysteine. The structure is highly branched and includes a long, branched fatty acid side chain.</p>
Dynobactin A	 <p>The chemical structure of Dynobactin A is a cyclic peptide with a 12-membered macrocyclic ring. It contains several amino acids, including L-alanine, L-phenylalanine, L-proline, L-threonine, L-serine, L-valine, L-isoleucine, L-methionine, L-leucine, L-isovaline, L-homoserine, and L-homocysteine. The structure is highly branched and includes a long, branched fatty acid side chain.</p>
Ethambutol	 <p>The chemical structure of Ethambutol is a simple molecule consisting of a central carbon atom bonded to two hydroxyl groups (HO- and -OH) and two ethyl groups (CH₃CH₂-).</p>
ETX0462	 <p>The chemical structure of ETX0462 is a complex molecule featuring a central carbon atom bonded to a hydroxyl group (HO-), a methyl group (CH₃), and a sulfonate group (OSO₃Na). It also includes a pyrazole ring system.</p>

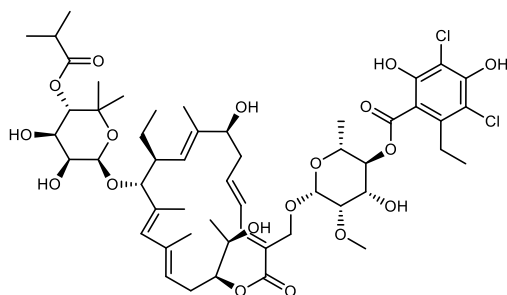
Evybactin



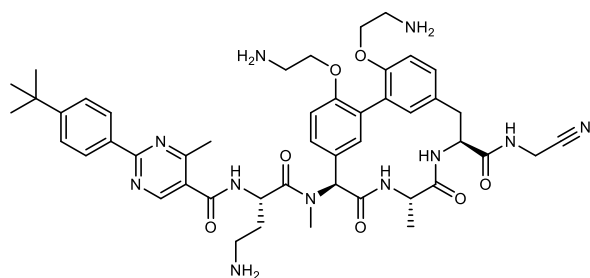
Fabamycin



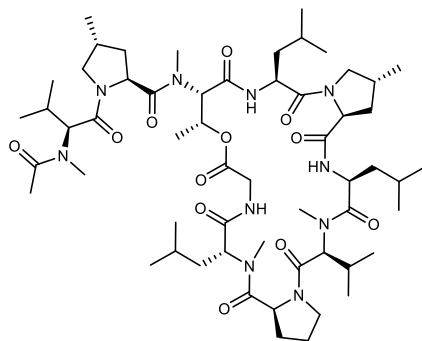
Fidaxomicin



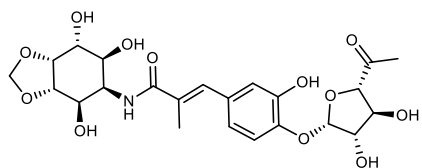
G0775



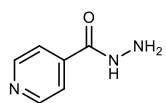
Griselimycin

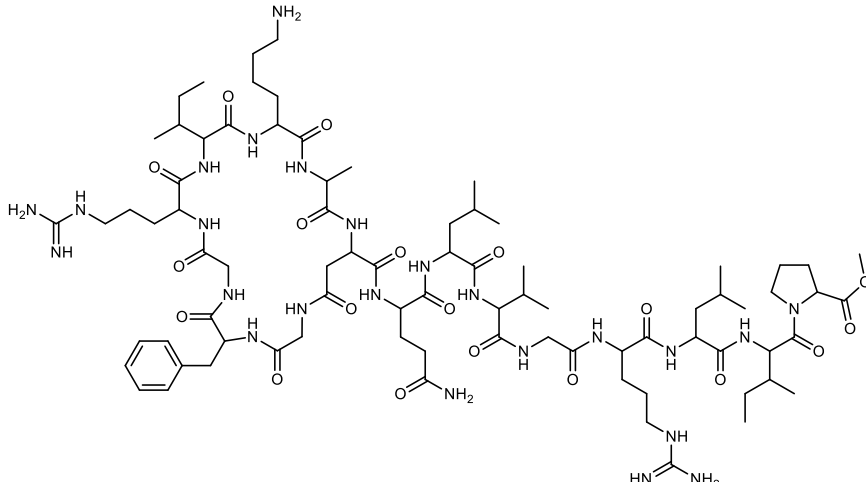
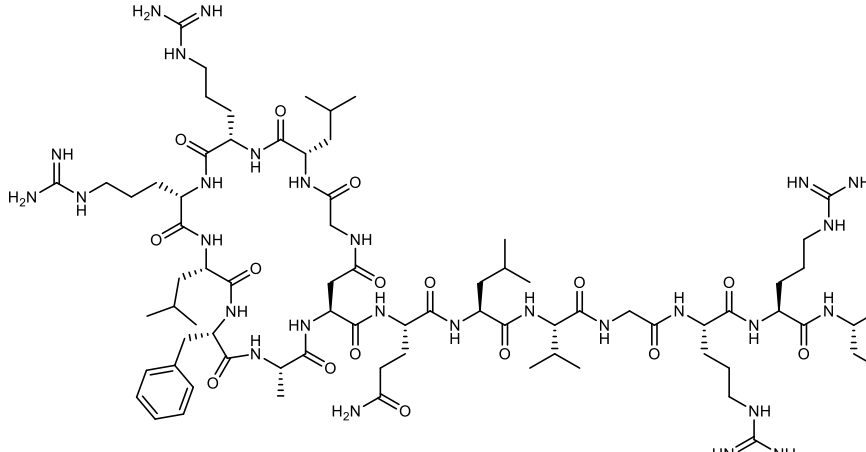
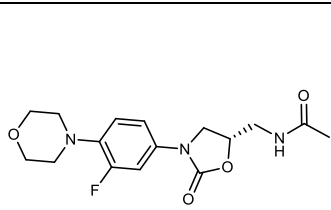
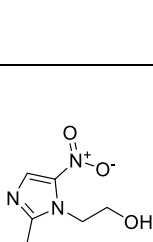


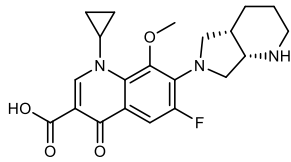
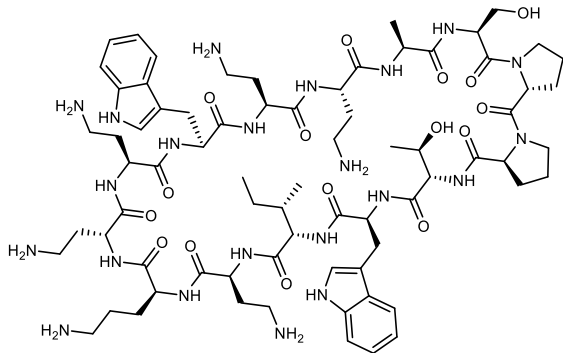
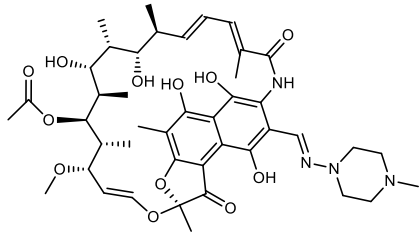
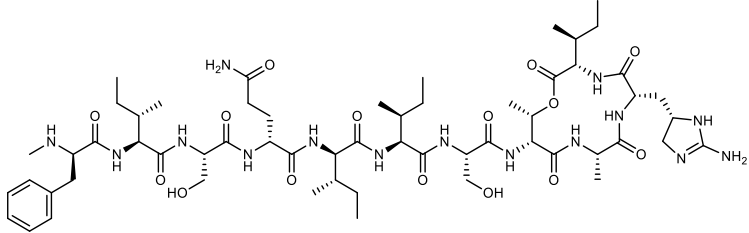
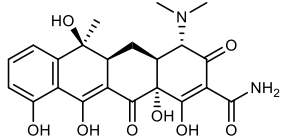
Hygromycin A



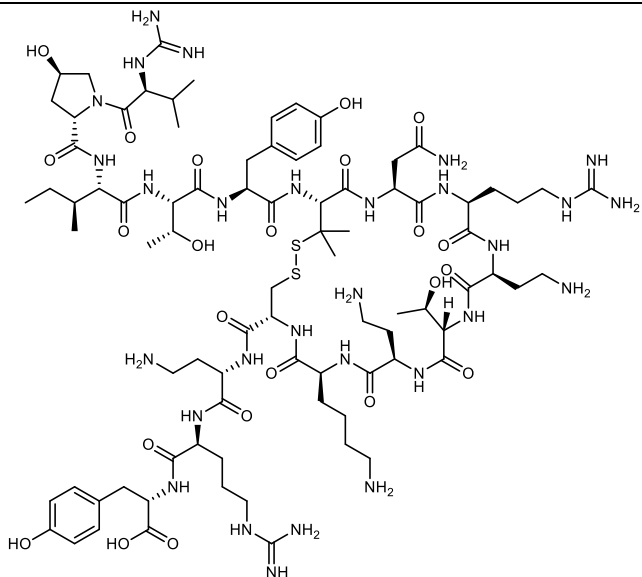
Isoniazid



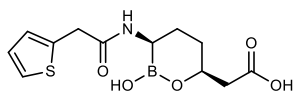
Kitamycobactin	
Lassomycin	
Linezolid	
Metronidazole	

Moxifloxacin	 <p>Chemical structure of Moxifloxacin, a fluoroquinolone antibiotic. It features a quinolone core with a cyclopropyl group at position 8, a methoxy group at position 7, a fluorine atom at position 6, and a piperidine ring at position 4.</p>
Murepavadin	 <p>Chemical structure of Murepavadin, a cyclic peptide antibiotic. It consists of a 14-membered macrocyclic ring with various side chains, including indole, phenyl, and amino acid derivatives.</p>
Rifampin	 <p>Chemical structure of Rifampin, a rifamycin antibiotic. It features a complex polycyclic core with multiple hydroxyl groups, a dimethylpiperazine ring, and a side chain with a hydroxyl group and a methyl ester.</p>
Teixobactin	 <p>Chemical structure of Teixobactin, a lipopeptide antibiotic. It is a linear peptide with a long fatty acid chain at one end and a complex side chain containing a phenyl group, a hydroxyl group, and a terminal amine.</p>
Tetracycline	 <p>Chemical structure of Tetracycline, a tetracycline antibiotic. It features a tetracyclic core with multiple hydroxyl groups, a dimethylamino group, and a terminal amide group.</p>

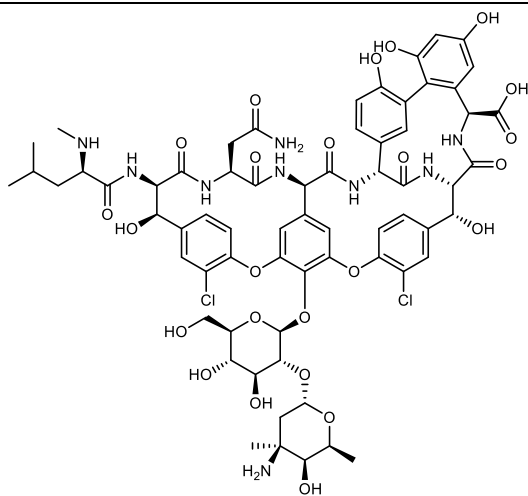
Thanatin7



Vaborbactam



Vancomycin



Zosurabalpin

