EUROLINE Myositis Profile 3 (IgG)

Indication: Test system for the in vitro determination of antibodies against myositis-associated antigens in human serum or plasma for the diagnosis of the following diseases: dermatomyositis, polymyositis, idiopathic myositis, anti-synthetase syndrome, overlap syndrome.

Clinical significance: Myositis is an inflammatory disease of the skeletal musculature. Myositis may be hereditary or caused by infections, injuries, the immune system or by toxins.

Polyomyositis is a systemic inflammatory disease of the skeletal muscles of unknown aetiology with perivascular lymphocytic infiltration. In cases of skin involvement the disease is known as dermatomyositis. There are five different forms of polyomyositis: a) primary idiopathic polyomyositis (33% of cases), b) primary idiopathic dermatomyositis (33%), c) paraneoplastic dermatomyositis of the lungs, ovaries, mamma, gastrointestinal tract and in myeloproliferative diseases (8%), d) infanteil dermatomyositis and accompanying vasculitis (5% to 10%) and e) myositis overlap syndrome in collagenoses (20%). Dermato-/polyomyositis is often of paraneoplastic origin, particularly in elderly patients. Dermatomyositis symptoms can occur before the presence of the tumour is even diagnostically detectable.

Clinical symptoms of polyomyositis are muscle weakness, unpecific signs of inflammation, arthralgia, possibly Reayna’s syndrome, trouble with swallowing and involvement of inner organs. In dermatomyositis skin symptoms appear as purple-coloured exanthesia on the eye lids, nose bridge and cheeks, periorbital oedema, local erythema and scaly eczema dermatitis.

Laboratory results show an increased level of muscle enzymes. The detection of myositis-associated autoantibodies with specific tests is essential in the diagnosis of dermatomyositis/polyomyositis, in controlling the course of the disease and in therapy management. Although the mortality rate is increased by a factor of 4–with heart and lung diseases being the primary cause of death – half of patients recover fully, although a slight weakness of the muscles may remain. In 30% of cases the disease can be stopped. Around 20% of patients experience deterioration despite therapeutic measures.

Antibodies against Mi-2 are highly specific for dermatomyositis. They can be found in 15% to 30% of dermatomyositis patients and in 8% to 12% of idiopathic myositis cases. Antibodies against Ku have a prevalence of up to 10% in systemic lupus erythematosus (SLE). Anti-Ku antibodies are also detected in 5% to 25% of cases of polyomyositis/scleroderma overlap syndrome.

Anti-Ku-antibody-positive patients have myositis, symptoms of scleroderma or SLE in around 40% of cases for each, and frequently also exhibit vascular manifestations. The antibodies against PM-Scl100 and PM-Scl75 also enable the identification of overlap syndrome. This disease manifests itself by a combination of polyomyositis, dermatomyositis and systemic sclerosis symptoms. PM-Scl75 is the main antigen of the anti-PM-Scl immune response in diffuse systemic sclerosis, although in overlap syndrome the majority of anti-PM-Scl antibodies are directed against PM-Scl100. Since antibodies against PM-Scl75 and PM-Scl100 occur independently of each other, both antibodies should be determined routinely. In this way maximal sensitivity is attained: 19.8% for diffuse systemic sclerosis and 23.7% for overlap syndrome. Antibodies against the signal recognition particle (SRP), which participates in protein biosynthesis, have a prevalence of 4% to 5% in myositis patients. Antibodies directed against aminocetyl-tRNA synthetases occur with differing prevalences (anti-Jo-1: 25% to 55%, anti-PL-7: 3% to 6%, anti-PL-12: up to 3%, anti-EJ: 1%, anti-OJ: 1%) in myositis patients and are often associated with other, simultaneously occurring autoimmune diseases (e.g. SLE, SSC or interstitial lung fibrosis). Antibodies against Ro-52 are not associated with a specific disease, but are found in autoimmune and infectious diseases with a prevalence of 5% to 81%.

Application of the EUROLINE Myositis Profile 3 (IgG): The isolated presence of autoantibodies against individual myositis-specific antigens is characteristic for autoimmune myosistides. Comprehensive studies in various centres in Europe have shown that the simultaneous investigation of large profiles of various myositis-specific antibodies increases the serological hit rate to up to 37%. For the first time, the EUROLINE Myositis Profile 3 (IgG) enables automated analysis of 11 different myositis-specific antibodies on one test strip.
EUROIMMUN Analyzer I + I2P
EUROLabOffice

testosterone
sIgA
DHEA
alpha-amylase
anti-p53
Serum proteins and tumour markers:
allergens and allergen mixtures)

Allergyology:
Varicella zoster virus (IgG, IgM)
Treponema pallidum (IgG, IgM)
Toxoplasma gondii (IgG, IgM)
TBE virus (IgG, IgM)
SARS-CoV (IgG)
RSV (IgA, IgG, IgM)
Parainfluenza virus Pool (IgA, IgG, IgM)
Mycoplasma pneumoniae (IgA, IgG, IgM)
Legionella pneumophila (IgA, IgG, IgM)
Influenza Pool (IgA, IgG, IgM)
Influenza virus type B (IgA, IgG, IgM)
Influenza virus type A (IgA, IgG, IgM)
HSV-2 (glycoprotein G2; IgA, IgG, IgM)
Helicobacter pylori (IgA, IgG)
Hanta virus “Eurasia” + “America” (IgG, IgM)
Borrelia VlsE (IgG)
Epstein-Barr virus early ag (IgA, IgG, IgM)
Bordetella pertussis (IgA, IgG, IgM)
Echinococcus granulosus (IgG)
Adenovirus (IgA, IgG, IgM)
Diphtheria toxoid (IgG)
Infectious serology:
Dengue virus (IgG, IgM)
Cytomegalovirus (IgG, IgM)
Saccharomyces cerevisiae (IgA, IgG)
gliadin (GAF-3X; IgA, IgG)
Chlamydia pneumoniae (IgA, IgG, IgM)
Further autoimmune diagnostics:
Campylobacter jejuni (IgA, IgG)
Brucella abortus (IgA, IgG, IgM)
zona pellucida
spermatozoa
Latex agglutination tests:
Campylobacter jejuni (IgAGM, Ig typing)
Borrelia VlsE (IgG)
Antigen Mi-2 Ku PL-7 or PL-12 SRP
153 Sera from myositis patients, 77 control sera (University of Uppsala, Sweden)
208 Sera from myositis patients, 214 control sera (University of Padua, Italy)
194 Sera from SLE patients, 131 sera from scleroderma patients, 179 sera from polymyositis/dermatomyositis patients, 50 sera from patients with rheumatoid arthritis (EUROIMMUN Luebeck)

Prevalence and specificity:

Antigen Mi-2 Ku PM-Scl100 Jo-1 PL-7 PL-12 SRP Mi-2 Ku PM-Scl100 Jo-1 PL-7 or PL-12 SRP EJ OJ PM-Scl75
Prevalence 3% 3% 7% 12% 3% 0% 5% 4% 5% 4% 21% 4% 4% 1% 1% 6% Specificity 100% 97% 100% 100% 100% 97% 98% 95% 95% 100% 100% 100% 99% 100% 100% 98%

Technical data:
Antigens Recombinant: Mi-2: Mi-2 protein; Ku: Ku protein; PM-Scl100: PM-Scl-protein (100kDa); PM-Scl75: PM-Scl protein (75kDa); SRP: SRP protein (54kDa, signal recognition particle); PL-7: PL-7 protein (threeyl-tRNA synthetase); PL-12: PL-12 protein (alanyl-tRNA synthetase); EJ: EJ protein (glycyrl-tRNA synthetase); OJ: OJ protein (isoleucyl-tRNA synthetase);

Sample dilution Serum or plasma; 1:101 in sample buffer.

Test procedure 30 min / 30 min / 10 min. Room temperature.

Test kit format 16 membrane strips.

Automation Compatible with all commercial blot processing systems, e.g. with the EUROBlotMaster from EUROIMMUN.

Order number DL 1530-1601-3 G

Test principle: The EUROLINE is a qualitative in vitro immunoassay, in which membrane strips printed with lines of purified, biochemically characterised antigens are used as solid phase. Each antigen is coated onto a separate membrane fragment, enabling the production process and thereby the efficiency of antibody detection to be optimised for each protein. Since antigen bands are located at defined positions, results can be visualised without the need for additional equipment. Correct performance of all test steps is confirmed by staining of the control band.

Computer-based evaluation: The EUROLine-Scan programme from EUROIMMUN provides automated evaluation of EUROLINE analyses and detailed documentation of results. The incubated membrane strips are either scanned onto a protocol sheet using a flatbed scanner (EUROBlotScanner) or photographed directly in the incubation tray using a camera system (EUROBlotCamera). EUROLineScan recognises the position of the strips, even if they have been laid inexacty. It then identifies the bands and measures their intensity. The EUROLine-Scan programme facilitates data management and eliminates the need to archive potentially infectious material. A separate results sheet can be produced for each patient. Online connection to other programmes is possible, e.g. laboratory management systems (LIMS).