

There are many phospholipase A<sub>2</sub> (PLA<sub>2</sub>s) enzymes which subject to activation through different signal cascades. They represent a large family of distinct enzymes whose products are important for signal transduction processes, eicosanoid and platelet-activating factor formation, membrane remodeling and lipid metabolism. At least three different PLA<sub>2</sub>s exist in mammalian cells, each of which have different characteristics. Which are: PLA<sub>2</sub>s types are: the secretory PLA<sub>2</sub> have low molecular weights, require Ca<sup>+2</sup> concentration for activity, and it is secreted into the extracellular space. The other type is called cytosolic PLA<sub>2</sub> which has a molecular mass of 85Kda, requires increases in intracellular Ca<sup>+2</sup> for phosphorylation of the enzyme and translocation to intracellular membranes but does not require Ca<sup>+2</sup> for its catalytic activity.

The third type is Ca<sup>+2</sup> independent PLA<sub>2</sub> and has a molecular mass of 80 KDa and it doesn't require Ca<sup>+2</sup> for activity. In some cell types, several lines of evidence suggest that the different PLA<sub>2</sub> isoenzymes are distinct in terms of signaling processes but there is cross talk between them as found for the product of secretory PLA<sub>2</sub> to activate cytosolic PLA<sub>2</sub>. Nevertheless, the cytosolic phospholipase A<sub>2</sub> seems to be the most important in the synthesis of arachidonic acid (Huwiler et al., 1997; McHowat et al., 2001; Cummings et al., 2004a; McHowat and creer, 2004; Cumming et al., 2004b).

Cytosolic phospholipase A<sub>2</sub> is activated by phosphorylation. There are widely variable stimuli that can release prostaglandins from cell, and the type of stimuli varies with the cell type. This occurs in response to signal transduction events when thrombin stimulates platelets, bradykinin stimulate fibroblasts, and antigen-