

New antimicrobial protein with lytic properties against pathogenic strains of *Streptococcus agalactiae*



CUTTING EDGE TECHNOLOGY

Innovative antimicrobial recombinant protein EN534-C with lytic properties against pathogenic strains of *Streptococcus agalactiae*. EN534-C specifically binds to the substrate ligand of the bacteria peptidoglycan via the binding domain, and subsequently, by the enzymatic activity of the lytic domains, the chemical bond in the peptidoglycan of the bacterial cell wall is cleaved. EN534-C is characterized by lytic activity against a wider spectrum of Gram-positive bacteria: *Streptococcus agalactiae* GBS, *Paenibacillus larvae*, *Bacillus subtilis*, *Enterococcus faecalis*, and Gram-negative bacteria *Pseudomonas aeruginosa* and *Escherichia coli*, while at the same time it does not act lytically against *Lactobacillus jensenii*.

COMPETITIVE ADVANTAGE

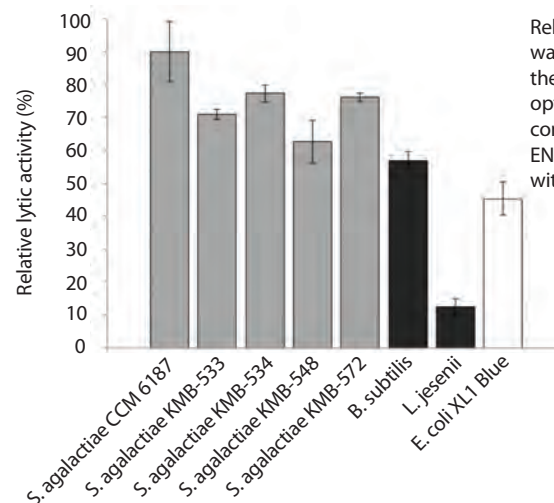
- high specificity,
- avoidance of negative side effects associated with the administration of antibiotics,
- low probability of bacterial resistance,
- the isolated protein is thermally stable in the temperature range from 20 °C to 37 °C and can be isolated at room temperature; this also reduces the energy requirements for the recombinant protein isolation in industrial use.

INDUSTRIAL APPLICABILITY

- mainly for the treatment, prevention or diagnosis of diseases caused by *Streptococcus agalactiae*,
- application in the case of multi-resistant streptococcal infections, not only in pregnant women and newborns, but also in other adults,
- great potential also in treatment of vaginal bacteremia and urogenital infections, and in applications and treatment of non-healing wounds and venous ulcers,
- potential for use also in the veterinary field, e.g. for treatment of mastitis or superficial infections in animals,
- isolated preparation of EN534-C can be also used for decontamination of surfaces and as a surface cleaning agent.

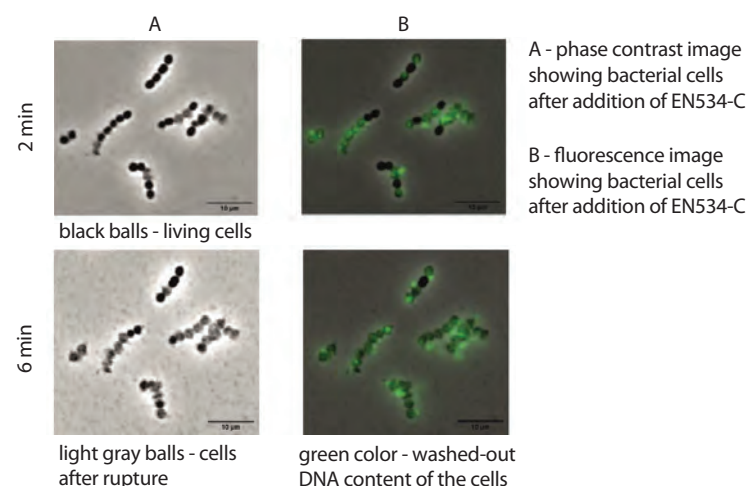
ANTIBACTERIAL SPECTRUM AND LYTIC ACTIVITY OF EN534-C

Antimicrobial spectrum of EN534-C



Relative lytic activity was determined as the ratio of decrease of optical density of the control sample (without EN534-C) to the sample with EN534-C.

Course of lytic activity of EN534-C



STAGE OF PROTECTION AND DEVELOPMENT

- priority SK patent application PP 50075-2020,
- TRL 4 – laboratory tested.

THE INVENTORS ARE LOOKING FOR AN INDUSTRIAL PARTNER FOR LICENSING/SELLING THE TECHNOLOGY.

The inventors use services of Technology Transfer Office of Slovak Academy of Sciences to market their invention. For more information please contact:



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