ABSTRACT #0997

Novel Shared Antibody Specificities in Ro Antibody Negative Sjögren's Syndrome

Sherri Longobardi[1], Constantin Georgescu[2], Christina Lawrence[3], Charmaine Moya[3], Jonathan Wren[4], Judith James[5], Kathy Sivils[3] and A. Darise Farris[6], [1]Graduate Program in Biological Sciences, University of Oklahoma Health Sciences Center; Arthritis and Clinical Immunology Program, Oklahoma Medical Research Foundation, Oklahoma City, OK, [2]Genes & Human Disease Program, Oklahoma Medical Research Foundation, Oklahoma City, OK, [3]Arthritis and Clinical Immunology Program, Oklahoma Medical Research Foundation, Oklahoma City, OK, [4]Genes & Human Disease Program, Oklahoma Medical Research Foundation, Oklahoma City, [5]Oklahoma Medical Research Foundation, Oklahoma City, [6]Arthritis and Clinical Immunology Program, Oklahoma Medical Research Foundation, Oklahoma City

Background/Purpose: Sjögren's syndrome (SS) is a rheumatic autoimmune disease characterized by focal lymphocytic infiltrates in the lacrimal and salivary glands, severe dry mouth and eyes, pain and debilitation. Diagnosis requires autoantibodies to ubiquitous Ro antigens or a lip biopsy positive for focal lymphocytic infiltrates. Here we used human proteome arrays to identify novel antibodies in plasma from Ro antibody positive and Ro antibody negative SS patients compared with healthy controls.

Methods: Anti-Ro positive (n=15) and anti-Ro negative (n=15) cases meeting 2016 ACR/EULAR classification criteria for SS were age, race, and sex matched with each other and healthy controls (n=15). Plasma IgG binding to human proteome arrays containing >19,500 recombinant human proteins representing >80% of the human proteome (HuProt v3.2 arrays, CDI Laboratories) was assessed. Data were normalized by the Robust Linear Model using the PAA Bioconductor Package in R and log intensity values for each protein generated. Thresholds of mean + 3SD were established using the controls. Antigens bound by IgG in at least 4 cases compared to controls were considered significant ($p < 0.05$, one-tailed Fisher's exact test).

Results: IgG from Ro positive SS cases significantly bound 42 proteins, including the canonical SS antigens Ro60, Ro52, and La, with an average of 15 specificities per individual. IgG from Ro negative SS cases significantly bound 24 proteins compared to controls, with an average of 7 specificities per individual. Of the antigens identified, 8 were shared in both the Ro positive and Ro negative groups. Binding to at least one of these 8 proteins identified 93% of the Ro positive cases and 87% of the Ro negative cases.

Conclusion: A set of 8 novel antigens were bound by plasma IgG in both Ro positive and Ro negative cases. These antigens may be useful for diagnosing SS without a lip biopsy.

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