Technical Bulletin

Anti-Pseudomonas aeruginosa LPS antibody, Mouse monoclonal

Clone PSL-52, purified from hybridoma cell culture

SAB4200884

Product Description

Monoclonal Anti-*P. aeruginosa* LPS antibody (mouse IgG2b isotype) is derived from the PSL-52 hybridoma, produced by the fusion of mouse myeloma cells and splenocytes from a mouse immunized with LPS from *P. aeruginosa* (Cat. No. L8643) as immunogen. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents (Cat. No. ISO-2). The antibody is purified from culture supernatant of hybridoma cells.

The antibody has no cross reactivity with LPSs of *Proteus mirabilis, Porphyromonas gingivalis, E. coli, Akkermansia muciniphila* or *Salmonella enterica*. The antibody may be used in various immunochemical techniques including ELISA and immunoblotting. Detection of the *P. aeruginosa* LPS bands by immunoblotting is specifically inhibited by the immunogen.

Pseudomonas aeruginosa is a rod shaped, gram negative, monoflagellated, aerobic to facultative anaerobe bacteria which commonly inhabits soil and aqueous environments.[1,2] *P.aeruginosa* is considered an opportunistic human pathogen mainly causing disease in immunocompromised patients. It is especially fatal in cystic fibrosis (CF) patients, but also presents a major problem in chronic wounds, burn wounds and infection of implanted biomaterials such as catheters.[3]

P. aeruginosa is a major cause of nosocomial infections which affect more than 2 million patients every year and are accounted for around 90,000 deaths annually.[3] It forms highly resistant biofilms on human tissues such as the lungs of CF patients or medical surfaces. Once *P. aeruginosa* infection is established it is extremely hard to eradicate.[3] The genome of *P. aeruginosa* encodes a vast arsenal of virulence factors. However, the *P. aeruginosa* isolated from chronic infections expresses less virulence factors in comparison to isolates from acute infections but more readily form biofilms.[1,4-6]

P. aeruginosa cells possess a single flagellum and type 4 pili that are important for adhesion to the host epithelial cells, motility and can also initiate an inflammatory response.[1] After adhesion, *P. aeruginosa* activates Type 3 secretion system (T3SS) and injects cytotoxins into the host cell.[1] Moreover, *P. aeruginosa* secretes several proteases, which can degrade host complement, mucins, and disrupt tight junctions[6-7]. In addition to lipases and phospholipases, that degrade lipids in host cell membranes[6], and expresses Lipopolysaccharide (LPS), that is involved in inflammatory response and antibiotic resistance[8].

Antibiotic resistance to many classes of antibiotics is a major challange in *P. aeruginosa* treatment. *P. aeruginosa* possesses several resistance mechanisms such as, low permeability of the outer membrane, expression of membrane efflux (Mex) pumps, and β-lactamase and AmpC that hydrolases β-lactam antibiotics such as, penicillin[9]. In addition, as a result of genetic transfer new resistant strains emerge constantly. Therefore, finding new prevention and treatment strategies for *P. aeruginosa* infection is of high importance.[1]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline pH 7.4, containing 15 mM sodium azide as a preservative.

Precautions and Disclaimer

Unless otherwise stated in our catalog our products are intended for research use only and are not to be used for any other purpose, which includes but is not limited to, unauthorized commercial uses, in vitro diagnostic uses, ex vivo or in vivo therapeutic uses or any type of consumption or application to humans or animals.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting

A working concentration of 1-2 µg/mL is recommended using *P. aeruginosa* LPS.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working concentration by titration test.

References

1. Gellatly SL. and Hancock REW., *Pathog Dis*., **67**, 159–73 (2013).
2. Hassett DJ., *J Bacteriol*., **178**, 7322–5 (1996).
3. Mulcahy LR., et al., *Microb Ecol*., **68**, (2014).
4. Smith EE., et al., *P Natl Acad Sci USA*., **103**, 8487–92 (2006).
5. Sadikot RT., et al., *Am J Respir Crit Care Med*., **171**, 1209–23 (2005).
6. Kipnis E., et al., *Med Mal Infect*., **36**, 78–91 (2006).
7. Laarman AJ., et al., *J Immunol*., **188**, 386–93 (2012).
8. King JD., et al., *Innate Immun*., **15**, 261–312 (2009).
9. Strateva T and Yordanov D., *J Med Microbiol*., **58**, 1133–48 (2009).

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