An Alternate Approach to Antibiotic Use for Swine Health

Tasia Joy Lightly[1], Karen LoVetri[1], Steven Theriault[1,2]

[1]Cytophage Technologies Inc., 26 Henlow Bay, Winnipeg, MB R3Y 1G4, info@cytophage.com
[2]University of Manitoba, Department of Microbiology, Winnipeg, MB R3T 2N2

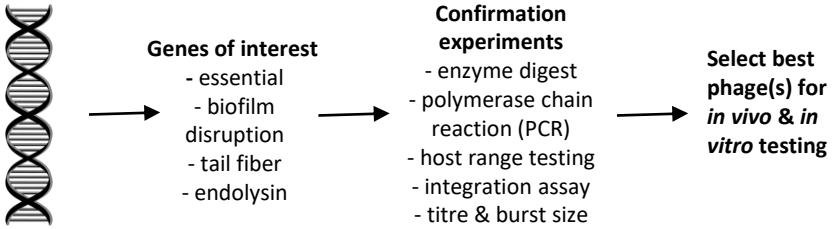
Background:

- Alternatives required as regulation of antibiotic use in Canadian agriculture increases.
- *Streptococcus suis* and enterotoxigenic *Escherichia coli* (ETEC) lead to high swine mortality and contamination of pork products.
- Bacteriophages (phages) are highly specific viruses that infect and destroy bacterial cells without disturbing the existing commensal bacterial gut flora.
- Cytophage Technologies Inc. is creating tailor-made phages as alternatives to antibiotics to prevent and treat bacterial infections.

Results and discussion:

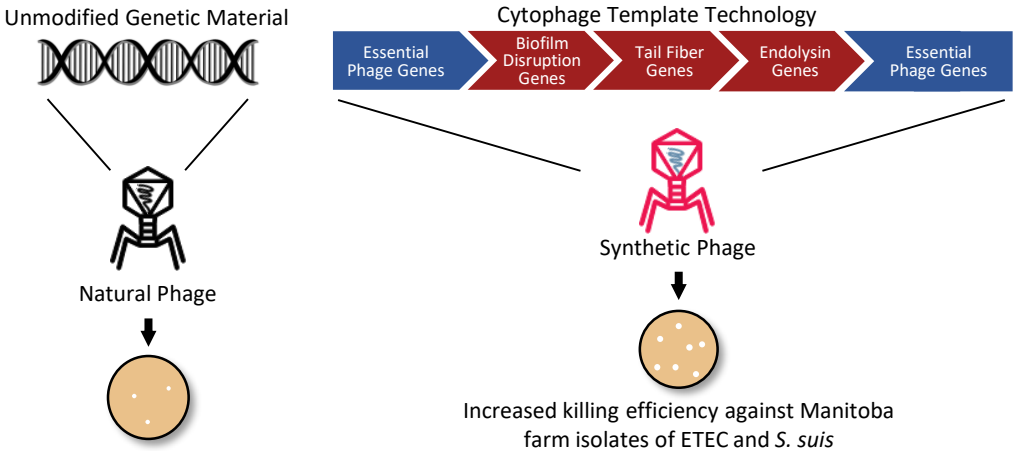
- Isolation of natural phages:

- DNA information:

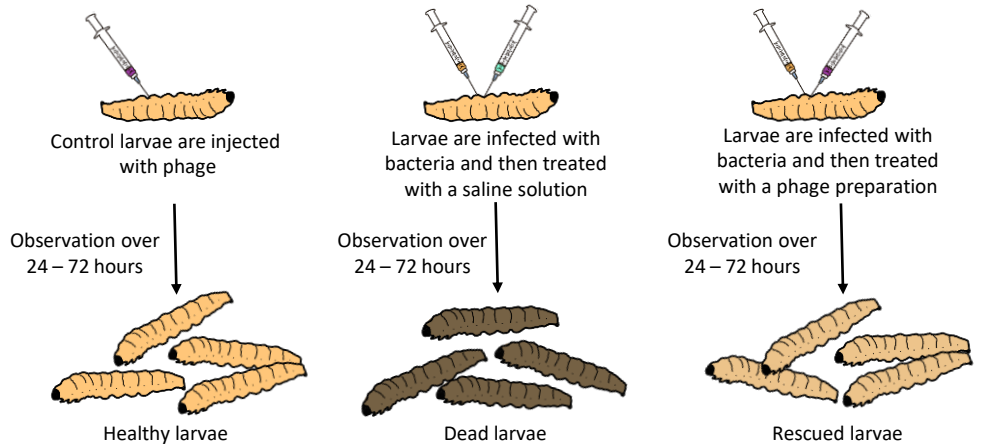


Sequencing of isolated bacteriophage brings unique knowledge about the genetic make up of the phage. This information is used to choose the best attributes to build a synthetic phage.

Results and discussion (continued):



The efficacy of the modified phages will be evaluated *in vivo* first using a *Galleria mellonella* (wax worm) model of infection and then promising candidates will be selected for animal trials.



Conclusions: Isolation of natural phages allows for the acquirement of genetic material that contributes to the development of targeted synthetic phages. *In vivo* wax worm model will provide proof of concept for safety and efficacy prior to an animal trial.

Bacteriophages present a safe alternative to antibiotics to help prevent and treat bacterial infections keeping livestock safe and profitable.

CYTOPHAGE
CANADIAN AGRICULTURAL PARTNERSHIP
Manitoba
Canada