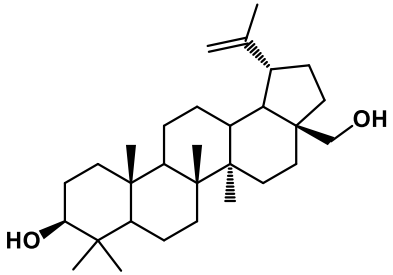
Betulin

Name of the Phytochemical	**Betulin**
Chemical Structure	
Botanical Source	Betula alba
CAS Number	473-98-3
Functional Activity	• It can effect intracellular signaling in ethanol-induced liver cells via inhibiting ROS, TNFα and TNFβ. • Betulin can induce mitochondrial cytochrome C release in human cancer cells, which results in apoptosis • Betulin has protective effects against cadmium induced apoptosis in human hepatoma cell lines
Key References	**1.** Protection of betulin against cadmium-induced apoptosis in hepatoma cells. **Toxicology, 2006, 220, 1-12.** **2.** Betulin binds to melanocortin receptors and antagonizes alpha-melanocyte stimulating hormone induced cAMP generation in mouse melanoma cells. **Cell Biochem Funct., 2007, 25, 591-6.** **3.** Betulin induces mitochondrial cytochrome c release associated apoptosis in human cancer cells. **Mol Carcinog., 2010, 49, 630-40.** **4.** Inhibition of SREBP by a small molecule, betulin, improves hyperlipidemia and insulin resistance and reduces atherosclerotic plaques. **Cell Metab., 2011, 13, 44-56.**

5. Betulin-betulinic acid natural product based analogs as anti-cancer agents. **Anticancer Agents Med Chem., 2013, 13, 1477-99.**
6. Comprehensive review on betulin as a potent anticancer agent. **Biomed Res Int. 2015, 584189.**
7. Betulin and its derivatives as novel compounds with different pharmacological effects. **Biotechnol Adv., 2020, 38, 107409.**
8. Betulin Inhibits Lung Metastasis by Inducing Cell Cycle Arrest, Autophagy, and Apoptosis of Metastatic Colorectal Cancer Cells. **Nutrients, 2019, 12**
9. Betulin attenuates pneumolysin-induced cell injury and DNA damage. **J Appl Microbiol., 2021, 130, 843-851**.
10. Betulin Attenuates TGF- beta 1- and PGE2-Mediated Inhibition of NK Cell Activity to Suppress Tumor Progression and Metastasis in Mice. **Biol Pharm Bull., 2022, 45, 339-353.**
11. Synthesis and cytotoxicity of betulin and betulinic acid derived 30-oxo-amides. **Steroids, 2022, 182, 109014.**
12. Betulin, Synthesized by PpCYP716A1, Is a Key Endogenous Defensive Metabolite of Peach against Aphids. **2022. J Agric Food Chem., 2022, 70,12865-12877.**
13. Highly Branched Betulin Based Polyanhydrides for Self-Assembled Micellar Nanoparticles Formulation. **Int J Mol Sci., 2022, 23**