Vitamin E decreases endogenous cholesterol synthesis and apo-AI-mediated cholesterol secretion in Caco-2 cells. J.-F. Landrier, E. Gouranton, E. Reboul, N. Cardinault, C. El Yazidia, C. Malezet-Desmoulins, M. André, M. Nowicki, M. Souidi, P. Borel, *J. Nutr. Biochem.*, **21**, 1207-1213 (2010).

Intestine is the gateway for newly absorbed tocopherols. This organ also plays a crucial role in cholesterol metabolism. Because tocopherols are known to impact cholesterol metabolism in the liver, we hypothesized that tocopherols could also modulate cholesterol metabolism in the intestine. This study aimed to verify this hypothesis and to unveil the mechanisms involved, using Caco-2 cells as a model of the human intestinal cell. Both α- and γ-tocopherol significantly ($P<.05$) decreased endogenous cholesterol synthesis and apo-AI-mediated cholesterol secretion in Caco-2 cells. Tocopherols down-regulated ($P<.05$) up to half of the genes involved in the cholesterol synthesis pathway, together with CYP27A1, which is involved in oxysterol production. The activity of this enzyme, as well as the levels of intracellular oxysterols, was significantly diminished by tocopherols. Finally, tocopherols significantly reduced ABCA1 mRNA levels in Caco-2 cells. We conclude that tocopherols impair the endogenous synthesis and apo-AI-mediated secretion of cholesterol in Caco-2 cells. This effect involves a downregulation of genes involved in the cholesterol synthesis pathway, resulting in down-regulation of CYP27A1 which, in turn, diminishes oxysterol concentrations. The outcome is a decrease of LXR activity, resulting in down-regulation of ABCA1. These data reinforce the effect of α- and γ-tocopherol on cholesterol metabolism via gene expression regulation.