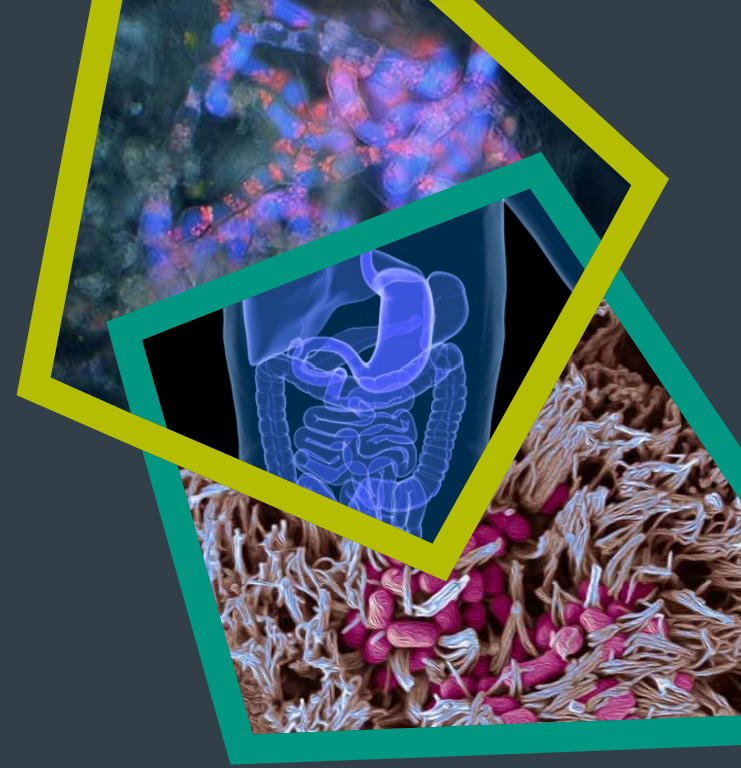# UK Food Safety Research Network

Summary of our Innovation Hub

The Opportunity

An Innovation Hub for Food Safety

- We are establishing the UK Food Safety Research Network as a community that connects partners between food industry, academia and government to consider and apply science to improve the safety of foods in the UK.

- We are looking to address microbial risk in the food chain, with the goal of introducing new capability, knowledge or skills to help reduce these risks.

- We aim to act as an innovation hub to catalyse and fund research, development and training projects. These projects are cross-sector and/or cross-disciplinary centred around food safety challenges and opportunities.

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Network Resourcing

The Network has ~£1M in resources to fund collaborative projects, such as:

❑ Proof-of-Concept studies on technologies or interventions to reduce microbial risk

❑ Pilot studies on sharing data between industry partners to improve trend analysis

❑ Knowledge synthesis and case studies on areas addressing food safety risk

❑ Development of training programmes or materials that target food safety best practices

❑ Support of placement opportunities for staff or trainees between partner sites

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Guiding Principles for Innovation in the Network

Identify 'problems worth solving by us'
(ideas and opportunities to reduce microbial threats in food)

Broker partnerships within and across sectors
(connect partners across food industry, government and academia)

Quickly get partners the resources they need
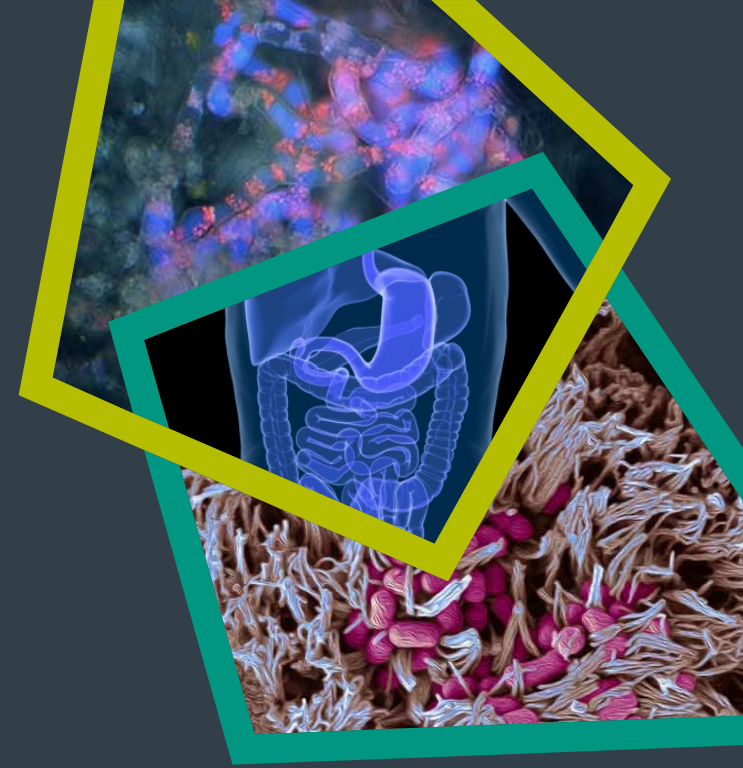(streamlined and fast application and review processes)

Keep momentum towards delivering impact
(advice and potential for additional resources from the Network)

Support from the Network
(community creation, resource coordination, tailored advice to cohort members, culture of innovation)

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Key Insights from Network Stakeholders

Extrinsic Drivers affecting Food Producers

Consumer Preference

(*e.g.* New plant-based foods; Less plastics in packaging)

New Economics

(*e.g.* Post-Brexit and COVID supply chains; CO_2 supplies)

The Environment

(*e.g.* Food storage conditions; Climate change and Agriculture)

Food Regulation

(*e.g.* Traceability in SME's; Reduced salt, sugar and fat)

Consequence to Food Safety & Shelf Life?

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Intrinsic Drivers affecting Food Producers

Microbes Contaminating Foods

Cleaning & Hygiene

(*e.g.* New or ineffective disinfection regimens; Meeting or exceeding best practices?)
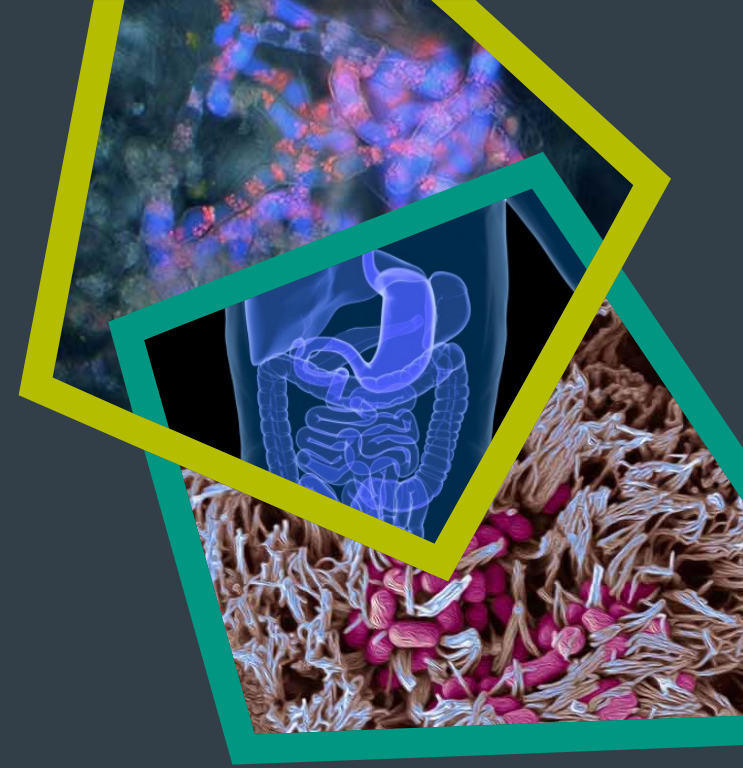
People & Behaviours

(*e.g.* Knowledge on microbes at risk for food product categories; Gaps due to labour shortages)

Engineering

(*e.g.* Food contact surfaces that are challenging to clean; Temperature control)

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What the Network is prioritising as
'problems worth solving by us'

Our Priority Areas

PRIORITY 1:
REDUCING MICROBIAL RISK OF KNOWN PATHOGENS

PRIORITY 2:
UNDERSTANDING RISK OF ALTERNATIVE PROTEINS AND NEW PLANT BASED FOODS

PRIORITY 3:
APPLYING FOOD SAFETY KNOWLDEDGE AND NEW TOOLS TO READY-TO-EAT FOODS

- ASSESS chemical, bio, other interventions
- MEASURE w/ culture, molecular, genomics
- SHARE data for action now and the future

- INVESTIGATE microbes, shelf life in new foods
- DETERMINE risk in new production systems
- SHARE findings with industry and consumers

- TEST microbes & interventions for this category
- UNDERSTAND why best practice not taken up
- DEVELOP training on validated interventions

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1st Call for applications / Expression of Interest

Funded activities can take a wide variety of forms, and we encourage applicants to utilise novel approaches to explore high-risk areas in support of achieving the Network's goal of creating innovative and sustainable partnerships relevant to food safety.

Some example projects are shown below, please note these are shown only as examples – we welcome new and different ideas and approaches for projects, particularly if they are focussed on the network priority areas.

- Exploratory projects, such as proof-of-concept projects that test the effectiveness of new interventions to reduce microbes such as Campylobacter or Salmonella in food products or food production settings. Such projects could include the application of bacteriophages or testing of biocides in the context of challenging harbourage sites.

- Other projects may favour knowledge synthesis or pump priming projects that seek to start to understand the microbial risk of new food products such as plant-based foods or the new technologies used to produce these foods such as vertical farming, and then seek to educate other producers, regulators or consumers on those risks.

- Other projects may seek to understand why there is an established and continued risk in food categories such as ready-to-eat foods and then develop customised training or intervention pathways that enable food producers of those categories and consumers to lessen the food safety risk. Training could take the form of an webinar and online resources to support broad and sustained impact beyond the lifetime of the Network.

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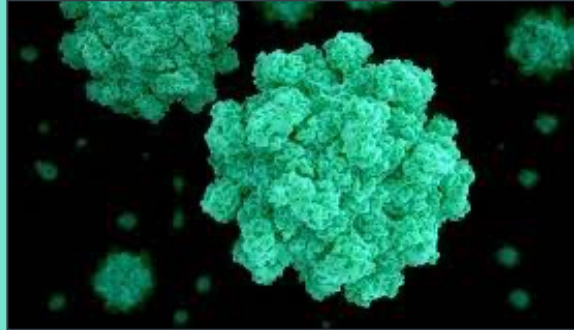
PRIORITY 1:
REDUCING MICROBIAL RISK OF KNOWN PATHOGENS

- ASSESS chemical, bio, other interventions
- MEASURE w/ culture, molecular, genomics
- SHARE data for action now and the future

Examples of problems the Network can address:

- Advance the adoption of bacteriophage applications by providing the necessary evidence and information on their control of microbes

- Incorporate the real-life context of complex microbial communities or complex harbourage sites when assessing effectiveness of biocides

- Prove the concept of metagenomic sequencing as a next-generation approach to measuring and understanding microbial contamination in food production settings and foods

- Conduct directed microbial investigations into the spillover from the environment or zoonotic sources into foods (or production settings)

- Facilitate the availability of microbial testing data between partners to provide visibility of current trends and supporting enhanced monitoring in that product category and overall horizon scanning on microbial risks

- Create information from laboratory results that can be understood and is easy to use

- *** we are open to receiving other proposals, outside of these first priority areas*

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Examples of problems the Network can address:

- Investigate the perceived microbial risk or shelf life of new food products by detecting and characterising pathogens and spoilage organisms (with alignment to data sharing and accessibility, per Priority 1)

- Validate the use of diagnostic technologies (culture, molecular, genomic) and risk assessment applications for these new food categories

- With a wide view of the food chain, model where microbial risk may be introduced into the production of new food categories or due to new methods of production, packaging or distribution

- Evaluate the potential risks in new technology farming (e.g. vertical farming) if a pathogen were introduced into controlled agricultural systems used for growing plants

- Support transfer or training of good manufacturing practices and other best practices that have been established for other food categories

- Promote knowledge exchange with consumers on the safe storage and preparation of these new food categories

PRIORITY 2:
UNDERSTANDING RISK OF ALTERNATIVE PROTEINS AND NEW PLANT BASED FOODS

- INVESTIGATE microbes, shelf life in new foods
- DETERMINE risk in new production systems
- SHARE findings with industry and consumers

PRIORITY 3:
APPLYING FOOD SAFETY KNOWLDEDGE AND NEW TOOLS TO READY-TO-EAT FOODS

- TEST microbes & interventions for this category
- UNDERSTAND why best practice not taken up
- DEVELOP training on validated interventions

Examples of problems the Network can address:

- Understand the social and economic factors of why some food safety best practices are not being taken up by some food business operators

- Understand the microbial burden and assess interventions (*e.g.* bacteriophage applications) identified in the other priority areas in a manner appropriate for RTE foods

- Develop validated methods for the investigation and detection of foodborne viruses (*e.g.* norovirus, hepatitis E, rotavirus)

- Promote the implementation of validated interventions and microbial monitoring approaches that are fit-for-purpose for RTE producers by building digital training, knowledge exchange platforms or other educational approaches

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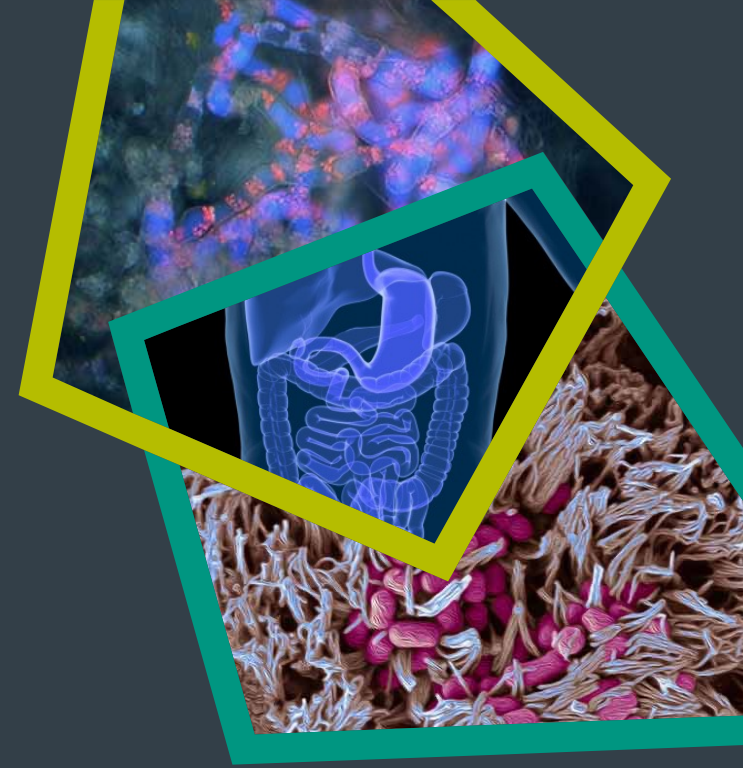
Join us at

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