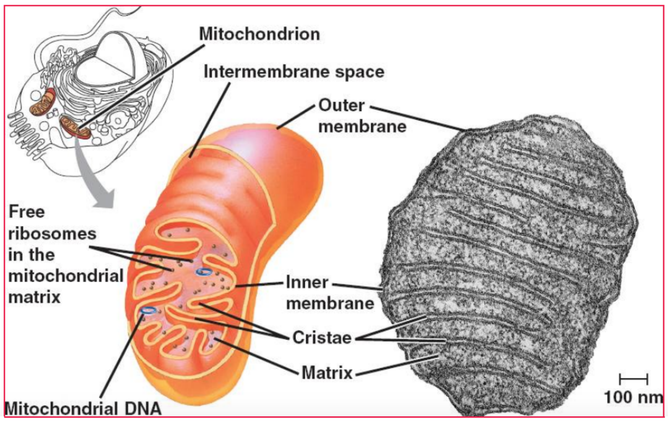
FOCUS BIOMOLECULES

Mitochondrial Research Tools

Mitochondrial dysfunction contributes to a variety of diseases such as Parkinson's disease, diabetes, Huntington's disease, Friedreich's ataxia, cancer, degenerative diseases and the pathophysiology of aging. In order to explore mitochondrial pathophysiology new, selective research tools are essential. Focus Biomolecules is proud to offer a comprehensive panel of mitochondria reagents. This includes several new cutting-edge probes specifically targeted to the mitochondria as well as classic tools for studying division, fusion and permeability.



Mitochondrial Reagents

Targeted Reagents

- **Mitoquinone:** Mitochondrial-targeted antioxidant
- **Mito-TEMPO:** Mitochondrial-targeted antioxidant
- **Mito-photo-DNP:** Photoactivatable mitochondrial protonophore

Mitochondrial Transporters

- **Puromycin HCl:** Inhibits transport of proteins into mitochondria
- **MitoBloCK-6:** Mitochondrial import inhibitor
- **Lonidamine:** Inhibitor of mitochondrial pyruvate carrier (MPC) and monocarboxylate transporter (MCT)
- **Minocycline:** Inhibits mitochondrial Ca^{2+} uniporter
- **KB-R7943:** Inhibits mitochondrial Ca^{2+} uniporter
- **CGP-37157:** Inhibits mitochondrial Na^{+}- Ca^{2+} exchanger

Mitochondrial Membrane Permeability

- **Bongkrekic Acid:** Inhibitor of MPT pore opening
- **Cyclosporine A:** Inhibitor of MPT pore opening
- **Decylubiquinone:** Inhibitor of MPT pore opening
- **Betulinic Acid:** Induces MPT pore opening
- **Auranofin:** Induces MPT pore opening
- **Alamethicin:** Membrane permeabilizing and pore-forming agent
- **Beauvericin:** Disrupts mitochondrial volume
- **Cereulide:** Disrupts mitochondrial volume
- **Valinomycin:** Induces loss of mitochondrial membrane potential

Other Reagents

- **PK-11195:** Mitochondrial benzodiazepine receptor ligand
- **Oligomycin:** Mitochondrial ATPase inhibitor
- **FCCP:** Uncoupler of oxidative phosphorylation
- **Mdivi-1:** Mitochondrial division inhibitor
- **HQNO:** Mitochondrial respiratory chain complex III inhibitor
- **M-1:** Mitochondrial fusion promoter
- **N-Oleyl Phenylalanine:** Endogenous uncoupler of UCP1-independent respiration
- **Leflunomide:** Inhibits mitochondrial DHODH

View All Mitochondrial Reagents

Oleoylphenylalanine is an endogenous lipoamino acid produced via the action of a secreted enzyme PM20D1 produced by adipocytes. N-Oleoylphenylalanine binds directly to mitochondria and functions as an endogenous uncoupler of UCP1-independent respiration and is the most potent in the group of structurally different lipoamino acids evaluated. Mice treated with an analog, C18-1-Leu, were found to have improved glucose homeostasis and increased energy expenditure.

Mito-photo-DNP is a mitochondrial-targeted, photo-activated protonophore. This novel tool consists of three structural units, a caged protonophore, a photocleavable linker coupled to a triphenylphosphonium moiety which confers selective uptake by mitochondria. Cells are treated with Mito-photo-DNP at 200nM and irradiated with UV light at 355 nm. Mito-photo-DNP can be employed for selective uncoupling of either individual or a small number of mitochondria within a cell used with fluorescence imaging.

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