EUROLINE Cytoplasm Profile (IgG)
Test instruction

ORDER NO.	ANTIBODIES AGAINST	IG CLASS	SUBSTRATE	FORMAT
DL 1590-1601-35 G DL 1590-6401-35 G	AMA-M2, M2-3E, rib. P-protein, Jo-1, SRP, PL-7, PL-12, EJ, OJ and Ro-52	IgG	Ag-coated immunoblot strips	16 x 01 (16) 64 x 01 (64)

Indications: The EUROLINE test kit provides a qualitative in vitro assay for human autoantibodies of the immunoglobulin class IgG to 10 different antigens **AMA-M2, M2-3E, rib. P-protein, Jo-1, SRP, PL-7, PL-12, EJ, OJ and Ro-52** in serum or plasma for the diagnosis of primary biliary cirrhosis, systemic lupus erythematosus (SLE) and poly-/dermatomyositis.

Application: In the first international consensus on the standardised nomenclature of HEp-2 cell patterns in indirect immunofluorescence (www.anapatterns.org, 2014), 14 different cell patterns (Anti-Cell pattern, AC1-14) and nine cytoplasmic patterns (Anti-Cell pattern, AC15 - 23) were defined. The EUROLINE Cytoplasm Profile (IgG) offers a multiplex approach for the detection of 10 autoantibodies that cause some of the cytoplasmic patterns described in the consensus, in one incubation, with optional fully automated processing and objective evaluation of the test results using the EUROLineScan software. Cytoplasmic antibodies are often difficult to recognise in indirect immunofluorescence. Consequently, their monospecific detection is of particular importance.

Principles of the test: The test kit contains test strips coated with parallel lines of highly purified antigens. In the first reaction step, the immunoblot strips are incubated with diluted patient samples. In the case of positive samples, the specific IgG antibodies (also IgA and IgM) will bind to the corresponding antigenic site. To detect the bound antibodies, a second incubation is carried out using an enzyme-labelled anti-human IgG (enzyme conjugate) catalysing a colour reaction.

Contents of the test kit:

Component	Format	Format	Symbol
1. Test strips coated with the antigens: AMA-M2, M2-3E, rib. P-protein, Jo-1, SRP, PL-7, PL-12, EJ, OJ and Ro-52	16 strips	4 x 16 strips	STRIPS
2. Positive control (IgG, human), 100x concentrate	1 x 0.02 ml	4 x 0.02 ml	POS CONTROL 100x
3. Enzyme conjugate Alkaline phosphatase-labelled anti-human IgG (goat), 10x concentrate	1 x 3 ml	4 x 3 ml	CONJUGATE 10x
4. Sample buffer ready for use	1 x 100 ml	3 x 100 ml	SAMPLE BUFFER
5. Wash buffer 10x concentrate	1 x 50 ml	1 x 100 ml	WASH BUFFER 10x
6. Substrate solution Nitro blue tetrazolium chloride/5-Bromo-4-chloro-3-indolylphosphate (NBT/BCIP), ready for use	1 x 30 ml	4 x 30 ml	SUBSTRATE
7. Incubation tray	2 x 8 channels	---	
8. Test instruction	1 booklet	1 booklet	

LOT Lot description
IVD In vitro diagnostics medical device
CE
Storage temperature
Unopened usable until

The following components are not provided in the test kits but can be ordered at EUROIMMUN under the respective order numbers.
Performance of the test requires an **incubation tray**:
ZD 9895-0130 Incubation tray with 30 channels
ZD 9898-0144 Incubation tray with 44 channels (black, for the EUROBlotOne and EUROBlotCamera system)

For the creation of work protocols and the evaluation of incubated test strips using **EUROLineScan,** green paper and adhesive foil are required:
ZD 9880-0101 Green paper (1 sheet)
ZD 9885-0116 Adhesive foil for approx. 16 test strips
ZD 9885-0130 Adhesive foil for approx. 30 test strips
If you wish to perform a **visual evaluation**, you may order the required evaluation protocol under:
ZD 1590-0101-35 G Visual evaluation protocol EUROLINE Cytoplasm profile (IgG).

Preparation and stability of the reagents

Note: All reagents must be brought to room temperature (+18°C to +25°C) approx. 30 minutes before use. Unopened, reagents are stable until the indicated expiry date when stored at +2°C to +8°C. After initial opening, reagents are stable for 12 months or until the expiry date, unless stated otherwise in the instructions. Opened reagents must also be stored at +2°C to +8°C and protected from contamination.

- **Coated test strips:** Ready for use. Open the package with the test strips only when the strips have reached room temperature (+18°C to +25°C) to prevent condensation on the strips. After removal of the strips the package should be sealed tightly and stored at +2°C to +8°C.

- **Positive control:** The control is a 100x concentrate. For the preparation of the ready for use control the amount required should be removed from the bottle using a clean pipette and diluted 1:101 with sample buffer. Example: add 15 µl of control to 1.5 ml of sample buffer and mix thoroughly. The ready for use diluted control should be used at the same working day.

- **Enzyme conjugate:** The enzyme conjugate is supplied as a 10x concentrate. For the preparation of the ready for use enzyme conjugate the amount required should be removed from the bottle using a clean pipette and diluted 1:10 with sample buffer. For one test strip, dilute 0.15 ml enzyme conjugate with 1.35 ml sample buffer. The ready for use diluted enzyme conjugate should be used at the same working day.

- **Sample buffer:** Ready for use.

- **Wash buffer:** The wash buffer is supplied as a 10x concentrate. For the preparation of the ready for use wash buffer the amount required should be removed from the bottle using a clean pipette and diluted 1:10 with distilled water. For one test strip, dilute 1 ml in 9 ml of distilled water. The ready for use diluted wash buffer should be used at the same working day.

- **Substrate solution:** Ready for use. Close bottle immediately after use, as the contents are sensitive to light.

Storage and stability: The test kit must be stored at a temperature between +2°C to +8°C. Do not freeze. Unopened, all test kit components are stable until the indicated expiry date.

Waste disposal: Patient samples, controls and incubated test strips should be handled as infectious waste. Other reagents do not need to be collected separately, unless stated otherwise in official regulations.

Warning: The control of human origin has tested negative for HBsAg, and antibodies against HCV, HIV-1 and HIV-2. Nonetheless all materials should be treated as being a potential infection hazard and should be handled with care. Some of the reagents contain the agent sodium azide in a non-declarable concentration. Avoid skin contact.

Preparation and stability of the patient samples

Samples: Human serum or EDTA, heparin or citrate plasma.

Stability: Patient samples to be investigated can generally be stored at +2°C to +8°C for up to 14 days. Diluted samples should be incubated within one working day.

Sample dilution: The **patient samples** for analysis are diluted **1:101** with sample buffer using a clean pipette tip. For example, add 15 µl of sample to 1.5 ml sample buffer and mix well by vortexing. Sample pipettes are not suitable for mixing.

Incubation

Pretreat:	Remove the required amount of test strips from the package and place them each in an empty channel. (Make sure that the surface of the test strips is not damaged!). The number on the test strip should be visible. Fill the channels of the incubation tray according to the number of serum samples to be tested with 1.5 ml sample buffer each. Incubate for **5 minutes** at room temperature (+18°C to +25°C) on a rocking shaker. Afterwards aspirate off all the liquid.
Incubate: (1st step)	Fill each channel with 1.5 ml of the diluted serum samples using a clean pipette tip. Incubate at room temperature (+18°C to +25°C) for **30 minutes** on a rocking shaker.
Wash:	Aspirate off the liquid from each channel and wash **3 x 5 minutes** each with 1.5 ml working strength wash buffer on a rocking shaker.
Incubate: (2nd step)	Pipette 1.5 ml diluted enzyme conjugate (alkaline phosphatase-labelled anti-human IgG) into each channel. Incubate for **30 minutes** at room temperature (+18°C to +25°C) on a rocking shaker.
Wash:	Aspirate off the liquid from each channel. Wash as described above.
Incubate: (3rd step)	Pipette 1.5 ml substrate solution into the channels of the incubation tray. Incubate for **10 minutes** at room temperature (+18°C to +25°C) on a rocking shaker.
Stop:	Aspirate off the liquid from each channel and wash each strip **3 x 1 minute** with distilled water.
Evaluate:	Place test strip on the evaluation protocol, air dry and evaluate.

For automated incubation with the **EUROBlotMaster** select the program **Euro 01 AAK EL30.**

For automated incubation with the **EUROBlotOne** select the program **EURO 01/02**.

EUROLINE Cytoplasm Profile (IgG)

Incubation protocol

Pretreat
Put the test strip into the incubation channel and fill each channel with 1.5 ml sample buffer

5 min — Shake

1. Step: Incubate
Aspirate off, pipette 1.5 ml of diluted serum sample (1:101) into the incubation channel

30 min — Shake

Wash
Aspirate off, wash 3 x 5 min with 1.5 ml working strength wash buffer each

2. Step: Incubate
Aspirate off, pipette 1.5 ml enzyme conjugate into the incubation channel

30 min — Shake

Wash
Aspirate off, wash 3 x 5 min with 1.5 ml working strength wash buffer each

3. Step: Incubate
Aspirate off, pipette 1.5 ml substrate into the incubation channel

10 min — Shake

Stop
Aspirate off, rinse three times with 1.5 ml distilled water

Evaluation
EUROLineScan (digital)

Interpretation of results

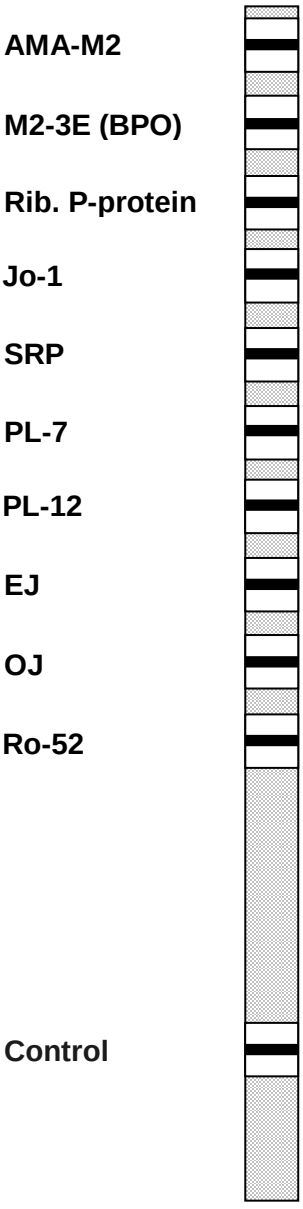
Handling: For the evaluation of incubated test strips we generally recommend using the **EUROLineScan** software. After stopping the reaction using deionised or distilled water, place the incubated test strips onto the adhesive foil of the green work protocol using a pair of tweezers. The position of the test strips can be corrected while they are wet. As soon as all test strips have been placed onto the protocol, they should be pressed hard using filter paper and left to air-dry. After they have dried, the test strips will be stuck to the adhesive foil. The dry test strips are then scanned using a flatbed scanner (EUROIMMUN AG) and evaluated with **EUROLineScan.** Alternatively, imaging and evaluation is possible directly from the incubation trays (EUROBlotCamera and EUROBlotOne). For general information about the EUROLineScan program please refer to the EUROLineScan user manual (EUROIMMUN AG). The code for entering the **test** into EUROLineScan is **CyPro.**

If a visual evaluation must be performed, place the incubated test strips onto the respective work protocol for visual evaluation. This protocol is available at EUROIMMUN under the order no. ZD 1590-0101-35 G.

Attention: Correct performance of the incubation is confirmed by an intensive staining of the control band. A white band at the position of an antigen has to be interpreted as negative.

Antigens and their arrangement on the strips: The EUROLINE test strips have been coated with the following antigens:

Antigen	AC	Description
AMA-M2	AC-21	Highly purified proteins of the pyruvate dehydrogenase complex (mitochondrial antigen M2)
M2-3E (BPO)	AC-21	Recombinant fusion protein. The recombinant protein was prepared in E. coli and comprises the immunogenic regions of the E2 subunits of branched chain keto acid dehydrogenase (**B**COADH), pyruvate dehydrogenase (**P**DH) and ketoglutarate dehydrogenase (**O**GDH)
Rib. P-protein	AC-19	Ribosomal P-proteins, purified by affinity chromatography, isolated from bovine and rabbit thymus
Jo-1	AC-20	Jo-1 antigen (histidyl-tRNA synthetase), purified by affinity chromatography, isolated from calf and rabbit thymus
SRP	AC-19	Recombinant SRP protein (54 kDa, signal recognition particle). Human cDNA/baculovirus vector/insect cells
PL-7	AC-19	Recombinant PL-7 protein (threonyl tRNA synthetase). Human cDNA/baculovirus vector/insect cells
PL-12	AC-19	Recombinant PL-12 protein (alanyl-tRNA synthetase). Human cDNA/baculovirus vector/insect cells
EJ	AC-19	Recombinant EJ protein (glycyl-tRNA synthetase). Human cDNA/E. coli
OJ	AC-19	Recombinant OJ protein (isoleucyl tRNA synthetase). Human cDNA/E. coli
Ro-52	AC-19/20	Recombinant Ro-52 (52 kDa). Human cDNA/ baculovirus vector/insect cells



EUROIMMUN recommends interpreting results based on the signal intensity:

Signal Visual evaluation	**Signal intensity EUROLineScan Flatbed scanner**	**Result**	
No signal	0-5	o	Negative
Very weak band	6-10	(+)	Borderline
Medium to strong band	11-25 or 26-50	+, ++	Positive
Very strong band with an intensity comparable to the control band	>50	+++	Strong positive

Results in the **borderline range** from 6 to 10 should be evaluated as increased but negative. The table above contains **values** for the evaluation using a flatbed scanner. The **values** for other instruments supported by EUROLineScan can be found in the EUROLineScan program. To do so mark the corresponding assay in the test list ("Help" → "Test") and click on details and select **the corresponding instrument** in **"image source"**.

For diagnosis, the clinical picture of the patient always needs to be taken into account along with the serological findings.

Test characteristics

Measurement range: The EUROLINE is a qualitative method. No measurement range is provided.

Cross reactions: The high analytical specificity of the test system is guaranteed by the quality of the antigen substrates used (antigens and antigen sources). This EUROLINE specifically detects IgG class antibodies to AMA-M2, M2-3E, rib. P-protein, Jo-1, SRP, PL-7, PL-12, EJ, OJ and Ro-52. No cross reactions with other autoantibodies have been found.

Interference: Haemolytic, lipaemic and icteric sera up to a concentration of 5 mg/ml for haemoglobin, of 20 mg/ml for triglycerides and of 0.4 mg/ml bilirubin showed no effect on the analytical results of the present EUROLINE.

Inter- and intra-assay variation: The inter-assay variation was determined by multiple analyses of characterised samples over several days. The intra-assay variation was determined by multiple analyses of characterised samples on one day. In every case, the intensity of the bands was within the specified range. This EUROLINE displays excellent inter- and intra-assay reproducibility.

Sensitivity, specificity and prevalence:
Antibodies against AMA-M2 and M2-3E (BPO):
Sera from 170 patients with clinically characterised primary biliary cirrhosis (PBC), 49 sera from patients with autoimmune hepatitis (AIH), 200 sera from patients with viral hepatitis (HCV or HBV) and 50 sera from healthy blood donors were investigated for antibodies against AMA-M2 and M2-3E (BPO).

Panel	**AMA-M2**	**M2-3E (BPO)**	**AMA-M2/ M2-3E (BPO)**
PBC (n = 170)	138 (81 %)	146 (86 %)	150 (88 %)
AIH (n = 49)*	4 (8 %)	2 (4 %)	4 (8 %)
Viral hepatitis (n = 200)	0	0	0
Blood donors (n = 50)	0	0	0

* Four patients from the AIH patient panel could be characterised as PBC/AIH overlap patients based on the study results.

In the panel of PBC patients (n = 170) a sensitivity of 88% at a specificity of 100% (panels: viral hepatitis and blood donors, n = 250) was determined for the antigens AMA-M2 and M2-3E (BPO).

Antibodies against ribosomal P-protein:
The investigation of sera from 49 patients with SLE revealed a sensitivity of 82% for the detection of autoantibodies against ribosomal P-proteins with respect to the reference method ELISA. In sera from healthy blood donors (n = 50) and in sera from patients with non-SLE collagenoses (systemic sclerosis n = 18, Sjögren's syndrome n = 14), a specificity of 100% for the detection of autoantibodies against ribosomal P-protein was determined.

Antibodies against Jo-1, SRP, PL-7, PL-12, EJ and OJ:
Within the framework of a study performed by the University of Uppsala, Sweden, 153 sera from patients with clinically characterised myositis (50 patients with dermatomyositis, 89 patients with polymyositis, 4 patients with juvenile dermatomyositis and 10 patients with inclusion body myositis) and 77 sera from control patients (26 patients with Sjögren's syndrome, 26 patients with SLE and 25 patients with systemic sclerosis) were investigated for antibodies against Jo-1, PL-7 and PL-12. The resulting prevalences reach from 0 to 12% with a specificity for myositis of 100%.

Anti-	Prevalence	Specificity
Jo-1	12%	100%
PL-7	2%	100%
PL-12	0%	100%

Within the framework of a study performed by the University of Padua, Italy, 208 sera from patients with clinically characterised myositis and 214 sera from control patients (50 healthy persons, 13 patients with non-autoimmune myopathy, 23 sera from patients with CTD-associated myopathy, 65 patients with SLE, 34 patients with systemic sclerosis, 21 patients with primary Sjögren's syndrome, 8 patients with arthropathies) were investigated for antibodies against Jo-1, PL-7 and PL-12. The resulting prevalences reach from 4 to 21% with a specificity for myositis of 100%.

Anti-	Prevalence	Specificity
Jo-1	21%	100%
PL-7 or PL-12	4%	100%

Within the framework of another study, sera from 194 patients with SLE, 131 patients with poly-/dermatomyositis (PM/DM) and 50 patients with rheumatoid arthritis (RA) were investigated for antibodies against the antigens SRP, EJ and OJ. The resulting prevalences were 4% for antibodies against SRP, with a specificity for myositis of 99% and a prevalence of 1% for antibodies against EJ and OJ, with a specificity of 100%.

Anti-	Prevalence	Specificity
SRP	4 %	99 %
EJ	1 %	100 %
OJ	1 %	100 %

Antibodies against Ro-52:
Sera from 591 patients with rheumatic autoimmune diseases, from 260 patients with autoimmune and infectious liver diseases and from 50 healthy blood donors were investigated for antibodies against Ro-52 by using the EUROLINE system. Antibodies against Ro-52 are not associated to a specific disease, but are found in autoimmune and infectious diseases with a prevalence of 5 to 81%.

Disease	Prevalence of antibodies aginst Ro-52	
	Number of samples	Anti-Ro-52 positive (%)
Sjögren's syndrome	88	81
Systemic sclerosis	81	28
Myositis	26	31
SLE	210	38
MCTD	21	19
Rheumatoid arthritis	165	5
Primary biliary cirrhosis	100	27

Disease	Prevalence of antibodies aginst Ro-52	
Autoimmune hepatitis	60	35
Hepatitis B	50	10
Hepatitis C	50	22
Healthy blood donors	50	0

Reference range: The reference range was determined with a sample panel of healthy blood donors (n = 50). All blood donors were negative.

Clinical significance

In the case of positive test results, the EUROLINE Profiles support significant serodiagnostical statements on the detection of the following inflammatory rheumatic diseases and further autoimmune diseases, e.g. primary biliary cirrhosis (PBC).

1. Systemic lupus erythematosus (SLE).

   SLE is a chronic inflammatory autoimmune disease which occurs in phases and mainly affects the connective tissue and various organ systems. Worldwide, women are ten times more frequently affected by collagenoses than men, whereby there are regional differences, e.g. 12.5 in 100,000 women in central Europe and up to 100 in 100,000 women in the US have SLE. The predilection age is between 15 and 30 years. The clinical symptoms vary greatly and can include butterfly erythema, discoid hyperkeratotic skin changes, purpura, arthralgia, myalgia, kidney insufficiency, neuropsychiatric abnormalities, polyneuropathy, pericarditis, cardiomyopathy, pleuritis, lung fibrosis, anaemia, hepatomegaly and splenomegaly. An SLE attack is often accompanied by fever.

2. Sharp syndrome (mixed connective tissue disease = MCTD)

   Sharp syndrome is a multi-symptomatic and multiform MCTD combining symptoms of rheumatoid arthritis (RA), SLE, systemic sclerosis (SSc) and polymyositis. It has not yet been clarified if it is an independent disease.

3. Sjögren's syndrome (primary Sjögren's syndrome, SS)

   SS is a chronic inflammatory autoimmune disease of the exocrine glands which can be found in one to four million people in the US alone. Nine out of ten patients are women. The main clinical feature of primary SS is ocular and oral dryness as a result of the destruction of lachrymal and salivary glands by lymphocytic infiltration. The pancreatic glands, the mucous secreting glands of the intestine, bronchia or vagina and the sudoriferous glands may also be affected. Around 5% of SS patients develop malignant lymphoma. In secondary SS the disease signs of primary SS occur as accompanying symptoms of RA, SSc, SLE, polymyositis/dermatomyositis, PBC and AIH.

4. Systemic sclerosis (systemic scleroderma, SSc)

   SSc is an autoimmune connective tissue disease, which affects the skin and the inner organs. It affects around 2 to 50 in 100,000 persons worldwide (USA: 25 in 100,000), and is around three to four times more common in women than in men.

   Shortening of the lingual frenum and Raynaud's syndrome are early symptoms of SSc. In the following phase oedema of the hands and feet develop. The skin becomes stiff and in later stages atrophic, waxy and thin. Finally, deformation of the hands occurs. The fingers become fixed in a bent position (claw hand) and are highly tapered at the ends (Madonna fingers). Furthermore, the characteristic masklike face with rigid mimic develops. Finally, callosity of the inner organs, particularly of the digestive tract, lungs, heart and kidneys occurs. At present, lung involvement is the most frequent cause of death from SSc. Manifest SSc is the collagenosis with the highest vital risk for the patient. The 10-year survival rate is 55%.

   SSc is divided into limited and diffuse forms, depending on the cutaneous distribution. In the limited form, skin involvement is limited to the distal extremities. In the diffuse form (also proximal systemic sclerosis) the symptoms are diffusely distributed over the trunk, the proximal and distal extremities and the face.

5. Myositis (poly-/dermatomyositis)

   The autoimmunogenic myositides (idiopathic inflammatory myopathies) are systemic autoimmune diseases with inflammation of the skeletal musculature, symmetric and proximal accentuated pain and muscle weakness. They occur with an incidence of 0.1-1/100,000/year, a prevalence of 1-6/100,000 and ratio of men to women of 1 to 2. They can be divided into polymyositis of adults (around 30%), dermatomyositis of adults (around 30%), paraneoplastic polymyositis of the lungs, ovaries, mammary glands, gastrointestinal tract and in myeloproliferative diseases (around 8%), infantile myositis/dermatomyositis with accompanying vasculitis (around 7%), as well as myositides in association with autoimmune diseases such as RA, lupus erythematosus, MCTD and rare forms such as granulomatosis, eosinophile, focal and inclusion body myositis (around 20%).

   It should be noted that dermato-/polymyositis is often of paraneoplastic origin, particularly in elderly patients. Dermatomyositis symptoms can occur before the tumour is even diagnostically detectable.

   Polymyositis (PM) is a systemic inflammatory disease of the skeletal muscles of unknown aetiology with perivascular lymphocytic infiltration. When the skin is involved, the disease is known as dermatomyositis (DM). Clinical symptoms of PM are recurring bouts of fever, muscle weakness, arthralgia, possibly Raynaud's syndrome, trouble with swallowing and involvement of the inner organs. In DM, skin symptoms appear as purple-coloured exanthema on the eye lids, nose bridge and cheeks, periorbital oedema, local erythema and scaly eczema dermatitis.

6. Rheumatoid arthritis (RA)

   RA is both one of the most common autoimmune disorders and also the most common chronic inflammatory joint disease. The disease affects around 1% of the world population, whereby 75% of patients are female. It is characterised by inflammation of the synovial membrane, which spreads symmetrically from the small to large joints leading to the destruction of the joints in the late phase accompanied by a systemic involvement of the soft tissue. Initial symptoms include painful swelling of basic finger joints with morning stiffness in the joints. Reliable and earliest possible diagnosis is indispensable to keep the disease under control with suitable therapy and to avoid irreversible joint damage.

7. ANA-associated autoimmune disease primary biliary cirrhosis (PBC)

   PBC is a chronic non-suppurative destructive cholangitis with progressive inflammatory destruction of the small biliary ducts and liver cirrhosis in the final stage. In 80 to 90% of cases the patients are female, mainly between 20 and 60 years of age. In rare cases, the disease also affects children. In Germany the prevalence is around 3-4 cases per 100,000 inhabitants. Demographic differences (Caucasians, Africans, etc.) are minimal.

   PBC can be subdivided into various stages using liver biopsy. In around 6% of cases there is an increased risk of hepatocellular carcinoma. In the final stage of PBC (decompensated cirrhosis) only liver transplantation will save the patient's life. In around 75% of cases the transplant patients recover fully from PBC. Some patients, however, suffer a PBC relapse after transplantation, but only with a very slow disease course.

   In addition to the typical PBC histological characteristics, specific serodiagnostic parameters are important for confirming suspected cases of PBC: 1. Biochemical markers of cholestasis, such as increased levels of alkaline phosphatase (AP) and gamma-glutamyl transferase (γGT) in serum, 2. Presence of PBC-specific autoantibodies, in particular autoantibodies against mitochondria (AMA) which are directed against the component M2 (family of oxo-acid dehydrogenases), and 3. Additional determination of ANA, in particular against nuclear granules (nuclear dots, sp100 and PML) and against nuclear membrane (gp210), which are also pathognomonically relevant. Autoantibodies against centromere proteins are found regularly in a proportion of patients with overlap syndrome with SSc.

Autoantibodys against	Autoimmune disease	Prevalence
AMA-M2 and/or M2-3E (BPO)	Primary biliary cirrhosis	80%-96%
Rib. P-protein	SLE	approx.10%
Jo-1	Myositis	25%-35%
SRP	Myositis	1%- 5%
PL-7	Myositis	3%-6%
PL-12	Myositis	1%-3%
EJ	Myositis	1%-3%
OJ	Myositis	1%-3%
Ro-52	Sjögren's syndrome, SLE, SSc, myositis and others	20%-90%

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