Abstract: <strong>Introduction:</strong> Turmeric which is derived from the powder rhizome of <em>Curcuma longa</em>, is used as a spice and food preservative. The yellow color of turmeric is mainly related to curcuminoind compounds including curcumin, demethoxycurcumin and bisdemethoxycurcumin. Curcuminoinds have a wide spectrum of biological activities such as antifunga, antidiabetic, antioxidant, antiinflammatory, anticancer, antiiallergic, antiprotozoal and antibacterial activities. Bisdemethoxycurcumin is the most active of the curcuminoinds present in turmeric for modulation of <em>MDR-1</em> gene. Human α1-acid glycoprotein (AGP) is the major acute phase protein, that is negatively charged at physiological pH and its concentration increases in response to systemic tissue injury, inflammation, and infection. AGP consists of a chain of 183 amino acids contains 40% carbohydrate by weight and has up to 16 sialic acid residues. <br/>

**Method:** In this study, spectroscopic techniques such as steady-state fluorescence, synchronous fluorescence, fluorescence resonance energy transfer (FRET), and molecular docking have been used. <br/>

**Results:** Experimental results revealed that some tryptophan residues are involved in the binding of bisdemethoxycurcumin to AGP. The binding parameters including number of binding sites and binding constant have been calculated based on the fluorescence quenching data. The synchronous fluorescence results showed that binding of bisdemethoxycurcumin causes some changes in the conformation of AGP. <br/>

**Conclusions:** Although plasma concentration of AGP is much lower than that of albumin, AGP can become the major drug binding macromolecule in plasma with significant clinical implications. Characterization of the binding of natural and synthetic bioactive compounds to AGP is valuable for further designing efficient drugs and guiding clinical therapy. 

Bisdemethoxycurcumin, human alpha1-acid glycoprotein, Ligand binding

Presentation: Poster