P450 Inducer

Cytochrome p450 is a superfamily of enzymes involved in drug metabolism and bioactivation. Human cytochrome P450s are primarily membrane associated proteins that are present in most tissues of the body and play important roles in hormone synthesis and breakdown, cholesterol synthesis, and vitamin D metabolism. P450 inducers are drugs that increase the activity of the enzyme causing drugs that are also metabolized by the p450 system to be metabolized at an increased rate. Commonly tested p450 inducers include phenytoin, griseofulvin, St. John's Wort, carbamazepine, rifampin, barbiturates, and chronic alcohol use.

PLAY PICMONIC

Griseofulvin

Grizzly-full-bear

Griseofulvin is an orally administered antifungal drug for treatment of fungal infections of skin and nails. This drug interferes with microtubule function and therefore disrupts mitosis of fungal organisms.

Phenytoin

Phone-tow-truck

Phenytoin is a commonly used antiepileptic drug. It acts to suppress abnormal brain activities via blockade of sodium channels. It is also a class 1B anti-arrhythmic

Carbamazepine

Car-bomb-maze-pine

Carbamazepine is an anticonvulsant and mood stabilizing drug. It is commonly used for epilepsy and trigeminal neuralgia

Rifampin

Ref-amp

Rifampin is used mainly for the treatment of active Mycobacterium tuberculosis. It acts by inhibiting the DNA dependent RNA polymerase

Barbiturates

Barbara-doll

Barbiturates are drugs that depress the central nervous system by increasing the duration of chloride channel opening and thus decreasing neuron firing. They are commonly used for anxiety and seizures.

Chronic Alcohol Use

Old Crone with Alcohol

Chronic alcohol use causes the liver to increase transcription and translation of p450 enzymes to metabolize the toxic byproducts of alcohol and induces the p450 system

St. John's Wort

Saint John on a Wart

St. John's Wort is best known as an herbal treatment commonly used for mild depression