

TECHNOLOGY POOL:

**NATURALITY R&D**

Targeting antibiotic resistance

Drug Delivery systems (DDSs)

Gels

Prebiotic-based oligosaccharides

Biosurfactants

## Tackling antibiotic resistance

### Nosocomial multi-/pan- resistant pathogens:



*Acinetobacter Baumannii*

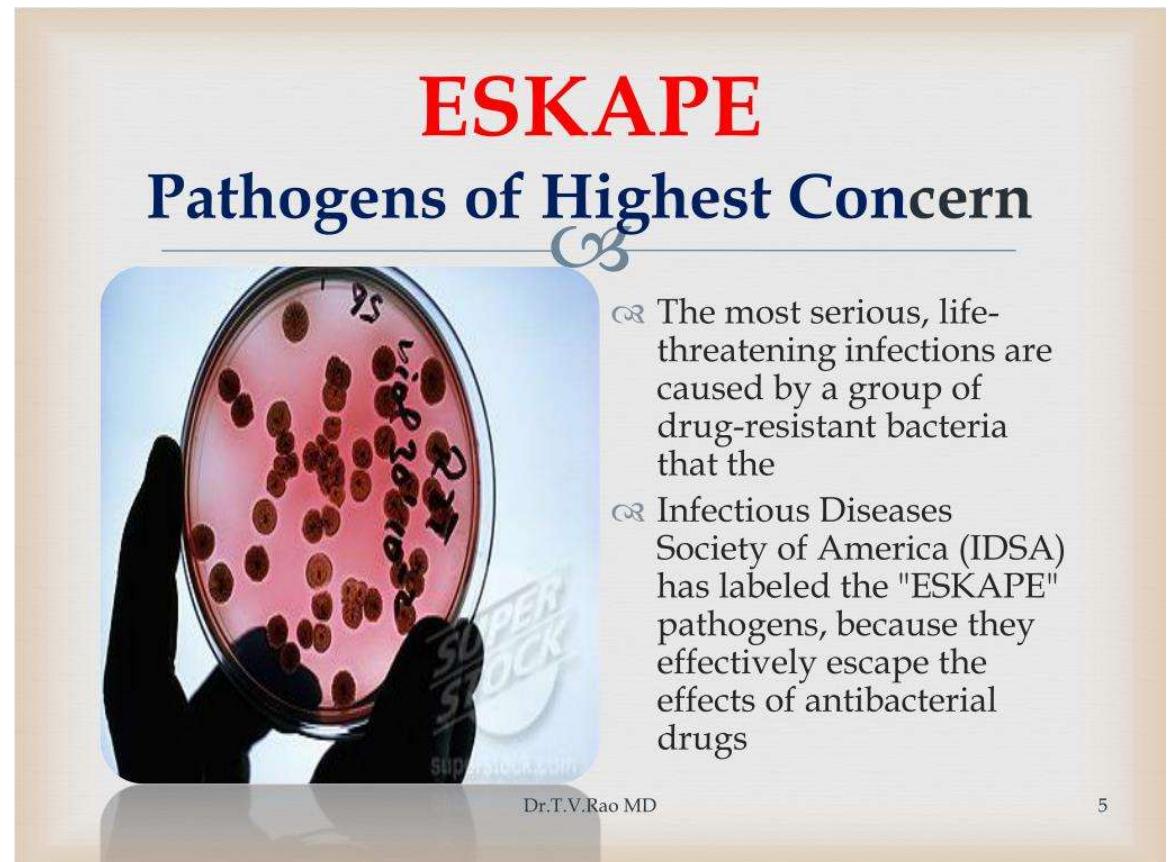
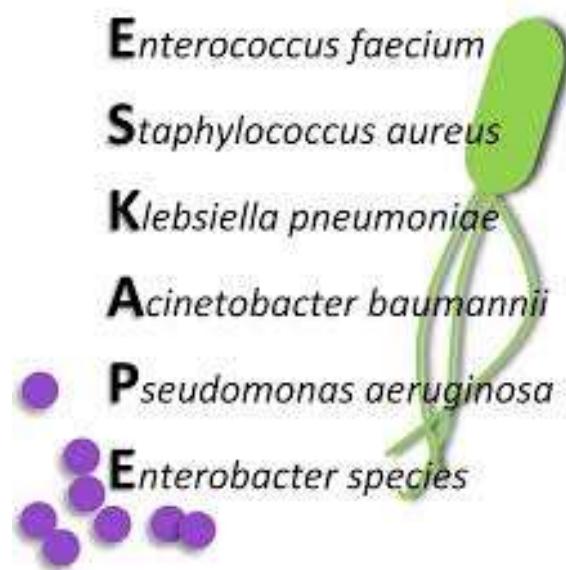
*Staphylococcus aureus*

*Pseudomonas aeruginosa*

IV and IP routes validated under murine sepsis models during preclinical tests

NATURASOL antimicrobials for killing viruses, fungi & bacteria

Broad antimicrobial activity on > 250 pathogen species



# Prebiotics: making food for the gut

**Human Gut Microbiota:** > 400 species of bacteria

Helping us to digest food and protecting us against diseases and infections

**Prebiotic:** “a substrate that is selectively utilized by host microorganisms conferring a health benefit.”

## Health benefits

- GI disorders
- Colon cancer
- Osteoporosis
- Obesity
- Immune system
- Blood ammonia and cholesterol levels

## Technological properties

- Improved taste, mouthfeel, texture
- Increase shelf-life
- Enable fibre incorporation in liquid foods

## FOS as food ingredient

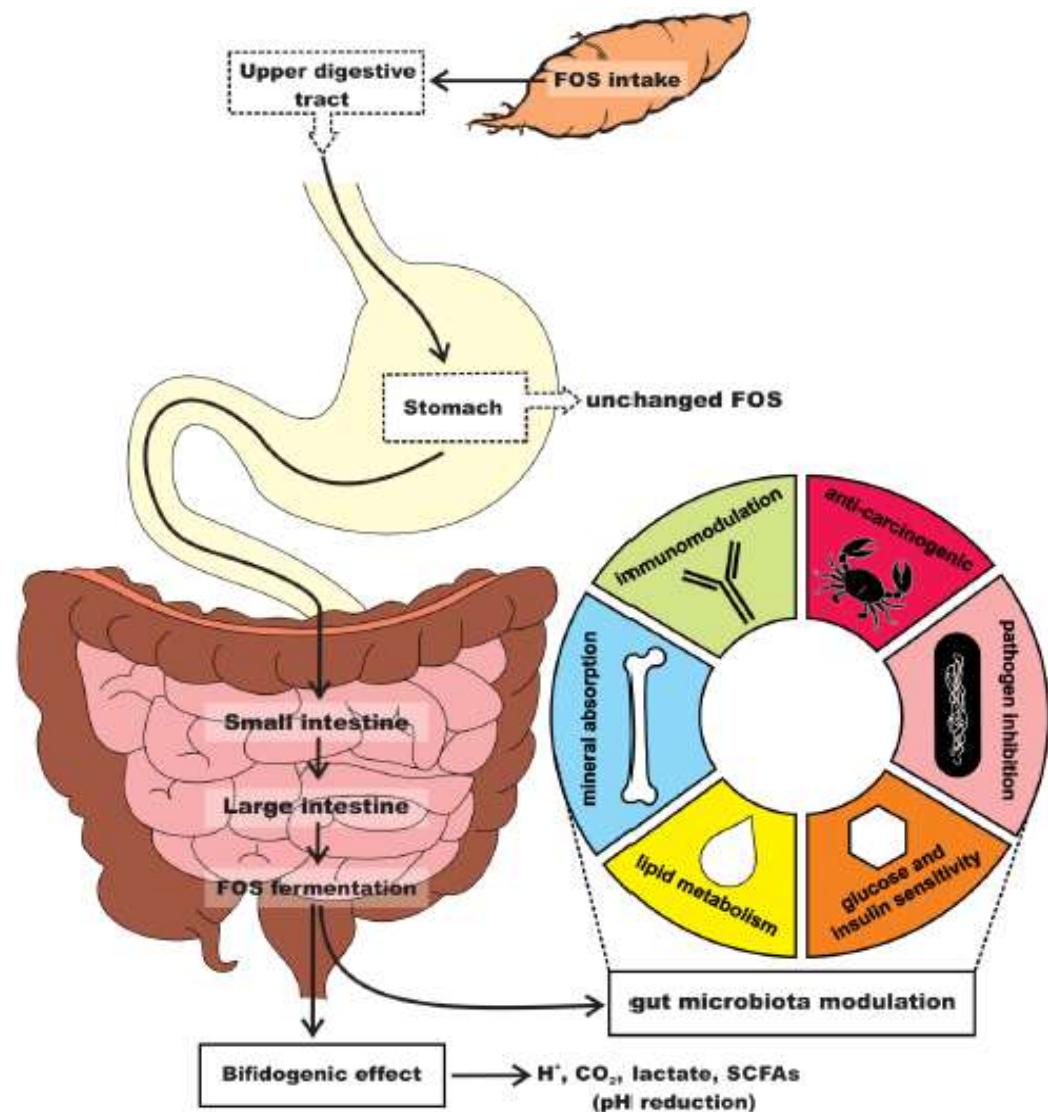
- Diabetic food
- Dietetic food
- Infant food
- Sweeteners substitutes or in combination with other sweeteners

New prebiotics:

Neo-FOS

Lactose- based

Other oligosaccharides



## TEXTUROSE technology

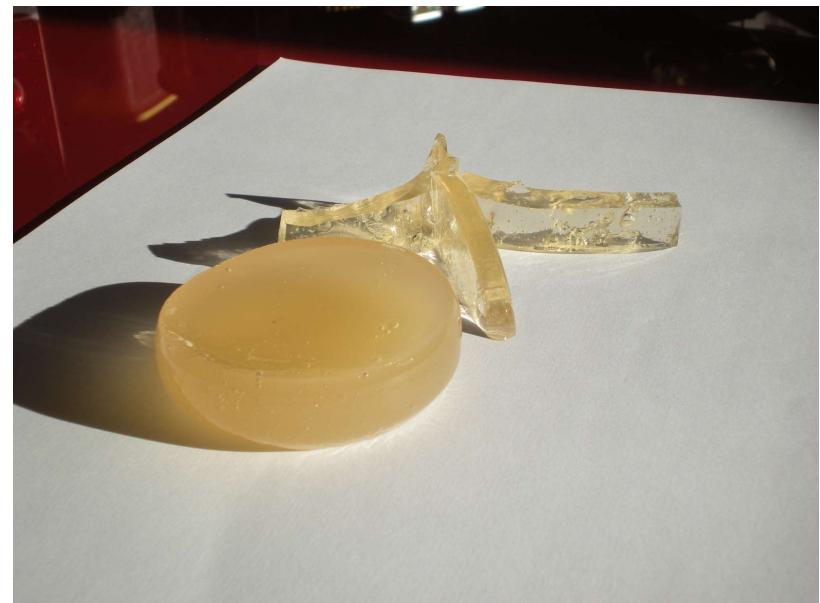
NATURALITY R&D

- made with selected polysaccharides or proteins
- loaded (option) with antimicrobial NATURASOLs

Up to 100% prebiotic food ingredients

CAN CONTAIN ANY TYPE OF ACTIVE  
or other food ingredient:

Antimicrobials, Antioxidants, vitamins,  
minerals, hormones, ...



## NAT experience in EU projects:

**NATURALITY R&D**

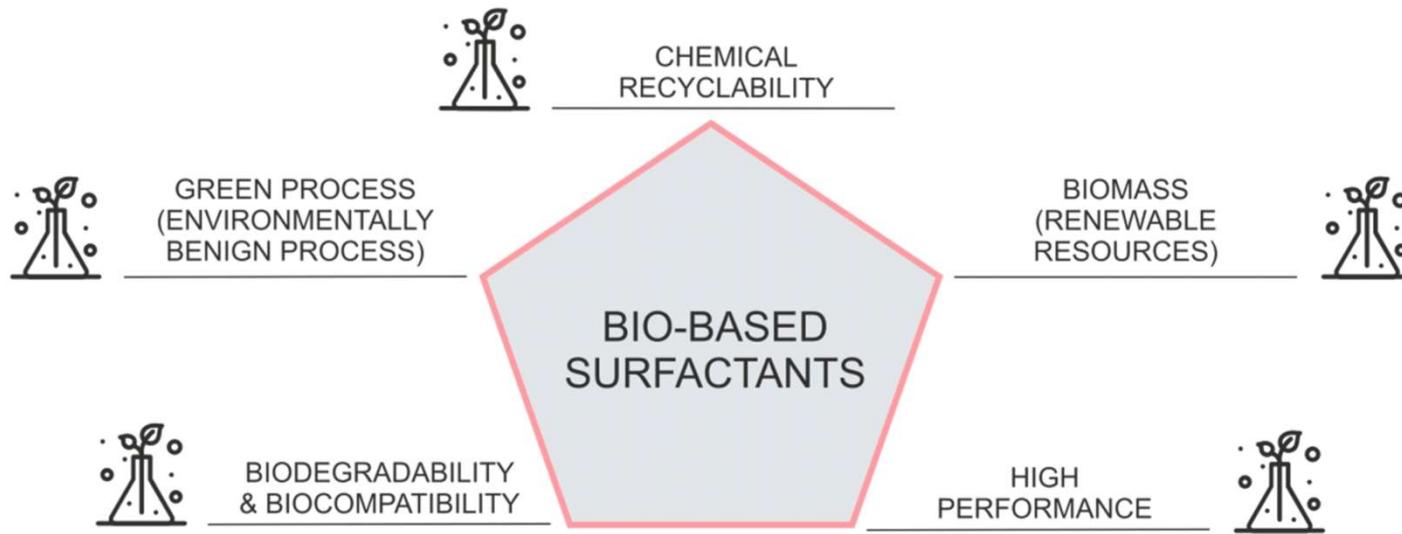
Flexpol: [www.flexpol.eu](http://www.flexpol.eu) antimicrobial flexible polymers for its use in hospital environment (project closed)

Aerograft: <https://graphene-flagship.eu/project/spearhead> graphene flagship – spearhead projects – next generation aerospace filtration systems (started 01/04/2020)

SALSETH: [www.salsethproject.com](http://www.salsethproject.com) MSCA-RISE Innovative bio-inspired sensors and microfluidic devices for saliva-based theranostics of oral and systemic diseases (started 01/10/2019)



## biosurfactants platform

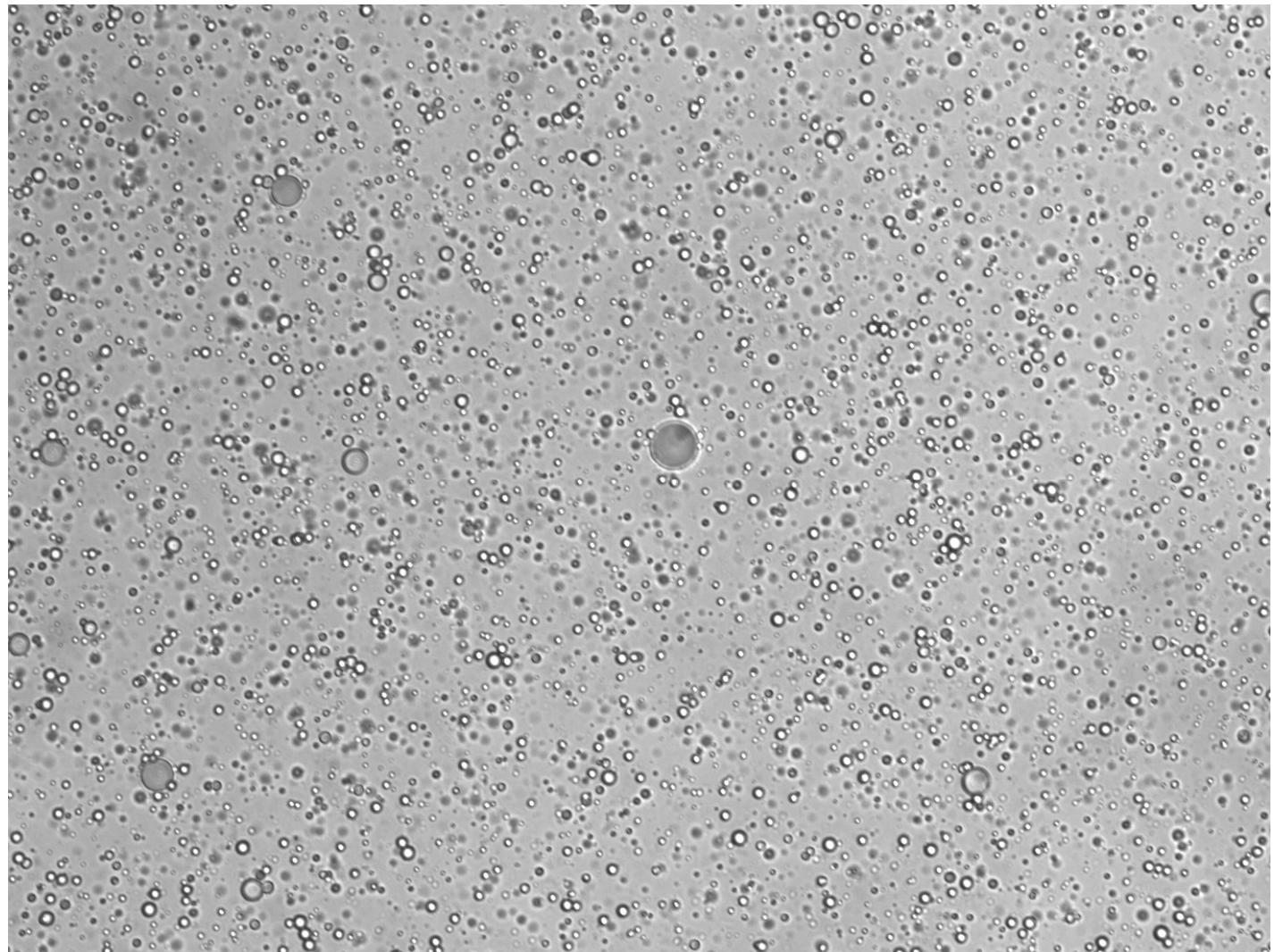


## biosurfactants platform

BSs properties	
physicochemical properties	surface / interface tension reduction
	stable at extreme environmental condition
	foaming / emulsion forming
	wetting
	cleaning
	biodegradable
	biocompatible
	antioxidant activity
biological properties	low toxicity
	antimicrobial activity
	antiadhesive activity
	antibiofilm activity
	immunomodulatory activity
	anticancer activity

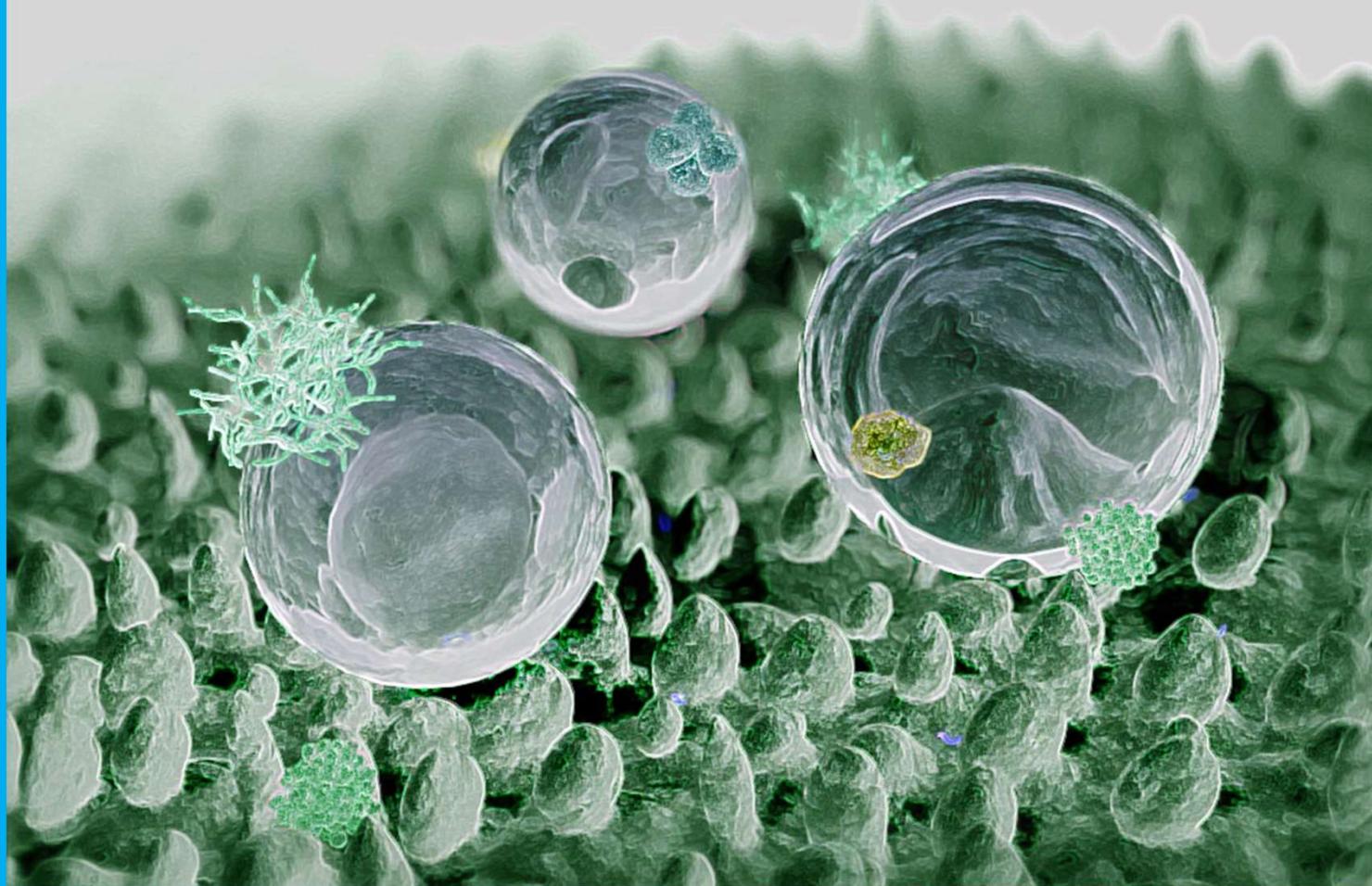
## biosurfactants platform

Essential oils in water  
nano-sized emulsion  
(50nm)  
4 years shelf stability



Thank you for your attention

NATURALITY R&D



[www.naturality.tech](http://www.naturality.tech)