

4<sup>th</sup> International Conference and Exhibition on

# Probiotics, Functional and Baby Foods

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*Alexander Sulakvelidze*

*Intralytix Inc., USA*

## Bacteriophages: From food safety to functional foods

Lytic bacteriophages/phages (viruses that kill bacteria) are the oldest and most ubiquitous microorganisms on Earth. Because of their potent, highly specific antibacterial activity, phages provide an all-natural, nontoxic and effective means for significantly reducing or eliminating bacterial pathogens present in various ecosystems. Several phage-based products have been recently introduced for improving food safety via direct food applications. These natural phage products, when properly applied, reduce significantly the levels of their bacterial hosts contaminating various foods without altering their flavors, aromas or appearances. Bacteriophages can also be used as new class of green, natural antimicrobials for a new series of probiotic or functional food products for gently enhancing the gut micro-flora. The approach of using lytic phages as functional foods/part of a probiotic diet is similar to that used for bacteria-based probiotics which are administered during a period of time and act by favorably conditioning the gut, mouth, skin micro-flora etc. The key difference between bacteria-based probiotics and lytic phage-based probiotics (designated “phagebiotics”) is that the former introduce non-pathogenic bacteria into the mammalian organism (in order to interfere with the ability of pathogenic bacteria to colonize and cause disease); whereas, the latter use lytic phage to kill specific pathogenic bacteria. Bacteriophages represent an emerging “green” technology that can help improve food safety and contribute to our health in a variety of other ways including through serving as the basis for a new class of functional foods/probiotics. The presentation will give the audience a current and novel perspective on the crucial technical, regulatory and human safety issues of this emerging technology.

## Biography

Alexander Sulakvelidze is a Vice President of R&D and Chief Scientist of Intralytix. He is an internationally recognized expert in phage technology. He has published extensively on the subject of phage therapy including co-editing a major book about bacteriophages in 2005. He is the author of several issued and pending patents in the field of phage therapy and bio-control. He is currently serving as Editor-in-Chief of the scientific journal *Bacteriophage* and as an *ad hoc* Reviewer for several other journals and funding agencies.

[asulakvelidze@intralytix.com](mailto:asulakvelidze@intralytix.com)

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