

Commercialization of Research: Journey from the lab to making sustainable food supply

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<http://UniFAHS.com/>



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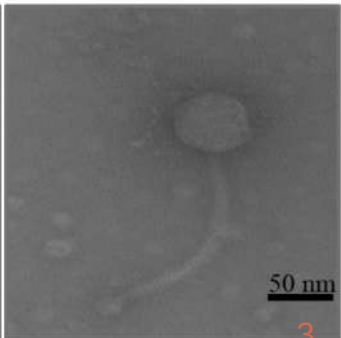
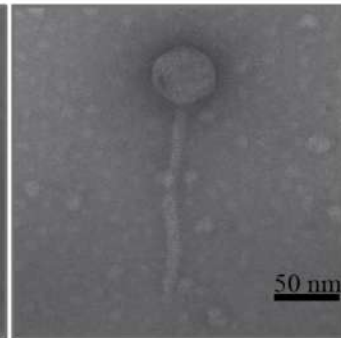
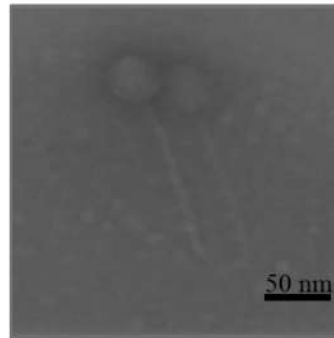
Food Scientist
Food Microbiologist
Bacteriophage Expert
Food/Feed Safety Expert

- ✓ 4 years of Undergraduate study at University of Guelph, Ontario, Canada >> B.Sc. (Food Science, Honors)
- ✓ 5 years of Graduate study at Cornell University, New York, USA >> Ph.D. (Food Science and Technology)

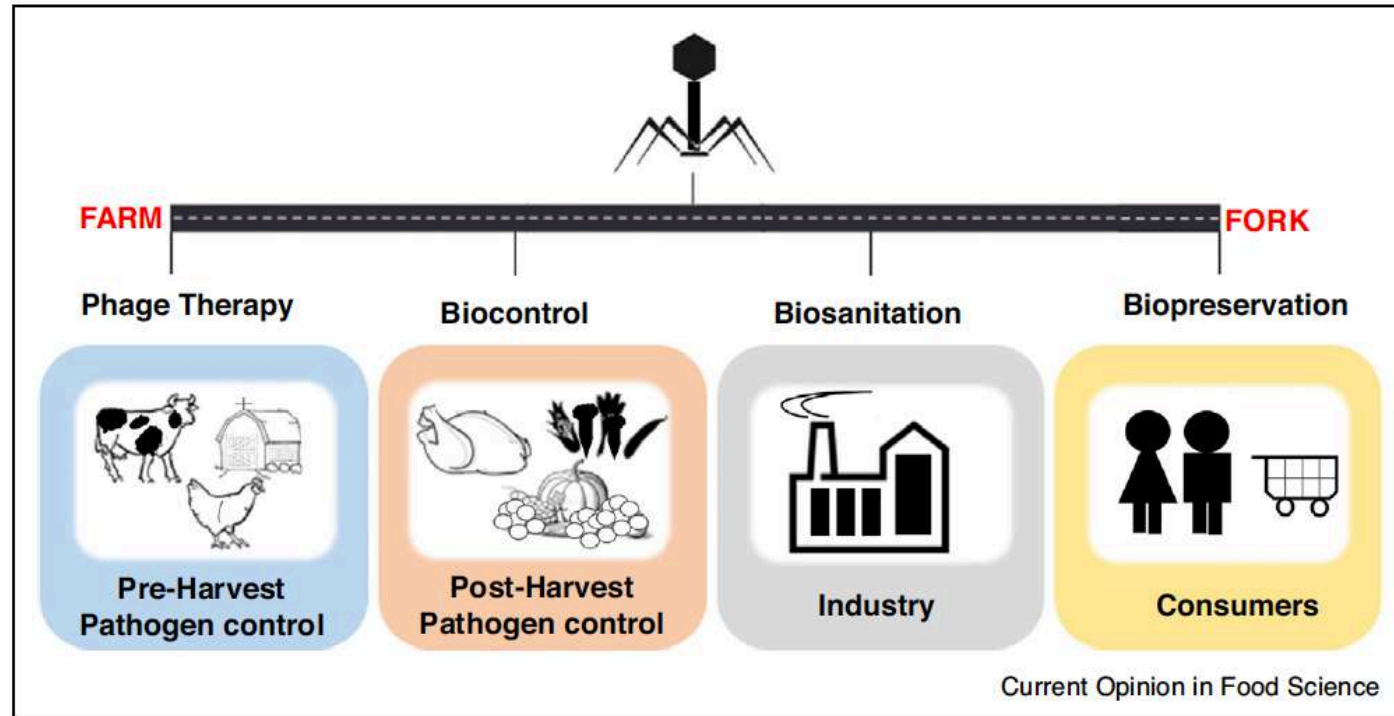


Bacteriophages

- **Most abundant** replicating biological entity on earth ($10^{31} - 10^{32}$) in environment, feed, food and water
- **Tiny: 0.2 – 0.4 microns** (5 – 10X smaller than bacteria)
- **Very specific** to bacterial hosts & highly effective bactericidal agents

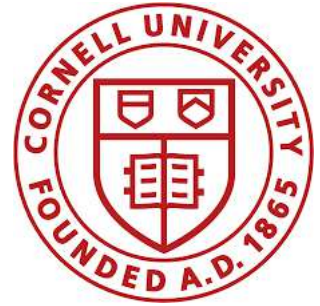


Phage application at each stage of the farm to fork process to ensure food safety



Endersen, L. and Coffey, A., 2020. The use of bacteriophages for food safety. doi.org/10.1016/j.cofs.2020.10.006

This is where my journey started...



2007-2012

- ✓ Bacteriophages targeting foodborne pathogens: *Listeria* phages / *Salmonella* phages
- ✓ Large collection of *Listeria* phages
- ✓ Whole genome sequencing data of *Listeria* phages
- ✓ In-vitro study – phage efficacy against foodborne pathogens
- ✓ Conferences / Peer-reviewed journals



From valuable "know-how", the journey continued since 2013...

- ✓ Bacteriophages targeting foodborne pathogens:
Listeria phages / *Salmonella* phages
- ✓ Large collection of phages
- ✓ Whole genome sequencing data
- ✓ In-vitro study – phage efficacy against foodborne pathogens
- ✓ Phage applications targeting foodborne pathogens in various food models / chickens
- ✓ Conferences / Peer-reviewed journals



Funding and Collaboration are keys to drive our project from TRL3 to TRL6

Funding Opportunities (2013-2019)

- The Agricultural Research Development Agency (Public Organization)
 - Thailand Science Park
 - Matching fund / Private & Government
-
- ✓ Basic and applied research (2013-2016)
 - ✓ Animal trials (2018)
 - ✓ Prototype development (2018)
 - ✓ Safety evaluation (2019)
 - ✓ Plans for scaling (2019)



Award for TRL6



The Geneva International Exhibition of Inventions

Innovative Award



Silver Medal Award 2018

**Novel encapsulated bacteriophage as a
biocontrol agent**

Leaders in Innovation Fellowships Programme (LIF) 2019

gained entrepreneurial skills

Great opportunity to have an experienced mentor – **Prof. Robert Carroll** (Nottingham University Business School & Director of Catapult Ventures)



2020: The most exiting journey – spinning out of the university

UNIFAHS

UNIQUE PHAGE-BASED SOLUTION FOR FOOD, ANIMAL AND HUMAN SAFETY

ABOUT UNIFAHS

The graphic features a central 3D model of a phage with a blue head and gold tail. To the right, three circular icons are arranged in a row: the top one shows a group of people at a table surrounded by various icons; the middle one shows a farm scene with a green barn, white sheep, and a sun; the bottom one shows a globe with a wind turbine and a plant growing from it. The background is a light blue, futuristic laboratory setting.

UniFAHS is a leader in phage biotechnology and applications, providing phage-based products as key solutions rather than antibiotics or chemicals, for farm to fork to promote safety in food, feed, animals and humans as well as to improve sustainability.



UniFAHS R&D Center



UniFAHS Production Center



Keep looking for opportunities to learn more from experts by joining incubation and accelerator programs...



Keep looking for partnership and opportunities to scale...



University of Manchester –
Innovation Factory



Alderley Park
Manchester Biogel



The University of Manchester



Franco-Thai Innovation and Startup Week 2023



Top 10 Livestock Management Trends in 2023



1454

Startups & emerging companies analyzed

A BETTER SOLUTION FOR GREEN & PREMIUM FOOD PRODUCTION

Our patented technology will contribute to more sustainable food supply chains, healthier people and animals on a happy planet



**THERE IS NO
PLANET B.**



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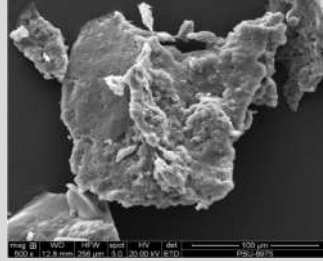
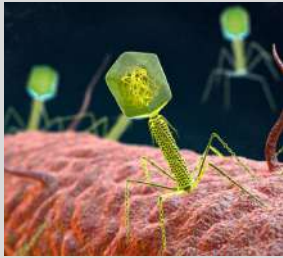
<http://unifahs.com/>



UniFAHS

UniFAHS' Phage Customization Platform

Biotech integrated to fit client's needs



Largest collection in SEA
>250 PHAGES in Phage Bank

IP: Phage Process and Encapsulation Tech

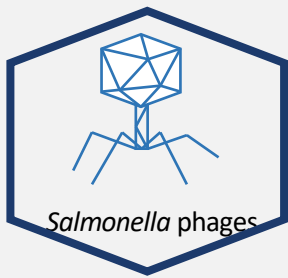
Client database: Bacteria History

Phage Screening & Cocktail Formulation

“Personalized Phage Treatment Program”



1st and Largest Phage Company in Southeast Asia



Salmonella phages



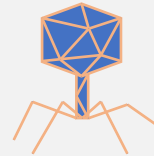
E.coli phages



Listeria phages



Vibrio phages



Customized phages

Phage Hub to Promote Food Safety and Sustainability For...



Livestock

Poultry Farm | Feed Mill



Food Processing

Meat | Seafood | RTE



Aquaculture

Shrimp Farm | Feed Mill



Produce / Crops

Fresh Vegetable/ Crops

PHAGEPROMPT PRODUCTS



PhagePrompt
**SALMO
GUARD**



PhagePrompt
**SALMO
GUARD
MEAT**



PhagePrompt
E.COLI



PhagePrompt
VIBRIO



PhagePrompt
LISTERIA

UniFAHS' Products

SALMO GUARD



Poultry farm solution

SALMO GUARD

MEAT



Meat processing solution



**TOP Poultry Producers for Export
in SE Asia Join This Solution**



No-Salmonella issue



**Testimonial – Largest Poultry Producer for
Export in Thailand (Top 3 in Asia)**



**Clients' satisfaction > 80% for the efficacy and
convenience**

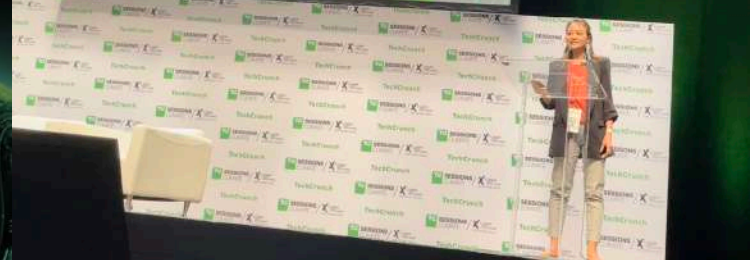


Our Investment Officer Alessandro Zago introduces one of the @extechchallenge global finalists!

#XTC2022

@techcrunch

“UniFAHS”



UniFAHS' 2022 Global & National Awards



2022 CATEGORY WINNER



Winner - Xtreme Tech Challenge (XTC) 2022 (Biotech & Medical Devices Category)



Startup Award 2022 - Thailand National Innovation Agency



Best Performance and Popular Vote Awards 2022 - Inno4Farmers Accelerator Program 2022, Thailand National Innovation Agency



BY CHATREE TANGSAHAWERAT - April 17, 2022



UniFAHS Team



Dr. Koy



Kitiya Vongkamjan,
Ph.D. (Cornell Univ, New York)
Founder & CEO

Opal



Chalita Wongpukdee,
B.Sc. (Prince of Songkla Univ, Thailand)
Co-Founder & CMO

Dr. Vincent



Vincent Guyonnet,
DVM, Ph.D, Dipl. ACPV
Director of Business Development

Dr. Orn



Mingkwan Yingkajorn,
MT, Ph.D. (Fulbright, Harvard Univ)
Director of Technology &
Application Transfer

Advisory Board



Tom Aurand, Ph.D.
Over 40 years,
Ex-R&D Director, Land O'Lakes,
USA
International consultant – Food &
Feed industry



Chin How-Cheong, D.V.M., Ph.D.
Over 40 years,
Poultry & Veterinary Consultant
Ex-Senior Executive VP (Technical), JAPFA
International, Singapore

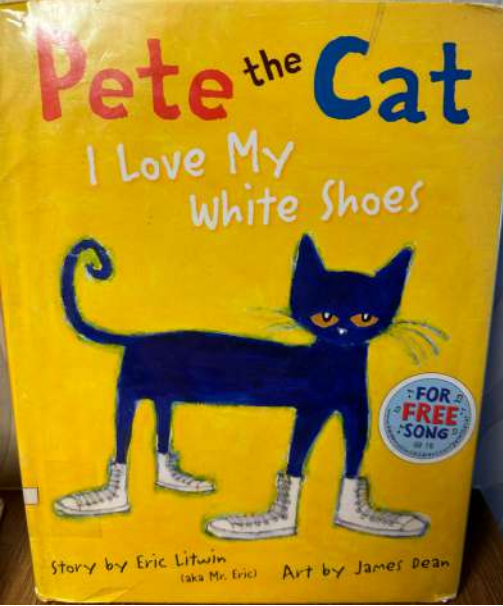


Ruttayaporn Ngasaman, D.V.M., Ph.D.
Over 15 years,
Veterinary Public Health/ One Health

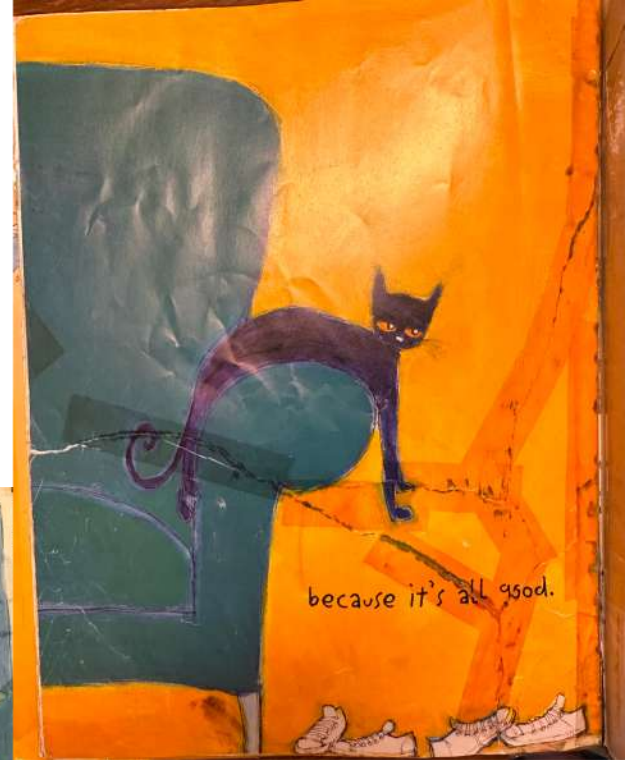


Chris Aurand, Ph.D.
Senior Expert – Innovation Development in the
Food and Agriculture Sector





“No matter what you step in, keep walking along and singing your song....because it’s all good”



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Our patented technology will contribute to more sustainable food supply chains, healthier people and animals on a happy planet



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