mTOR

FOCUS BIOMOLECULES

Mammalian target of rapamycin (mTOR) is a highly conserved serine/threonine kinase that controls cell growth and metabolism in response to nutrients, growth factors, cellular energy and stress and which is conserved in all eukaryotes. TOR may be found in two functionally unique multiprotein complexes, TORC1 and TORC2. Mammalian TORC1 (mTORC1) is rapamycin sensitive and mediates temporal control of cell growth. mTORC2 is rapamycin insensitive and mediates spatial control of cell growth by regulating the actin cytoskeleton. Dysregulation of TOR complex activity is associated with diseases such as cancer, diabetes, neurodegeneration as well as aging. Thus, mTOR holds much therapeutic promise. The biochemical tools below will facilitate further advances in this growing field.[1]

MHY1485

An mTOR activator.[2] Suppresses autophagy by inhibiting fusion of autophagosomes with lysosomes leading to accumulation of enlarged autophagosomes.[2]

Product No: 10-1604 **5 mg/ 25 mg/**

AZD8055

Potent ATP-competitive inhibitor of mTOR kinase (IC_{50}=0.8 nM) and dual mTORC1/2 inhibitor.[3]

Product No: 10-4816 **10 mg/ 50 mg/**

INK-128

Potent ATP-competitive inhibitor of mTOR (IC_{50}=1 nM) and dual mTORC1/2 inhibitor.[4] Inhibits angiogenesis and tumor growth in xenograft models.[5]

Product No: 10-3362 **5 mg/ 25 mg/**

NVP-BEZ235

A dual ATP-competitive PI3K/mTOR kinase inhibitor. Blocks VEGF-induced proliferation and angiogenesis.[6]

Product No: 10-2153 **10 mg/ 50 mg/**

PP242

An ATP-competitive mTOR inhibitor, inhibiting mTORC1 more effectively than rapamycin.[7]

Product No: 10-2695 **5 mg/ 25 mg/**

Rapamycin

The classic macrolide mTOR inhibitor. Immunosuppressant. Extends lifespan in mouse models.[8] Induces autophagy.[9] Complex with FKBP12 inhibits mTOR.[10]

Product No: 10-1104 **10 mg/ 50 mg/**

Temsirolimus

Analog of rapamycin. Displays antiangiogenic effects.[11] Anticancer agent.[12]

Product No: 10-3261 **5 mg/ 25 mg/**

Torin 1

An ATP-competitive mTOR kinase inhibitor which inhibits mTORC1/2 with IC_{50}s in the range of 1-10 nM. Acts via rapamycin-resistant functions of mTORC1.[13]

Product No: 10-3013 **5 mg/ 25 mg/**

Everolimus

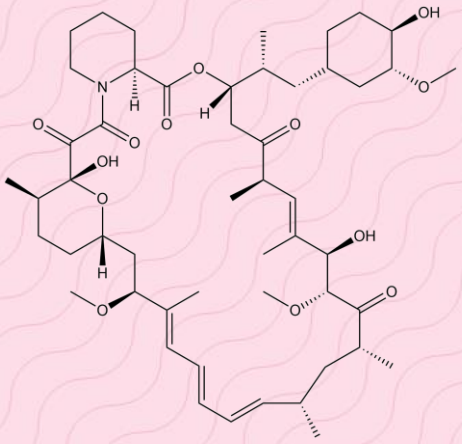
Semi-synthetic analog of rapamycin with potent immunosuppressive activity.[14]

Product No: 10-2136 **5 mg/ 25 mg/**

PI-103

Potent inhibitor of PI-3 kinase, mTOR, and DNA-PK.[15,16]

Product No: 10-5406 **5 mg/ 25 mg/**



Rapamycin

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