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# Comparative Studies on Biophysical Interactions between Gambogic Acid and Serum Albumin via Multispectroscopic Approaches and Molecular Docking

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## Abstract

Gambogic acid (GA) is insecticidal and cytotoxic to various cancer cells. This study focused on mechanisms of interactions between GA and human serum albumin (HSA) and bovine serum albumin (BSA). Spectra of steady-state fluorescence, UV-Vis, and time-resolved fluorescence indicated that GA binding to HSA/BSA is a static process. The site marker experiments suggest the binding for HSA-GA and BSA-GA systems both occurs at site II (subdomain IIIA). The complex of GA with HSA/BSA can distribute efficiently *in vivo* under the value of binding constants in the intermediate range. Thermodynamic parameters illustrate the binding of GA to HSA/BSA is collaboratively driven by van der Waals force and

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