

## Phages against bacteria infecting tomatoes

### Development status

#### Phase 1

**Basic research.** A pure research based on the already observed and published facts.


### IP protection status

a patent application has been filed

### Partnering strategy

*Collaboration, licensing*

### Institution

 **BIOLOGICKÉ  
CENTRUM**  
AV ČR, v. v. i.  
**Biology Centre of the Czech  
Academy of Sciences**

### Challenge

The European regulation on the use of chemicals to protect crops against pests, bacteria and viruses clears the way for the development of new bio-friendly products. We have focused on the area of tomato protection using phages against various strains of *Xanthomonas*. The commercial use of phages is not limited to tomatoes, but is also very useful for extending the shelf life of potatoes. However, the application of phages is much broader and goes beyond agricultural use.

### Description

Currently, a bacteriophage-based biopesticide against *X. campestris* and *Pseudomonas syringae* is marketed by Omnilytics, UT, in the United States under the name AgriPhage. No similar product is manufactured or used in Europe or the Czech Republic. Our institute is the discoverer and owner of a unique phage isolated from the Czech Republic, which has high lytic ability and can be used against strains of *Xanthomonas* sp. found in the Czech Republic/Europe. The advantage of this crop protection method is that no chemical intervention is required, no hazardous residues remain after the treatment effect is achieved, and there is no risk to the environment or human health. NGS sequencing, virus selection, specificity and activity of viruses on *Xanthomonas* bacteria were performed, purification and phage concentration were optimized and stability was tested. Laboratory and field tests were then performed. Selected phages were deposited in an international collection of organisms.

### Commercial opportunity

The research results are being used commercially by tomato growers to treat production against *Xanthomonas* strains. Treatment with phages does not reduce tomato yield due to infection.