

## Differential immuno-reactivity to genomic DNA, RNA and mitochondrial DNA is associated with auto-immunity

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### Abstract

© 2015 S. Karger AG, Basel. Background: Circulating auto-reactive antibodies are hallmark features of auto-immune diseases, however little is known with respect to the specificity of such bio-markers. In the present study, we investigated the specificity of anti-nucleic acid antibodies in the blood of subjects with systemic lupus erythematosus (SLE) and healthy controls. Methods: Sera from 12 SLE cases and 8 controls were evaluated for immuno-reactivity to purified RNA, DNA and mitochondrial DNA (mtDNA) by enzyme-linked immuno-sorbent assay (ELISA). Results: As expected, immuno-reactivity to total nucleic acids was significantly higher in subjects with SLE when compared to healthy controls, however a clear distinction was observed among the various nucleic acid sub-types, with sera from SLE subjects displaying the greatest immuno-reactivity to RNA followed by mtDNA and then total DNA. Conclusion: The identification of auto-reactive antibodies can serve as highly sensitive biomarkers, although their specificity may not always allow diagnostic certainty. The knowledge that auto-antibodies in subjects with SLE display differential immuno-reactivity may help to improve existing diagnostics and may lead to a better understanding of the pathogenesis of auto-immune disorders.

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### Keywords

Auto-antibody, Auto-antigens, Auto-immune disease, Biomarker, Mitochondria, Nucleic acid, Systemic lupus erythematosus (SLE)