Autoantibodies against LKM 1 and LC 1

Cytochrome P450 2D6 is a member of a complex family of monooxygenases, which localizes to the endoplasmic reticulum (ER) and is involved in the detoxification of xenobiotic compounds. Upon cellular fractionation, this protein is found in the microsomal fraction representing the *in vitro* version of the ER. Cytochrome P450 2D6 is the molecular target of autoantibodies against the so-called "liver-kidney microsomal antigen 1" (LKM 1) that has been classically defined by its presence in the microsomal membranes and association with the rough ER in immunofluorescence microscopy. The presence of these autoantibodies has been reported by the International Autoimmune Hepatitis Group to be a characteristic of autoimmune hepatitis (AIH) type 2.

Recombinant cytochrome P450 2D6 has enabled the establishment of immunoassays for a better analysis of LKM 1 autoantibodies, which are reported to be potentially mixed up with anti-mitochondrial autoantibodies (AMA) in indirect immunofluorescence (IIF). In addition, this recombinant antigen allows the differentiation of cytochrome P450 2D6/LKM 1 autoantibodies from autoantibodies against other monooxygenases of the P450 family. This differentiation is not possible in IIF.

Formiminotransferase cyclodeaminase is a bifunctional enzyme, which forms tetramers and is involved in the metabolism of both histidine and the vitamine folate. Folate and its derivates are required for the synthesis of DNA, RNA, and amino acids.

Formiminotransferase cyclodeaminase is the antigen of liver cytosol antigen type 1 (LC 1) autoantibodies that was originally identified in the cytosolic fraction of human cells. LC 1 autoantibodies are reported to be present in approximately 30% of AIH type 2 patients and to occur together with LKM 1 autoantibodies. Although LC 1 autoantibodies give rise to a characteristic pattern in IIF, this pattern may be masked by concurrent LKM 1 autoantibodies. Therefore, using recombinant LC 1 in immunological assays may help to solve this limitation of IIF. Intriguingly, in approximately 10% of the patients, autoantibodies against LC 1 are reported to represent the only serological marker for AIH type 2.

DIARECT produces both cytochrome P450 2D6 (LKM 1 hp) and formiminotransferase cyclodeaminase (LC 1) in the baculovirus/insect cell system.

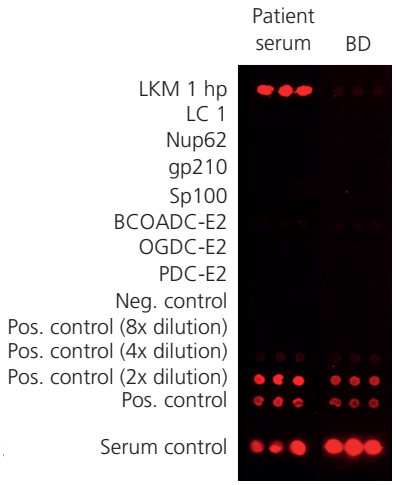


Figure 1: Immunodot analysis of serum from a blood donor (BD) and a patient serum (PS). Besides recombinant LKM 1 hp and LC 1, the following antigens of anti-mitochondrial autoantibodies (AMA) were included in the analysis: Nup62, gp210, Sp100, BCOADC-E2, OGDC-E2, PDC-E2.

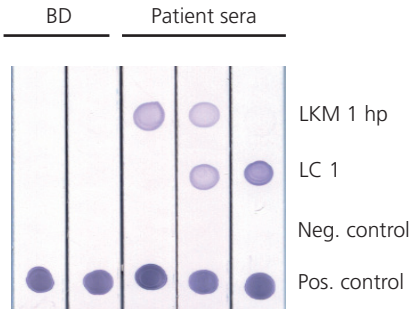
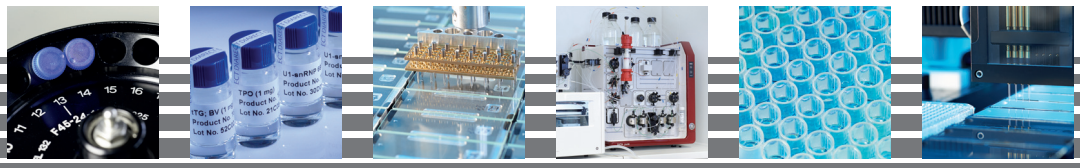


Figure 2: Immunodot analyses of sera from blood donors (BD) and patient sera using recombinant LKM 1 hp and LC 1.

References:
Abuaf *et al.* (1992) Hepatology. 16:892-898
Homberg *et al.* (1987) Hepatology. 7:1333-1339
Lapierre *et al.* (1999) Gastroenterology. 116:643-649
Liberal *et al.* (2014) Autoimmun Rev. 13:435-440
Rizzetto *et al.* (1973) Clin Exp Immunol. 15:331-344
Rizzetto *et al.* (1974) Immunology. 26:589-601

Ordering Information		
19800 19801	Cytochrome P450 2D6 (LKM 1 hp)	0.1 mg 1.0 mg
13700 13701	Formiminotransferase Cyclodeaminase (LC1)	0.1 mg 1.0 mg

In some countries the use of certain antigens in diagnostic tests may be protected by patents. DIARECT is not responsible for the determination of these issues and suggests clarification prior to use.



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