A040 LPSC

Quercetin Enhances the Activity of Cytochrome P450 3A4 (CYP3A4) in Pooled Human Liver Microsomes (HLMs)

Abstract

Cytochrome P450 3A4 (CYP3A4, EC 1.14.13.157) is a member of the cytochrome P450 monooxidase (CYP) family of microsomal xenobiotic metabolism enzyme. CYP3A4 catalyzes oxidation of extraordinary wide variety of structurally distinct ligands. Studies have shown that inhibition of CYP3A4 mediated metabolism is a common cause of adverse drug/drug and drug/food interactions and toxicity. As to how the activity of this enzyme is modulated by, quercetin, one of the most abundant flavonoids and a natural antioxidant is limited or non-conclusive. In this study, HLMs were cultured and exposed to several doses of Q to test if there is any correlation between CYP3A4 activity and the respective doses of Q following exposure for 24. HLMs were exposed to with or without Q at 0, 5, 10, 15, 20 and 25 μM for the said incubation period. Our findings indicate that Q at the respective doses increased CYP3A4 activity and the increase in enzyme activity was dose dependent. The studies indicate that Q can modulate the activity of CYP3A4 and help reduce the toxicity burden of cells to xenobiotics. Studies are currently ongoing to determine the kinetics of action of Q on CYP3A4 activity.

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