

# Antibodies against *Borrelia burgdorferi* Antigens

Lyme Disease is caused by different *Borrelia* species of the *B. burgdorferi sensu lato* complex that comprises at least 18 genospecies. Generally, the *Borrelia spp.* was long known as *Borrelia spp.* According to the findings of Adeolu and Gupta (2014) and official nomenclature changes by Oren and Garrity (2015) the species is now named *Borrelia*. This enables differentiation between Lyme Disease and Relapsing Fever spirochaetes, which are still classified *Borrelia spp.* While in Europe the pathogenic genospecies *B. afzelii*, *B. bavariensis*, *B. garinii*, *B. spielmanii*, and *B. burgdorferi sensu stricto* are present, the latter predominates in the United States (Stanek *et al.* 2012).

Several immunogenic proteins, often associated with the *Borrelia* outer membrane have been identified (Skare *et al.* 1995). These include outer surface proteins A and C (OspA, OspC) and neutrophil activating protein A (NapA)

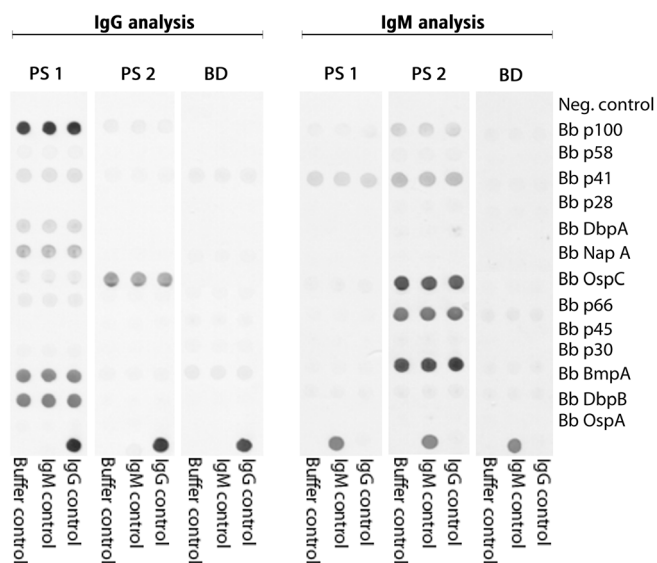


Figure: Immunodot analyses of negative (BD) and positive sera (PS1, PS2) for *Borrelia burgdorferi* (Bb). The presence of IgG (left) and IgM (right) antibodies was determined spotting triplicates of recombinant DIARECT antigens derived from *B. burgdorferi* on nitrocellulose membrane.

## Ordering Information

40500	<i>Borrelia burgdorferi</i> BmpA	0.1 mg
40501	<i>Borrelia burgdorferi</i> BmpA	1.0 mg
40400	<i>Borrelia burgdorferi</i> DbpA	0.1 mg
40401	<i>Borrelia burgdorferi</i> DbpA	1.0 mg
40600	<i>Borrelia burgdorferi</i> DbpB	0.1 mg
40601	<i>Borrelia burgdorferi</i> DbpB	1.0 mg
41300	<i>Borrelia burgdorferi</i> NapA	0.1 mg
41301	<i>Borrelia burgdorferi</i> NapA	1.0 mg
41200	<i>Borrelia burgdorferi</i> OspA	0.1 mg
41201	<i>Borrelia burgdorferi</i> OspA	1.0 mg
40300	<i>Borrelia burgdorferi</i> OspC	0.1 mg
40301	<i>Borrelia burgdorferi</i> OspC	1.0 mg
42500	<i>Borrelia burgdorferi</i> p28	0.1 mg
42501	<i>Borrelia burgdorferi</i> p28	1.0 mg
42600	<i>Borrelia burgdorferi</i> p30	0.1 mg
42601	<i>Borrelia burgdorferi</i> p30	1.0 mg
40200	<i>Borrelia burgdorferi</i> p41	0.1 mg
40201	<i>Borrelia burgdorferi</i> p41	1.0 mg
41500	<i>Borrelia burgdorferi</i> p45	0.1 mg
41501	<i>Borrelia burgdorferi</i> p45	1.0 mg
41600	<i>Borrelia burgdorferi</i> p58	0.1 mg
41601	<i>Borrelia burgdorferi</i> p58	1.0 mg
41700	<i>Borrelia burgdorferi</i> p66	0.1 mg
41701	<i>Borrelia burgdorferi</i> p66	1.0 mg
40100	<i>Borrelia burgdorferi</i> p100	0.1 mg
40101	<i>Borrelia burgdorferi</i> p100	1.0 mg
45700	<i>Borrelia burgdorferi</i> VlsE1	0.1 mg
45701	<i>Borrelia burgdorferi</i> VlsE1	1.0 mg

that appear to be important for infection and immune evasion (Borchers *et al.* 2015). The protein p28, also known as Oms28, is considered to play an important role in host-pathogen interaction (Cluss *et al.* 2004). The antigens p28 and p30 were found to be not detectable in all strains of *B. burgdorferi* (Das *et al.* 1996). Further immunogens are basic membrane protein A (BmpA), flagellar protein p41 (FlaB), p45, p66, p58, and p100. The most sensitive protein for IgG antibody detection in all stages of Lyme disease was found to be VlsE1 (Goettner *et al.* 2005).

DIARECT's recombinant *Borrelia burgdorferi* antigens are produced in either *E. coli* or the baculovirus/insect cell expression system.

## References:

- Adeolu and Gupta (2014) Anton Leeuw Int J G. 105: 1049-1072
- Borchers *et al.* (2015) J Autoimmun. 57: 82-115
- Cluss *et al.* (2004) Infect Immun. 72: 6279-6286
- Das *et al.* (1996) Res Microbiol. 147: 739-751
- Goettner *et al.* (2005) J Clinical Microbio. 43: 3602-3609
- Oren and Garrity (2015) Int J Syst Evol Microbiol. 65: 1105-1111
- Skare *et al.* (1995) J Clin Invest. 96: 2380-2392
- Stanek *et al.* (2012) Lancet. 379: 461-473

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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