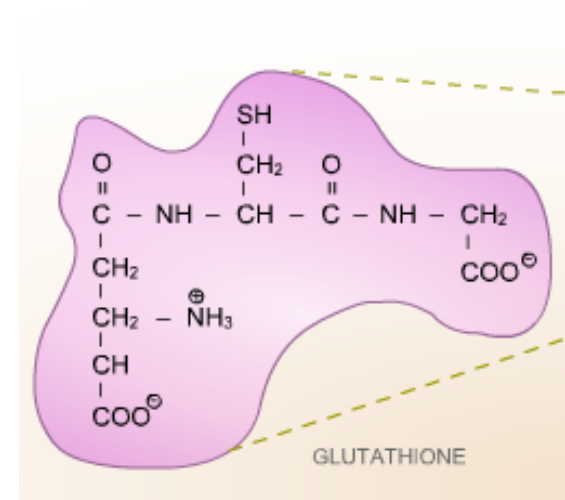


Results of DNA Damage Leading to Prostate Cancer

- DNA damage in prostate tissue leads to the inactivation of a specific enzyme
 - Glutathione-S-transferase
 - A family of enzymes
 - Substrate – glutathione
 - The most common anti-oxidant found in cells



www.insidecancer.org

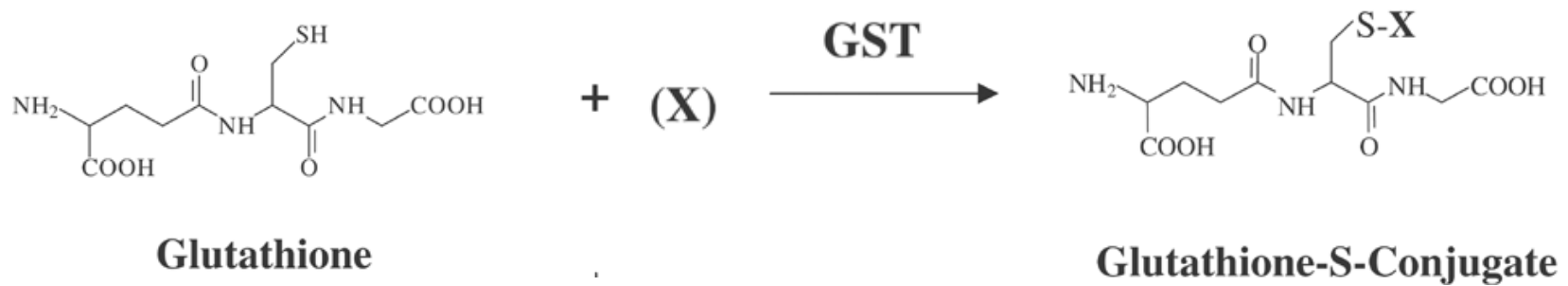


commons.wikimedia.org/wiki/File:Glutathione-3...

□ Glutathione-S-Transferase (GST)

□ Present in multiple copies in the cell


- Found in the cytoplasm and in the cell membrane
- Evidence suggests level of expression in the cell is critical to cell sensitivity to toxic chemicals. (Crit Rev Biochem Mol Biol. 1995;30(6):445-600).
- Enzyme catalyzes the reaction between glutathione and an acceptor molecule, like an oxidant or PAH



Hallmarks of Cancer: Click [here](#) for an in-depth examination of the hallmarks of this disease



- Oncogenes
 - Mutated genes that now function to encourage cell growth
- Tumor Suppressor Genes
 - When functioning normally the products of these genes:
 - Control cell growth
 - Repair DNA damage
 - Control programmed cell death (apoptosis)
 - When mutated these genes no longer function to control cell division
- For more information on mutations leading to cancer, navigate to Inside Cancer (www.insidecancer.org)
 - Select “Hallmarks”
 - Select “Promoting Mutations”

- 
- Glutathione-S-Transferase is unique in that it doesn't fall into either of the two main categories of genes leading to cancer

 - GST acts as a DNA repair enzyme
 - The enzyme works to protect DNA from damage due to oxidants of PAH's.