Cytochrome P450

The cytochrome P450 are monooxygenases which catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids.

Cytochromes P450 (CYPs) are proteins of the superfamily containing heme as a cofactor and, therefore, are hemoproteins. CYPs use a variety of small and large molecules as substrates in enzymatic reactions. They are, in general, the terminal oxidase enzymes in electron transfer chains, broadly categorized as P450-containing systems. The term “P450” is derived from the spectrophotometric peak at the wavelength of the absorption maximum of the enzyme (450 nm) when it is in the reduced state and complexed with carbon monoxide.

Codeine or dihydrocodeine are useful for mild to moderate pain, but the side-effects (nausea and constipation) make them unsuitable for long-term use. There maybe inter-individual variations in effectiveness to codeine as a result of genetic polymorphisms of cytochrome P450 enzymes leading to differing levels of metabolism.