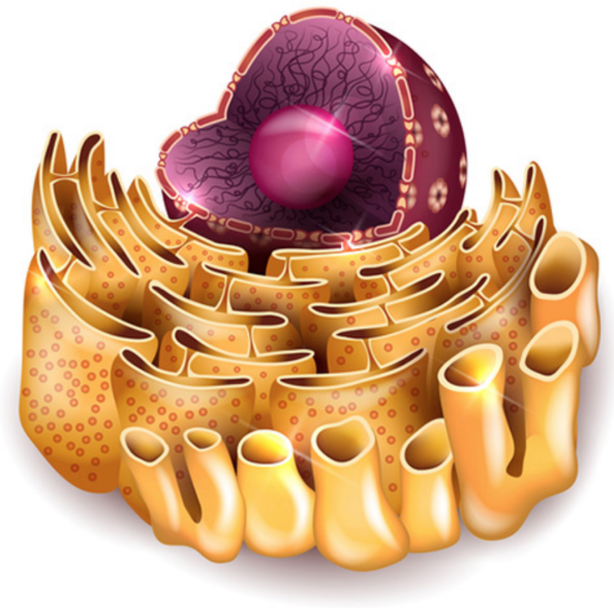
FOCUS BIOMOLECULES

# ER Stress and UPR Reagents

The endoplasmic reticulum (ER) is tasked with the productive folding of secretory and transmembrane proteins along with the regulation of ER homeostasis. These processes involve several highly coordinated activities which include chaperoning, folding, quality control, and degradation mechanisms among others.[1] Nascent proteins enter the ER where they undergo a process which, if successful, results in correct folding and exiting the ER followed by migration to their final destination via the secretory pathway.[2] However if folding fails, misfolded proteins are retained in the ER.[3] When the misfolded protein burden becomes overwhelming, the condition results in ER stress. The cell has evolved to adapt to ER stress by engaging the unfolded protein response (UPR) pathway whose function is to restore protein homeostasis in the ER. If it fails, the UPR will trigger signals to kill the cell via apoptosis.[4] UPR can have a profound effect on normal and pathophysiology. Thus, agents which target UPR may lead to new therapeutics.[5]

Focus Biomolecules offers a comprehensive offering of small molecule tools for studying ER stress and UPR. Look to Focus for high quality and affordable reagents for your important research. Feel free to contact us to discuss your needs today.



## ER Stress/UPR Reagents available from Focus Biomolecules

- **Brefeldin A:** ER Stress Inducer
- **Thapsigargin:** ER Stress Inducer
- **Tunicamycin:** ER Stress Inducer
- **Patulin:** ER Stress Inducer

- **4μ8C:** IRE1 ribonuclease inhibitor; ER Stress response inhibitor
- **TUDCA:** ER Stress response inhibitor
- **Salubrinal:** eIF2a phosphatase inhibitor; ER Stress inhibitor
- **4-Phenylbutyrate·Na:** ER Stress inhibitor

- **Bortezomib:** Initiates ER Stress indirectly via proteasomal protein degradation blockade
- **MG-132:** Initiates ER Stress indirectly via proteasomal protein degradation blockade
- **1-Deoxynojirimycin:** Attenuates hypothalamic ER Stress

- **Toyocamycin:** UPR Inhibitor
- **Azoramide:** UPR modulator
- **STF-083010:** Inhibits IRE1; UPR inhibitor
- **Borrelidin:** UPR Inducer
- **Celastrol:** UPR Inducer

**View Complete List of ER Stress and UPR Reagents**

**If you don't see what you need – lets us know and we can make it for you.**


References:

1. Michalak (2002), *$Ca^{2+}$ Signaling and Calcium Binding Chaperones of the Endoplasmic Reticulum, Cell Calcium*, 32 269
2. Zhang (2004), *Signaling the Unfolded Protein Response from the Endoplasmic Reticulum, J. Biol. Chem.*, 279 25935
3. Ellgaard (2003), *Quality Control in the Endoplasmic Reticulum, Nat Rev. Mol. Cell Biol.*, 4 181
4. Hitomi (2004), *Involvement of Caspase-4 in Endoplasmic Reticulum Stress-Induced Apoptosis and Abeta-Induced Cell Death, J. Cell Biol.* 165 347
5. Doultsinos (2017), *Control of the Unfolded Protein Response in Health and Disease, SLAS Discovery* 22 787



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