



# PHASE 1 DETOXIFICATION

## GENETIC DATA

GENE	GENO TYPE
CYP1A1	CA
CYP1B1(1)	CC
CYP2A6(2)	CA
CYP2C9	CT
CYP2C19	AA
CYP2D6	CC
CYP2D6(3)	AA
CYP2D6(4)	AA
CYP2E1(1)	GG
CYP2E1(2)	CC
CYP3A4	TT

ESTROGENS

MEDICATIONS

ANESTHETICS

ACETAMINOPHEN

NSAIDS

Phase I detoxification is handled by a set of enzymes referred to as the Cytochrome P450's. There are around 18 different families of these enzymes and their production and function is controlled by over 50 genes. It is important to understand that despite the genetic controls, we do have the ability to alter the expressions of these genes in both positive and negative ways.

Cytochrome P450 enzymes are located predominantly in the liver but they are also found in other tissues such as the small intestine and even the brain. These enzymes are responsible for taking toxins through the first phase of detoxification. This first phase can convert toxins into benign forms but it also has the potential of creating an even more toxic product. Therefore, it is important to pay attention to both phase 1 and phase 2 detoxification pathways.

Toxins include; environmental toxins, medications, supplements, and even ones that are produced by our own metabolism and physiology.

### INTERPRETATION:

Decreased activity of converting estrone and estradiol to potentially carcinogenic 4-hydroxyestrogen

?????????

### RECOMMENDATIONS:





# ENVIROTOXINS & POLLUTION

## GENETIC DATA

GENE	GENO TYPE
CAT(2)	CC
NQO1	GG
IL6	CG
UGT2B15	AA
LOX	CC

**INCREASED  
SUPPORT  
NEED**

### Partial List of Toxins:

- Agricultural chemicals
- Organotoxins
- BPA's
- Phthalates
- Airborne pollutants
- Cigarette smoke

The consequences of living in an industrialized world is the exposure to new toxins that are created by society. Many of these "EPI-toxins" can significantly alter gene expression if they are not adequately detoxified by our body defense systems. These toxins can cause chronic disruptions of metabolic and endocrine processes and can even lead to disruptions of genetic expressions in our children and subsequent generations.

It is impossible to avoid exposure to these chemicals so it is essential to make sure that defense system is optimized to deal with the exposure. The CDC reported on over 300 chemicals that it monitors as part of its biomonitoring system that began back in 1999 and the list grows every year.

### INTERPRETATION:

Increased inflammation from exposure

### RECOMMENDATIONS:

Supplement with curcumin and astaxanthin