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## Structural evolutions of the serum albumin and immunoglobins as possible biomarkers of the development of systemic lupus erythematosus

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Systemic lupus erythematosus (SLE) is an autoimmune disease. The immune system attacks its tissues, including inflammation of the skin, joints, blood, kidneys, and nervous system. The nephrologist determines the drug treatment by referring to clinic symptoms, medical history, pathology reports, blood tests, etc. Serum albumin (SA) and 2-subtype immunoglobulin (IgG and IgA) concentrations have evolved along the SLE courses; SA and IgG-IgA are potential biomarkers during the disease activity. This study uses the combined size-exclusion-column (SEC) based small- and wide-angle X-ray scattering (SAXS/WAXS) and SEC-based multi-angle light scattering (MALS) to

monitor the structural and composition ratio changes of SA and IgG-IgA from childhood-onset SLE (cSLE) patients. The results revealed the correlation between systematic changes in the sizes, shapes, concentrations, and molar masses of SA and IgG-IgA, observed in a series of serum samples from cSLE patients. Using the combined techniques of SEC-based SAXS-WAXS and SEC-MALS could serve as tools for diagnosing cSLE in its early stages and assessing the effectiveness of treatments.

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**Session Classification:** Poster Session + Buffet Dinner (Wine & Cheese)