

Systemic Lupus Erythematosus

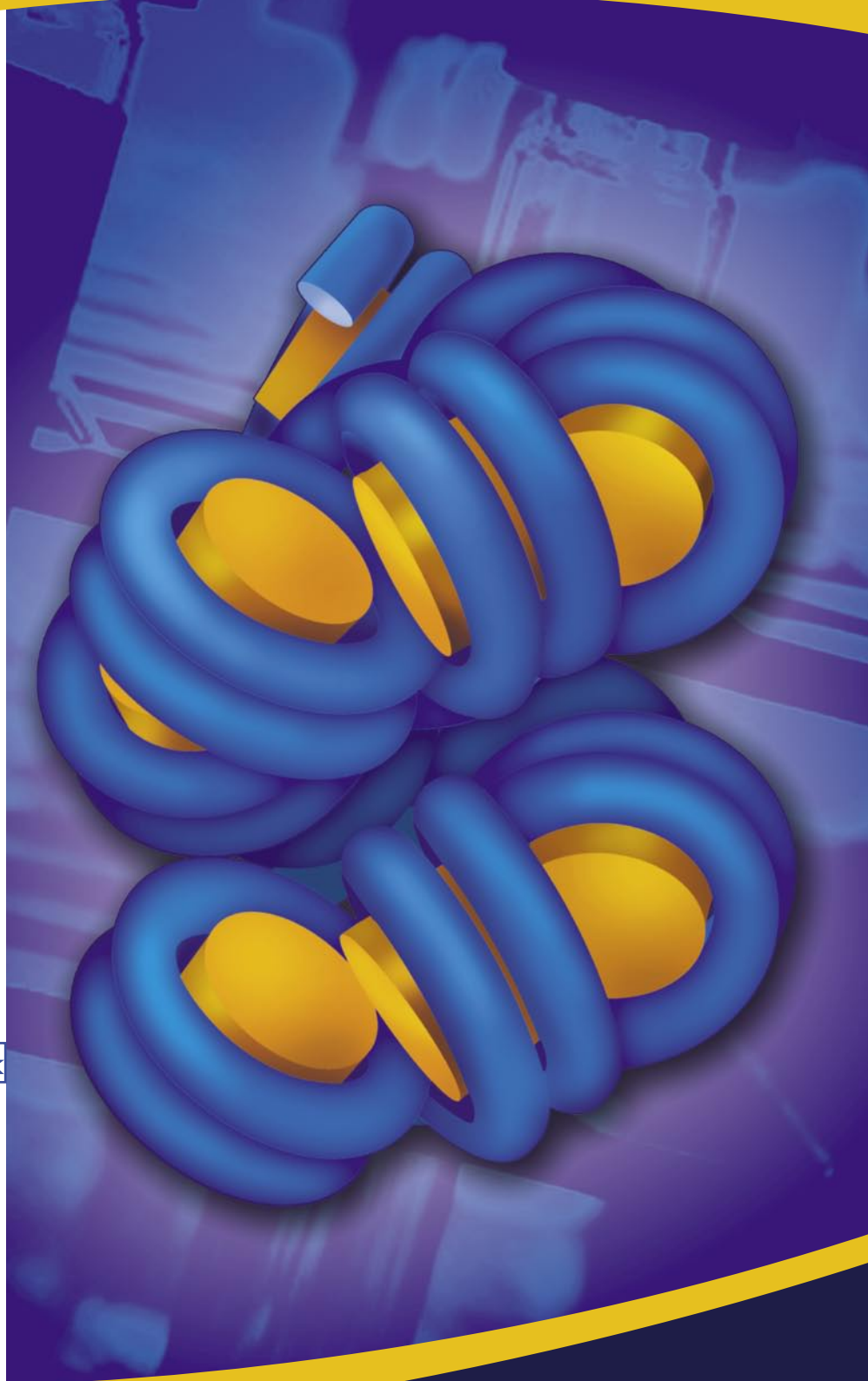
Anti-Nucleosome Autoantibodies

Enzyme Immunoassay
for the determination
of autoantibodies to
nucleosomes
in human serum

BlueDot

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Dtek



Systemic Lupus Erythematosus is regarded as the prototype systemic autoimmune disease because of the exuberance of clinical features pointing toward a hyperactive or aberrant immune response. Although major effort in past years has been devoted to identification and characterisation of numerous circulating autoantibodies, the primary antigen in SLE has long been a subject of debate.

Etiology and Pathology

The etiology of SLE is still unrevealed. SLE is a disease with a wide spectrum of cutaneous and systemic manifestations and can damage almost any part or organ of the body. However skin, joints and kidneys are frequently affected. Especially Lupus nephritis can be critical because there are no outward symptoms of kidney failure.

Diagnosis

Today diagnosis of SLE is made when other illnesses have been ruled out, and when a patient fulfills 4 of 11 criteria. These criteria include: discoid rash, malar (butterfly) rash, photosensitivity, mouth sores, arthritis, serositis (usually heart or lung inflammation), kidney disorder, neurological problems, blood changes, immune changes and finally an abnormal titre of antinuclear antibody (ANA). The symptoms do not all have to occur at the same time.

Relevance of autoantibodies to nucleosomes

Historically, antibodies to DNA were the earliest to be characterised and considered as an important criteria for the diagnosis of SLE. Despite this "sacred" association however, DNA does not fulfil the basic criteria that can make it the key antigen in SLE. Indeed mammalian DNA is not immunogenic and immunisation with mammalian DNA does not induce pathogenic anti-DNA antibodies that cause clinical symptoms. Recent studies have shown that nucleosomes rather than isolated DNA most probably initiates the autoimmune process in SLE. Nucleosomes are the fundamental repeating units of chromatin consisting of dsDNA wrapped around core histones. They are highly immunogenic and immunisation with nucleosomes generate pathogenic autoantibodies in mice. Various studies postulated that the immune system is exposed to the nucleosomes probably due to initial dysregulation of the apoptosis process in SLE. Hence it has been shown that the first antibodies to be raised during the onset of SLE recognise solely conformational epitopes shared by the native nucleosome molecule. Specific anti-dsDNA and anti-histones antibodies appear later in the course of the disease as the autoimmune response extends to the individual components of the nucleosome. Anti-nucleosome antibodies have been shown to be a more sensitive marker of SLE than anti-dsDNA was so far. Up to 10% of ds-DNA negative patients were found positive for anti-nucleosome antibodies, in recent studies on untreated SLE patients, tested at presentation time. Additionally anti-nucleosome reactivity in SLE patients correlated significantly higher with the severity of the disease than dsDNA did,

particularly when nephritis was concerned.

Anti-nucleosome determination may thus be a significantly better tool for diagnosing SLE than dsDNA has been.

BlueWELL nucleosome Performances

Clinical performance vs. ds DNA

BlueWELL Nucleosome IgG vs. dsDNA ELISA

SENSITIVITY = 82.0 % 77%
SPECIFICITY = 89.2 % 89.2%

A total of 358 SLE patients and 207 patients with various other autoimmune diseases have been checked.



Available products and codes

Code	product	interpretation	number of tests
NU02-96	Nucleosome IgG (ELISA)	Quantitative	96tests
NUD-24	Nucleosome IgG (BlueDot)	Qualitative	24tests

Bibliography

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