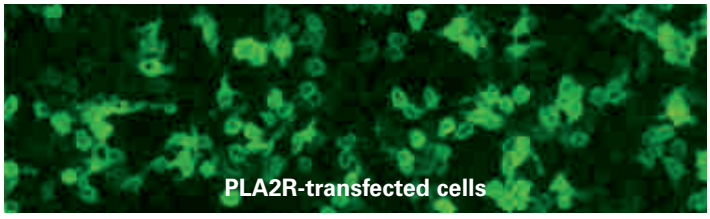
Anti-Phospholipase A2 Receptor IIFT (IgG)



- **High sensitivity and maximal specificity for primary membranous nephropathy (MN)**
- **Ideally suited for differentiation of primary and secondary MN**
- **Reliable screening test for qualitative and semiquantitative autoantibody determination**

Technical data

Antigen substrate	Transfected cells and control-transfected cells (EU 90)
Sample material	Serum or plasma
Sample dilution	Qualitative 1:10; semiquantitative: 1:10, 1:100, 1:1000 etc.
Reagents	Ready for use, with the exception of the PBS Tween buffer
Test procedure	30 min (sample) / 30 min (conjugate), room temperature
Microscopy	Objective: 20x, light source: EUROIMMUN LED, EUROStar Bluelight or mercury vapour lamp, 100 W Excitation filter: 450-490 nm, colour separator: 510 nm, blocking filter: 515 nm
Stability	18 months from the date of manufacture if stored at +2 °C to +8 °C
Test kit format	10 slides, each containing 3, 5 or 10 test fields
Order number	**FA 1254-####-50 G**

Clinical significance

Primary MN is a chronic inflammatory disease of the glomeruli which is accompanied by a progressive impairment of the kidney function. The underlying autoimmune mechanism, which was first discovered and described in 2009, is the result of autoantibodies reacting with phospholipase A_2 receptors (PLA_2R), which are expressed in human glomeruli on the surface of podocytes. As a result, the podocytes are damaged and protein enters the primary urine (proteinuria). Primary MN is the most frequent kidney disorder with nephrotic syndrome. With increasing proteinuria, the long-term risk of kidney failure with major morbidity and mortality rises, particularly in connection with thromboembolic and cardiovascular complications. Primary MN is prevalent in all ethnic groups and genders, with men over 40 years of age and of white skin colour being more frequently affected. In young women with suspected primary MN, lupus nephritis should be considered. Primary MN is rare in children (only 2 % to 3 % of kidney disorders in children). Primary MN should be discriminated from secondary membranous nephropathy, which is a secondary disease that can occur in infections, in drug therapy or abuse or intake of toxins, in collagenoses and other autoimmune diseases and in tumours, and which improves with treatment of the underlying disease. The treatment of primary MN improves prognosis, particularly with respect to nephrotic syndrome and hypertonicity. Since 2014 it has been known that some of the patients who are seronegative for anti-PLA_2R exhibit circulating autoantibodies against THSD7A (thrombospondin type 1 domain containing 7A), which are specific for primary MN. The prevalence of anti-THSD7A in different cohorts seronegative for anti-PLA_2R range from 2 % to 14 %.

Diagnostic application

The Anti-Phospholipase A_2 Receptor (PLA_2R) IIFT is a well-established screening test for qualitative and semiquantitative serological detection of anti-PLA_2R antibodies. Autoantibodies of class IgG against PLA_2R are highly specific for the diagnosis of primary MN and can be detected in the serum of up to 75 % of patients. In healthy persons and patients with secondary MN anti-PLA_2R autoantibodies are only very rarely found. Therefore, the detection of these antibodies is helpful in the differentiation of primary and secondary MN. The anti-PLA_2R antibody titer is suited for assessing the therapy success. A titer increase, decrease or disappearance precedes a change in the clinical status. Thus, the determination of the antibody titer has a high predictive value with respect to clinical remission or relapse and risk estimation after kidney transplantation.

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Evaluation

Fluorescence pattern (positive reaction): Antibodies against phospholipase A_2 receptor (PLA_2R) react with the transfected cells of the substrate. They cause a fluorescence of the cytoplasm, partly including the cell membrane. The cell nuclei are only weakly stained.

Reference range

Titer 1:< 10 The following antibody prevalences were determined using a panel of samples from healthy blood donors (origin: Germany):

Substrate	Antibodies against	Conjugate	Prevalence	Cut-off	Number of samples
PLA_2R-transfected cells	**PLA_2R**	IgG	0%	1:10	178

Sensitivity and specificity

A total of 560 clinically characterised samples (275 from patients with primary membranous nephropathy (MN), 285 from control groups) were investigated for anti-PLA_2R antibodies (IgG) in different clinical studies. Primary MN diagnosis was based on kidney biopsy. The disease was considered as idiopathic/primary when no secondary cause of MN was suspected on the basis of clinical and laboratory criteria. The samples were drawn eight weeks after biopsy, before treatment. Patients who had been or were being treated with immunosuppressive drugs at that time were excluded, as were patients with a history of medication and neoplasia. With the Anti-PLA_2R IIFT using the cut-off dilution of 1:10, a sensitivity of 77.1% was found in MN, which is the expected value of approx. 75% reported in scientific literature. The specificity was 100%.

Cohort (n = 560)	n	Anti-PLA_2R IIFT positive
Primary MN	275	212
Clinical sensitivity	**275**	**77.1%**
Secondary MN	68	0
Non-membranous MN	63	0
Systemic lupus erythematosus	30	0
Systemic sclerosis	30	0
Psoriasis arthritis	30	0
Rheumatoid arthritis	14	0
Thyroiditis	50	0
Clinical specificity	**285**	**100%**

Literature

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