Phospholipase

Phospholipase is an enzyme that hydrolyzes phospholipids into fatty acids and other lipophilic substances. There are four major classes, termed A, B, C and D, distinguished by the type of reaction which they catalyze:

Phospholipase A

Phospholipase A1 – cleaves the SN-1 acyl chain.

Phospholipase A2 – cleaves the SN-2 acyl chain, releasing arachidonic acid.

Phospholipase B – cleaves both SN-1 and SN-2 acyl chains; this enzyme is also known as a lysophospholipase.

Phospholipase C – cleaves before the phosphate, releasing diacylglycerol and a phosphate-containing head group. Phospholipase Cs play a central role in signal transduction, releasing the second messenger inositol triphosphate.

Phospholipase D – cleaves after the phosphate, releasing phosphatidic acid and an alcohol. Types C and D are considered phosphodiesterases.

Phospholipase A2 acts on the intact lecithin molecule and hydrolyses the fatty acid esterified to the second carbon atom. The resulting products are lysolecithin and a fatty acid. Phospholipase A2 is an enzyme present in the venom of bees and viper snakes.