

CLINICAL SPECIFICATIONS

KLEBSIELLA

Pathogen Type:

Klebsiella are gram-negative, facultative anaerobic, non-motile, rod-shaped bacteria. Array 12 assesses immune reactivity to *Klebsiella pneumoniae*, *Klebsiella oxytoca* and *Klebsiella pneumoniae uti*.

Associated With:

Liver abscess^{1,2,3}
 Ankylosing spondylitis⁴
 Antibiotic-associated hemorrhagic colitis⁵
 Rheumatoid arthritis⁶

Known Cross-Reactions: Collagen;⁶ Enterobacter aerogenes capsular polysaccharides;⁷ HLA-B27, spinal collagens⁸

Clinical Significance:

The detection of antibodies to *Klebsiella* indicates the patient has increased risk of joint, skeletal and eye autoimmunities. *Klebsiella* spp. are among the most common causes of a variety of community-acquired and hospital-acquired infections. *K. pneumoniae* has the capacity to silently colonize patients or hospital personnel by establishing residence in the gastrointestinal tract without causing any signs of infection.⁹ If invasive, *K. pneumoniae* has been seen in cases of liver abscesses, especially in Taiwan, Asia and the USA.^{1,2,3} *K. oxytoca* may reside in the colon of healthy individuals; however the use of antibiotics and/or anti-inflammatory therapies can result in overgrowth of *K. oxytoca* and its production of cytotoxins.^{5,10} *K. oxytoca* has been found in patients with septicemia, bacteremia, septic arthritis, soft tissue infections, cholecystitis, urinary tract infections, colic and Celiac disease.^{reviewed in 11}

This array tests for IgG immune reactivity associated with *Klebsiella*. This is not a measurement of acute infection. Equivocal or out-of-range results indicate IgG antibody reactivity to the tested antigen. We tested 288 blood donor sera against *Klebsiella* antigens at optimal dilution, 20% of these donors were IgG reactive.

References:

1. Braiteh and Golden. Cryptogenic invasive *Klebsiella pneumoniae* liver abscess syndrome. Int J Infect Dis, 2007; 11:16-22.
2. Chung, et al. Emerging invasive liver abscess caused by K1 serotype *Klebsiella pneumoniae* in Korea. J Infect, 2007; 54:578-583.
3. Lederman and Crum. Pyogenic liver abscess with a focus on *Klebsiella pneumoniae* as a primary pathogen: an emerging disease with unique clinical characteristics. Am J Gastroenterol, 2005; 100:322-331.
4. Ebringer, et al. Sequential studies in ankylosing spondylitis. Association of *Klebsiella pneumoniae* with active disease. Ann Rheum Dis, 1978; 37(2):146-151.
5. Högenauer, et al. *Klebsiella oxytoca* as a causative organism of antibiotic-associated hemorrhagic colitis. N Engl J Med, 2006; 355:2418-2426.
6. Lundberg, et al. Periodontitis in RA – the citrullinated enolase connection. Nat Rev Rheumatol, 2010; 6(12):727-30.
7. Cryz, et al. Immunological cross-reactivity between enterobacter aerogenes and *Klebsiella* capsular polysaccharides. Microb Pathog, 1990; 9(2):127-130.
8. Ebringer, et al. Ankylosing spondylitis, HLA-B27 and *Klebsiella* - an overview: proposal for early diagnosis and treatment. Curr Rheumatol Rev, 2006; 2(1):289-297.
9. Selden, et al. Nosocomial *Klebsiella* infections: Intestinal colonization as a reservoir. Ann. Intern. Med, 1971; 74:657-664.
10. Zollner-Schwet, et al. Role of *Klebsiella oxytoca* in antibiotic-associated diarrhea. Clin Infect Dis, 2008; 47:e74-e78.
11. Darby, et al. Cytotoxic and pathogenic properties of *Klebsiella oxytoca* isolated from laboratory animals. PLoS ONE, 2014; 9(7):e100542.