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Mechanism of action of DNA-hydrolyzing antibodies to DNA from blood of patients with systemic lupus erythematosus

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Abstract

Four fractions of IgG antibodies to native DNA (nDNA) were obtained from blood of patients with systemic lupus erythematosus. These antibodies displayed a thermostable DNA-hydrolyzing activity and were different in affinity for DNA-cellulose and sorption on DEAE-cellulose. DNA-hydrolyzing antibodies to nDNA are metal-dependent endonucleases, cause mainly single-strand breaks in DNA, and are active over a wide range of pH. By atomic-force microscopy, three-dimensional images of DNA complexes with DNA-hydrolyzing antibodies to nDNA were obtained with nanometer resolution, and a nonprocessive action mechanism was shown for the DNase activity of antibodies to nDNA. © Nauka/Interperiodica 2006.

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Keywords

Abzymes, Atomic-force microscopy, Hydrolysis of DNA, IgG, Polyclonal catalytic antibodies, Systemic lupus erythematosus