Publication of the Month

Excellence in Autoimmunity

July 07/10: Rib-P autoantibody detection early before SLE diagnosis

Heinlen LD, Ritterhouse LL, McClain MT, Keith MP, Neas BR, Harley JB, James JA
Ribosomal P autoantibodies are present before SLE onset and are directed against non-C-terminal peptides
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Introduction: Anti-ribosomal P (Rib-P) autoantibodies are directed against the three Ribosomal P Phosphoproteins P0 (38 kDa), P1 (19 kDa), and P2 (17 kDa) and occur almost exclusively in systemic lupus erythematosus (SLE). They seem to be connected to several clinical manifestations like neuropsychiatric symptoms, nephritis, photosensitivity, malar rash and hepatic involvement. P0, P1 and P2 share a C-terminal peptide, which is often used as antigen for Rib-P detection by ELISA. However, recent publications described also autoantibodies in patient sera against other regions of the P-proteins.
This study of a military SLE patients cohort evaluates the onset and progression of ribosomal P antibodies in 129 SLE patients before the clinical onset of disease and investigates those regions of the ribosomal P protein that are antigenic early in the disease course.

Results: Thirty-eight patients had anti-ribosomal P antibodies directed against affinity purified proteins and only 15 of these patients had detectable anti-ribosomal P antibodies against the C-terminal peptide.
Anti Rib-P seems to be related with characteristic features of SLE:

- Anti-Rib-P appeared at a similar time on average as other SLE specific antibodies (such as anti-Sm and anti-dsDNA) and appeared closer to diagnosis than less SLE-specific autoantibodies such as anti-Ro and anti-La.
- A significant increase in the concentration of Rib-P antibodies was seen during the time preceding diagnosis; after diagnosis antibody concentrations reach a plateau.
- Anti-ribosomal P positive patients produce a higher number of autoantibody specificities than other SLE patients.
- Anti-Rib-P-positive patients were more likely to have pericarditis than their anti-Rib-P-negative counterparts.
- African American SLE patients have more severe disease, as well as more autoantibodies, than other ethnic groups with SLE.

Conclusion: Antibodies against ribosomal P proteins frequently develop before clinical SLE diagnosis and are more broadly reactive than previously thought by also targeting regions outside of the C-terminus. This insight may help to understand early events as autoimmunity progresses to SLE as well as to diagnose and treat the disease process earlier in its course.
Futhermore it was demonstrated that assays containing the full length ribosomal P proteins have a higher sensitivity than the classical assay using only of C-terminal peptides, especially when it comes to diagnosis in the early stage of disease.

Comment:
This publication shows how important an anti-ribosomal P assay is for the early detection of systemic lupus erythematosus. It highlights that the use of full length ribosomal P proteins is important for a high sensitivity of a Rib-P test. The new EliA Rib-P assay contains a mixture of three recombinant full length ribosomal P proteins to ensure best performance.