

**POLISACHARYDOWA OTOCZKA K1
PAŁECZEK *ESCHERICHIA COLI*
I JEJ ZNACZENIE
W CHOROBYOTWÓRCZOŚCI
TYCH DROBNOUSTROJÓW**

Agnieszka Cisowska

1. Klasyfikacja otoczek pałeczek *Escherichia coli*. 2. Polisacharyd otoczkowy K1 *E. coli*.
3. Biologiczna rola otoczki. 4. Patogenność szczepów *E. coli* K1. 4.1. Zapalenie opon mózgowo-
rdzeniowych i bakteremia. 4.2. Zakażenie układu moczowego. 5. Podsumowanie

The polysaccharide capsule of *Escherichia coli* K1 rods and its importance for pathogenicity of these microorganisms

Abstract: Many *Escherichia coli* strains are covered in a layer of surface-associated polysaccharide called the capsule. Capsular polysaccharides represent a major surface antigen, the K antigen, and more than 80 distinct K serotypes results from structural diversity in these polymers. One of the most extensively studied bacterial capsules is the K1 serotype of *E. coli*. The K1 capsular polysaccharide of *E. coli* is an α 2,8-linked homopolymer of sialic acid (NeuNAc). Biosynthesis of the K1 capsule involves synthesis, activation, and polymerization of sialic acid subunits into a large polymer that must be transported across the inner and outer membranes and anchored to the cell surface. The genes encoding proteins necessary for these events have been isolated and characterized (*kps* gene cluster). In this review, the current understanding of the functions of the *kps* gene products is summarized. The K1 capsule is an important virulence determinant of pathogenic *E. coli* and has been shown to be associated with more than 80% of isolates from *E. coli* neonatal meningitis as well as the majority of isolates from neonatal septicaemia and childhood pyelonephritis. Recent studies with *E. coli* K1 have indicated that several microbial determinants such as the S fimbriae, OmpA, Ibe proteins, AslA, TraJ, and CNF1 contribute to invasion of brain microvascular endothelial cells, which is required for successful penetration into the central nervous system.

1. Capsule classification of *Escherichia coli* rods. 2. K1 capsular polysaccharide of *E. coli*.
3. Biological role of capsule. 4. Pathogenicity of *E. coli* K1 strains. 4.1. Meningitis and bacteremia.
4.2. Urinary tract infection. 5. Summary

Katedra i Zakład Biologii i Parazytologii Lekarskiej
Akademia Medyczna
ul. Mikulicza-Radeckiego 9, 50-367 Wrocław

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