



Systematic Bioinformatics Review of REDOXX® Effect on Liver Detoxification

CYTOSOLVE RESEARCH SUMMARY (DRAFT)

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Systematic Bioinformatics Review of REDOXX® Ingredients on Liver Detoxification

ABSTRACT

The systematic bioinformatics review and *in silico* analysis of REDOXX® was performed to integrate over 2,500 *in vitro* and *in vivo* laboratory experiments recorded in 102 studies that were conducted across 56 institutions over the past 26 years. The analysis reveals four (4) mechanisms of action involved in liver detoxification at the molecular systems level in humans. The systematic bioinformatics review results reveal that eight (8) ingredients have an effect on the mechanisms of action involved in liver detoxification.

KEY FINDINGS

1. CytoSolve® review analysis identified four (4) major biomolecular processes involved in liver detoxification:
 - a. Oxidative stress
 - b. Lipid peroxidation
 - c. Nrf-2 pathway for antioxidant enzyme synthesis
 - d. Inflammation
2. Bioactive compounds in REDOXX were found to affect all the four mechanisms of action involved in improving liver detoxification.
3. Liver detoxification is enhanced by lowering oxidative stress, lowering lipid peroxidation, increasing antioxidant enzyme synthesis, and reducing inflammation.
4. Eight of the ingredients in REDOXX formulation have an effect on the mechanisms of action of liver detoxification as follows:
 - a. **Procyanidin B2** in Grape Seed Extract and **N-Acetyl L-Cysteine** exhibited a protective effect on CCl₄-induced liver injury by increasing antioxidant enzyme synthesis and consequently suppressing the inflammatory response and apoptosis of liver tissues ([Yang et al., 2015](#), [Aksit et al., 2016](#))
 - b. **Selenomethionine**, **Vitamin A**, and **Eleuthero Root Powder** protect from liver injury by increasing antioxidant enzyme synthesis ([Okuno et al., 2006](#), [Want et al., 2014](#), [Hasanein et al., 2017](#))
 - c. **Thiamine**, **Alpha Lipoic Acid**, and **Vitamin E** from Milk Thistle Extract lower oxidative stress ([Goraca et al., 2011](#), [Uysal et al., 2016](#), [Modo et al., 2015](#))

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