

# The Ability of Serum to Destruct Matrix of the Biofilms in Patients with Rheumatoid Arthritis and Systemic Lupus Erythematosus

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**Abstract:** Background Recent findings suggest that the reduced ability of blood serum to destroy the microbes biofilm matrix is a factor that contributes to the development of infectious processes. Infections are the common comorbid condition in patients with rheumatic disease. We are interested in this property of blood serum in patients with rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE).

Objectives. To determine the ability of blood serum of patients with rheumatoid arthritis and systemic lupus erythematosus to destroy of the *S. aureus*'s biofilm matrix (BM).

Material and methods. In study 13 patients with RA, 24 with SLE and 12 healthy blood donors were included. For the evaluation BM degradation under action of serum we used developed by our scientific group method.

Results. Shown that the serum have a significant capacity to cleave biofilm matrix formed by *S. aureus*. Moreover, in patients with RA this ability is significantly higher (Me 410.00; CI 95% 373.32 to 485.25) than in SLE (Me 319.00; CI 95% 284.98 to 362.03,  $p < 0.0001$ ) and donors (Me 311.00; CI 95% 264.99 to 356.45,  $p = 0.0001$ ). In patients with SLE the level of BM degradation is not differ from donors.

Conclusion. The findings suggest that the elevated ability of blood serum to destroy the biofilm matrix is a factor that contributes the protection from infectious processes in patients with RA. The research in this direction should be continued for the finding new relationships between the degree of biofilm matrix degradation and course of the rheumatic diseases and their infections complication.

**Key words:** rheumatoid arthritis, systemic lupus erythematosus, biofilm matrix