

DEVELOPMENT OF UNIQUE PROBIOTICS

INNOVATION FOR STRONG PRODUCT DIFFERENTIATION & POSITIONING

# MICROBIAL CARBOHYDRATES FOR NEXT GENERATION PROBIOTICS

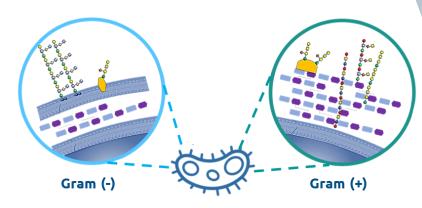
Our microbiome expertise makes the difference

#### Microbial carbohydrates are:

- → main component of the surface of microorganisms
- → oriented to the environment
- → offer an almost unlimited diversity of structures
- → can be released into the environment

## Microbial carbohydrates are essential for many processes including:

- → binding to receptors
- → binding of soluble substances
- → activation/repression of the immune system
- → anti-microbial activities
- → signal transduction etc.





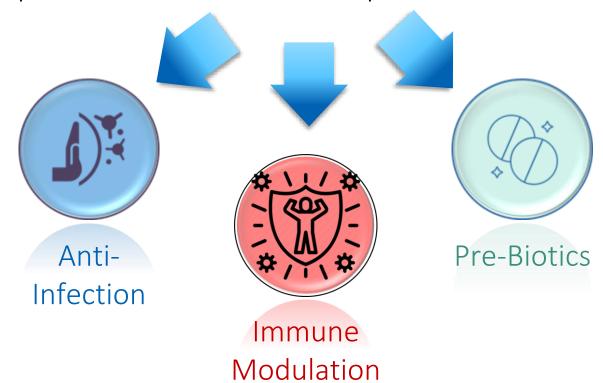
We are committed to guarantee the integrity, reliability and traceability of all data. Our Quality Management System is based on ISO 9001.



Our microbiome expertise makes the difference

#### Microbial carbohydrates for Next Generation Probiotics

Specific mode of action for specific indication





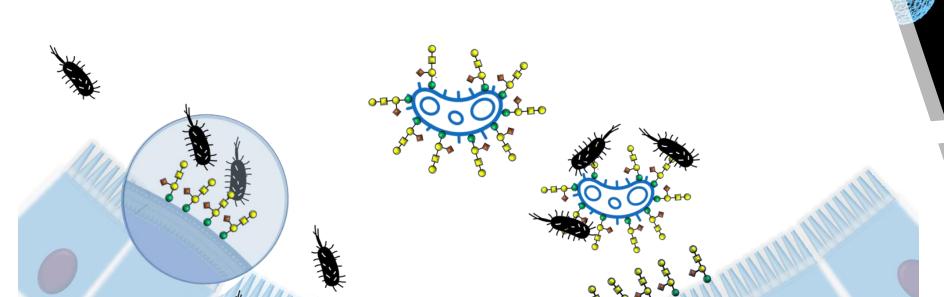
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### **ANTI-INFECTION**

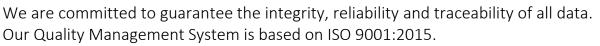


Bacterial strains naturally expressing a carbohydrate structure mimicking receptor for a <u>pathogen</u>, a <u>virus</u> or a <u>toxin</u> can specifically displaces the said pathogen/virus/toxin and avoid the disease.









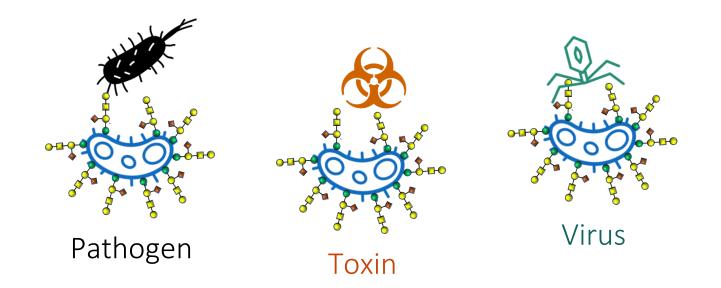




#### **ANTI-INFECTION**



Bacterial strains naturally expressing a carbohydrate structure mimicking receptor for a Pathogen, a Virus or a Toxin can specifically displaces the said pathogen/virus/toxin and avoid the disease.

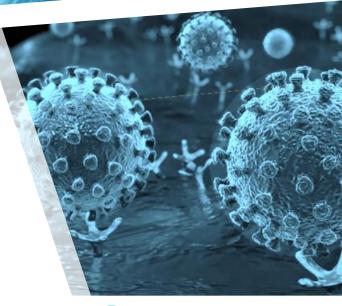


**Example**: Binding and neutralizing the cholera toxin. Toutounian et. al. Human Microbiome Journal, Volume 18, December 2020



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#### **IMMUNE-MODULATION**

antigen



Bacterial strains naturally expressing or secreting specific carbohydrate structures (antigen or immune stimulatory) can stimulate the immune system.

Carbohydrate cancer

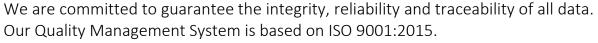
Antibodies anti-carbohydrate cancer antigen

Example: Microbial carbohydrate antigen inducing an anti-cancer immune response. Ulsemer *et. al.* Beneficial Microbes. 2016 Sep;7(4):485-500.









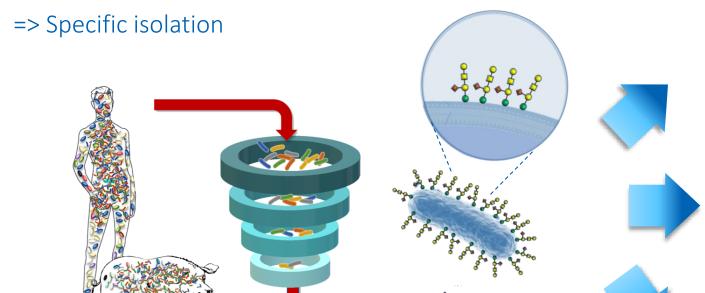


#### MicroSIS PLATFORM

Our microbiome expertise makes the difference

Our **MicroSIS** platform allows screening the microbiome for microorganisms naturally expressing the needed structures.

=> No gene modifications





Anti-Infection



Immune Modulation



**Pre-Biotics** 



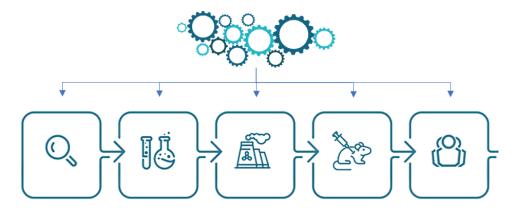


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#### ACARYON: THE DIFFERENCE

We are experienced with the whole development chain of probiotic products<sup>1</sup>.

Our founders were the first to get Novel Food and FDA authorization for a new microorganism<sup>2</sup>.



1.Impact of oral consumption of heat-treated Bacteroides xylanisolvens DSM 23964 on the level of natural  $TF\alpha$ -specific antibodies in human adults. Ulsemer P et al. Benef Microbes. 2016 Sep;7(4):485-500

2.https://www.eqs-news.com/de/news/corporate/avitop-obtains-us-and-eu-authorization-for-nutraceutical-corrixtm-and-announces-product-launch/902889



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ACARYON: Probiotic Development

We would enjoy discussing with you about your needs

Please contact us for more information

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