

Proteins Involved in Apoptosis

Apoptosis is a form of programmed cell death in which the cell signals through various pathways for its own destruction. Apoptosis is a normal process involved in development but can also be initiated in response to stressors such as hypoxia, ionic imbalance, and pathogenic infection. Dysregulation of apoptosis plays a role in various diseases such as atrophy, neurodegeneration, autoimmune diseases, and cancer. In cancer, apoptosis is often inhibited, allowing a cell to live longer than planned. This allows the cell to pass on age-related misfolded proteins as it continues to replicate. In cancerous cells, apoptosis-regulating proteins are often mutated or dysregulated, especially cell cycle regulators such as p53 or apoptosis inhibitors such as Bcl-2 and XIAP. p53 is a tumor suppressor that inhibits cell cycle progression at the G1 phase in response to DNA damage; once halted, p53 either signals for DNA repair or apoptosis. Mouse double minute 2 homolog (MDM2) and other MDM-family proteins are negative regulators of p53; inhibiting these proteins allows p53 activity. Bcl-family proteins such as Bcl-2 and Bcl-xl inhibit apoptosis by preventing cytochrome C release and caspase activation, two steps in the initiation of apoptosis signaling cascades. Inhibitor of apoptosis proteins (IAPs) such as XIAP and survivin are also pro-survival; these proteins directly bind caspases, preventing caspase activation.

Bcl Inhibitors

Product ID	Product Name	Description
G5875	Gossypol Acetic Acid	Bcl-2, Bcl-xl, sialyl transferase inhibitor.
A0776	ABT-199	BH3 mimetic; Bcl-2 inhibitor.
A0777	ABT-263 (Navitoclax)	BH3 mimetic; Bcl-2 and Bcl-xl inhibitor.
A0778	ABT-737	BH3 mimetic; Bcl-2, Bcl-xl, Bcl-w inhibitor.
O0400	Obatoclax	BH3 mimetic; Bcl-2 and Bcl-xl inhibitor.

IAP Inhibitors

Product ID	Product Name	Description
L1044	LCL-161	SMAC mimetic; PXR agonist, IAP inhibitor.
T4400	TL-32711	Smac mimetic; IAP inhibitor.
Y4800	YM-155	Survivin inhibitor.

Other Apoptosis Activators

Product ID	Product Name	Description
D3450	Dimethylaminoparthenolide	Water-soluble parthenolide analog; NF-κB inhibitor.
J5237	JNJ-26854165	MDM2 inhibitor.
N7209	NSC-207895	Benzofuroxan derivative; MDMX inhibitor.
N8277	Nutlin-3	Imidzoline derivative; MDM2 inhibitor.
R3476	RITA	p53 activator.



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