

Therapeutic Platform of Bioactive Lipids

Focus on Cancer



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Editor



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Therapeutic Platform of Bioactive Lipids

Focus on Cancer

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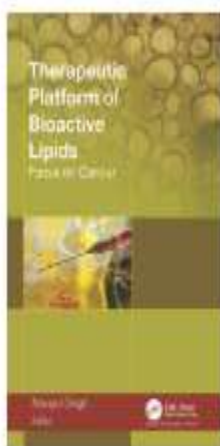
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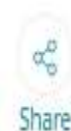
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Sphingosine-1-Phosphate: An Important Target to Fight Against Cancer

By *Udita Malik, Suvadeep Mal, Suman Das, Dilipkumar Pal*

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ABSTRACT

Sphingosine-1 phosphate (S1P), a signaling sphingolipid, that mediates different biological activities in mammalian cells. Sphingolipids are synthesized in the endoplasmic reticulum (ER) by de-novo synthesis, which starts with the condensation reaction of serine and palmitoyl CoA. A different enzyme- like serine-palmitoyltransferase, dihydroceramide synthase, dihydroceramide desaturase, sphingosine kinase, etc., helps in de-novo synthesis. Sphingosine kinase (SPHK) is the enzyme, which allows sphingosine to produce S1P. Two types of mammalian sphingosine kinase (SPHK) isoenzymes are there. Those are SPHK1 and SPHK2, where SPHK1 can regulate the growth and survival, but the activity of SPHK2 is still not so clear. S1P plays a vital role in cell survival. Some of the spatial signalings of S1P, like 'Inside-out' signaling of S1P, sphingolipid rheostat, Sphingosine Kinase activation, etc., can help S1P for the pro-survival activity of the cell. This chapter will discuss the production, metabolism, receptors, and cellular mechanism of S1P to prevent apoptosis and its activity from inducing cancer.