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A Screening Method of Hydrophobic Binding Capacity for Human Serum Albumin

The objective of the research is to assess the binding capacity of human serum albumin (HSA) in people with metabolic syndrome and type 2 diabetes (T2D), compared to healthy controls. The initial method uses the ability of the fluorescent compound 1-anilinonaphthalene-8-sulfonic acid (ANS) to be taken up on binding sites on HSA, where its fluorescence increases greatly when it is bound. The initial finding is that the plasma from a person with metabolic syndrome or T2D, when normalized for concentrations of HSA and ANS, will fluorescence significantly less than when compared to that of a person considered healthy. This is hypothesized to be due to some other molecule being bound to the HSA where ANS would normally bind. Metabolic syndrome is a precursor of T2D; searching samples from individuals in this pre-diabetic state should allow discovery of accurate predictive markers for T2D. This screening process could give a good indication of possible T2D and therefore the necessity of changing lifestyle or diet to prevent development of T2D and will help identify the currently unknown compounds that are partially filling the binding sites in HSA in the subjects.