**Common variants of cytochrome P450 4F2 exhibit altered vitamin E-ω-hydroxylase specific activity.** S. A. Bardowell, D. E. Stec, and R. S. Parker, *J. Nutr.*, **140**, 1901-1906 (2010).

Human cytochrome P450 4F2 (CYP4F2) catalyzes the ω-hydroxylation of the side chain of tocopherols (TOH) and tocotrienols (T3), the first step in their catabolism to polar metabolites excreted in urine. CYP4F2, in conjunction with α-TOH transfer protein, results in the conserved phenotype of selective retention of α-TOH. The purpose of this work was to determine the functional consequences of 2 common genetic variants in the human CYP4F2 gene on vitamin E-ω-hydroxylase specific activity using the 6 major dietary TOH and T3 as substrate. CYP4F2-mediated ω-hydroxylase specific activity was measured in microsomal preparations from insect cells that express wild-type or polymorphic variants of the human CYP4F2 protein. The W12G variant exhibited a greater enzyme specific activity (pmol product・$min^{-1}$・pmol $CYP4F2^{-1}$) compared with wild-type enzyme for both TOH and T3, 230–275% of wild-type toward α, γ, and δ-TOH and 350% of wild-type toward α, γ, and δ-T3. In contrast, the V433M variant had lower enzyme specific activity toward TOH (42–66% of wild type) but was without a significant effect on the metabolism of T3. Because CYP4F2 is the only enzyme currently shown to metabolize vitamin E in humans, the observed substrate-dependent alterations in enzyme activity associated with these genetic variants may result in alterations in vitamin E status in individuals carrying these mutations and constitute a source of variability in vitamin E status.