Papers of the Week

Green Tea Compound Reduces Lipid Accumulation in Cells ♦

♦ See referenced article, J. Biol. Chem. 2013, 288, 22693–22705

Epigallocatechin Gallate (EGCG) Stimulates Autophagy in Vascular Endothelial Cells. A Potential Role for Reducing Lipid Accumulation

Green tea has an abundant polyphenol called epigallocatechin-3-gallate (EGCG), which has been shown to alleviate cardiovascular problems. In this Paper of the Week, a team led by Jeong-a Kim at the University of Alabama at Birmingham tested to see if EGCG is involved in autophagy, a protective mechanism that comes into play during cellular stress. By doing a series of analyses in vascular endothelial cells, the investigators demonstrated that EGCG stimulated autophagy by a mechanism that involved AMP-activated protein kinase and calcium/calmodulin-dependent protein kinase kinase. The mechanism led to lysosomal degradation and reduced the accumulation ofi ntracellular lipid droplets. The authors say, "Collectively, these findings suggest that EGCG regulates ectopic lipid accumulation through a facilitated autophagic flux and further imply that EGCG may be a potential therapeutic reagent to prevent cardiovascular complications."

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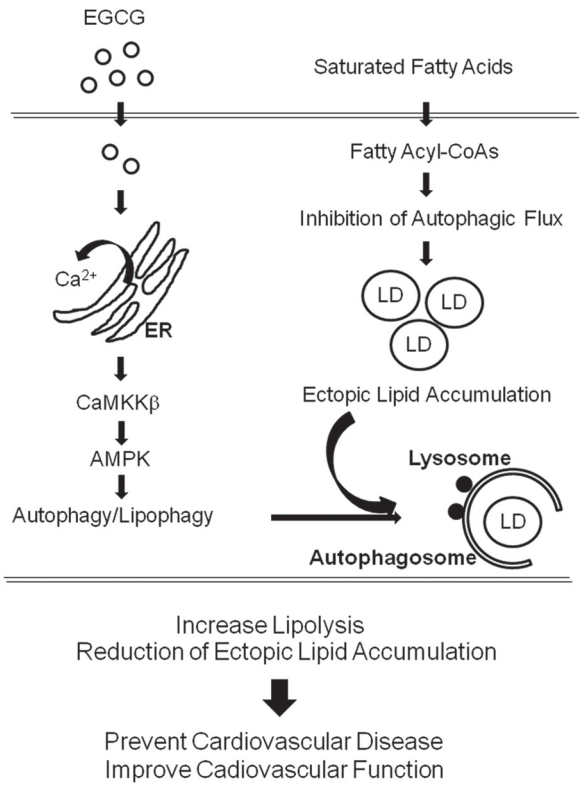

Schematic diagram of proposed EGCG-stimulated signaling pathway to activate lipophagy.