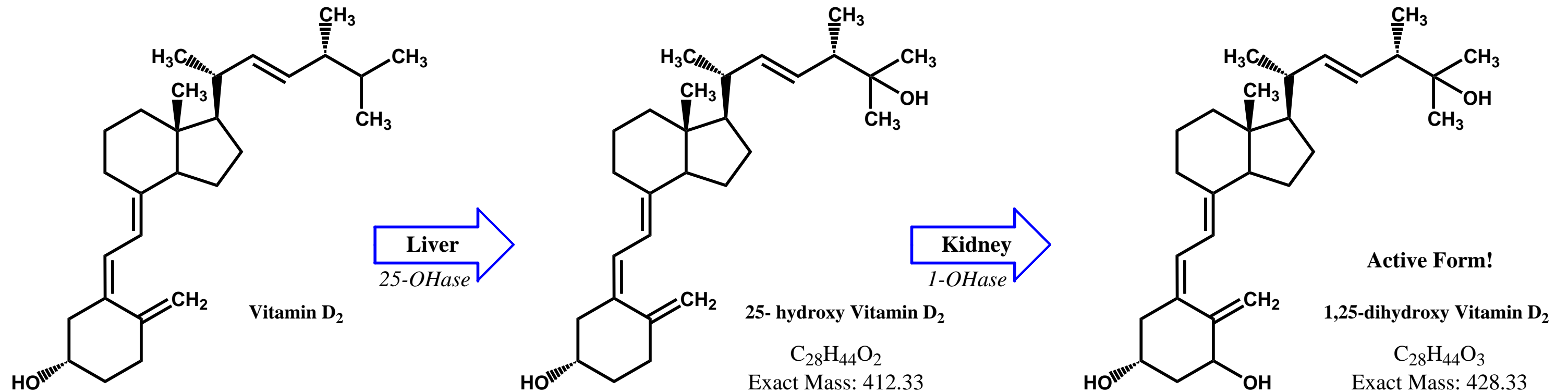


Ergosterol (pro-Vitamin D₂) is irradiated by UV-B light (λ 290 nm to 315 nm), which causes ring opening and conversion to pre-Vitamin D₂

Heat energy absorbed by pro-Vitamin D₂ is sufficient to cause enthalpic rearrangement, resulting in Vitamin D₂, Ergocalciferol

BUT, Vitamin D₂ is essentially biologically inactive in cellular systems! It must be converted to its active form as follows:



Vitamin D₂ in the bloodstream circulates to the Liver, where it is acted on by the *25-Hydroxylase* enzyme. This forms 25-hydroxy Vitamin D₂. This is also barely active, and flows out into the bloodstream to be further metabolized.

25-hydroxy Vitamin D₂ in the bloodstream circulates to the Kidneys, where it is acted on by the *1-Hydroxylase* enzyme. This forms 1,25-dihydroxy Vitamin D₂. **1,25 Dihydroxy Vitamin D₂ is the active form of the nutrient!**