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Bacteriophage preparations affect the expression of genes involved in antimicrobial immune responses

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Background: Bacteriophages are used to combat antibiotic-resistant bacterial strains. Moreover, they are a major component of the mucous microbiota. The purpose of this study was to evaluate the effects of T4 and A5/80 bacteriophage preparations on the expression of genes involved in the induction and regulation of antimicrobial immune responses including toll-like receptors (TLRs).

Results & Methodology: The expression of genes was determined in A549 cell line using RT2 profiler PCR array. Purified T4 and A5/80 phage preparations affected the expression of 13 and 14 out of 84 examined genes, respectively. Genes of particular interest whose expression was substantially changed following phage treatment include TLR4, TLR10, CLEC4E and IL10.

Conclusions: Our results are important for phage therapy of bacterial infections and provide novel insights into the role of phages from the mucous microbiota. They may also lead to novel applications of phages as antiviral and immunomodulatory agents.

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Biography

Jan Borysowski, MD, PhD is an Assistant Professor at Department of Clinical Immunology, Medical University of Warsaw, Poland. His areas of professional interests include phage immunology and phage therapy of bacterial infections. He has published 35 articles and 7 book chapters, mostly on bacteriophages. Moreover he is the Lead Editor of the book "*Phage Therapy: Current Research and Applications*", the first comprehensive monograph of phage therapy published by Caister Academic Press.

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