
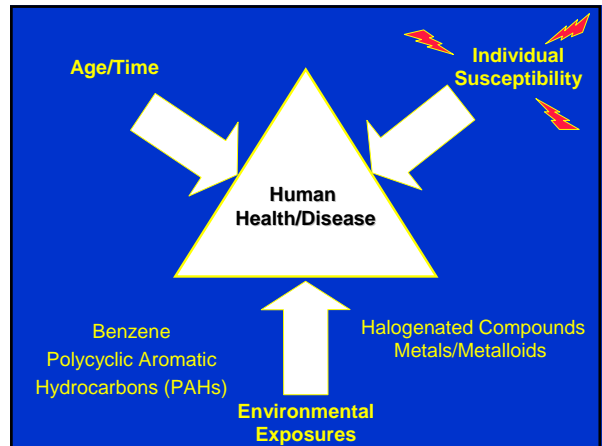


**Spring Celebration**




**Identifying toxicant susceptibility genes**

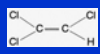
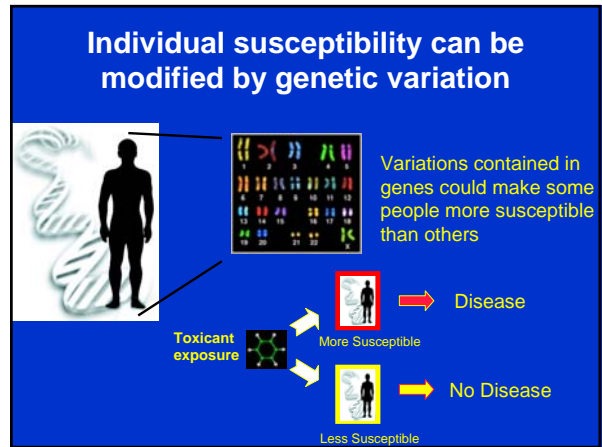
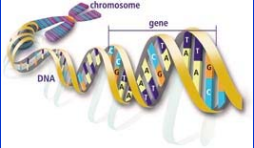
Chris Vulpe and Luoping Zhang, Ph.D.  
[vulpe@berkeley.edu](mailto:vulpe@berkeley.edu)  
[luoping@berkeley.edu](mailto:luoping@berkeley.edu)

**We are all different**




**Human variability in susceptibility to environmental toxicants**

**Protein Product**

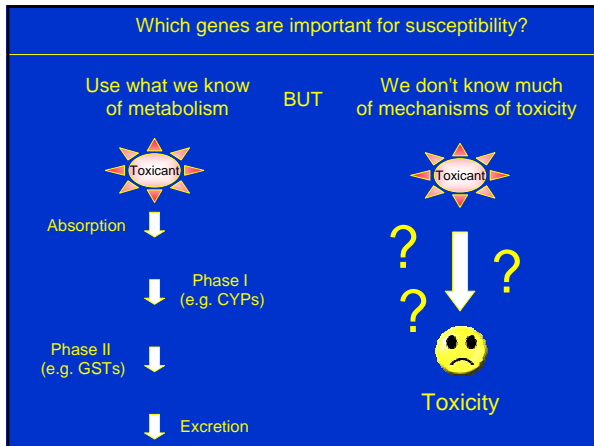
Gene A from Person 1: GCA ACA GAT AAT TGT  
 Ala Arg Asp Asn Cys → More Susceptible

Gene A from Person 2: GCA A A A GAT AAT TGT  
 Ala Lys Asp Asn Cys → Less Susceptible



But there are a lot (37,364 at last count) of Human Genes

In which genes should we look for variants that lead to susceptibility?



We (desperately) need new approaches to identify genes important for susceptibility to toxicants

Our approach: Use yeast to guide our choice of candidate genes

**Why yeast?**

- Conservation between human and yeast of fundamental genes and cellular pathways (~1/3 of yeast's ~6000 genes)
- Hundreds of human disease genes also exist in yeast
- Yeast susceptible to toxicants
- Easy to use and abuse

**Current Uses**  
Cell biology  
Cancer  
Signal transduction

It's time for Toxicology!

