SKIN MICROBIOTA



BIOLOGICAL BACKGROUND

The human skin serves as the first natural physical barrier against external assaults while concomitantly providing a home for more than 1000 billion beneficial microorganisms. These microorganisms form the commensal resident skin flora also known as the cutaneous microbiota. The microbiota lives a symbiotic relationship with its host and interacts constantly with the adaptive immune system, thus creating a complex ecosystem which is unique to each individual but highly variable depending on several factors such (temperature, pH, humidity, as body area, life period, diet, etc.). This fragile balanced ecosystem helps to maintain healthy skin and protects it against the adhesion and development of pathogens. Its deterioration or imbalance can cause skin disorders (dry skin, oily skin, etc.) and amplify pathologies (psoriasis, atopic dermatitis, acne. etc.)

FROM IN VITRO TESTING TO CLINICAL BIOANALYSIS

Although initially considered as harmful to the skin, bacteria are now subject to research aimed at creating a good environment for their development in order to maintain healthy skin. To support its customers in this new challenge, QIMA Life Sciences offers to evaluate the efficacy of your products from *in silico* to clinical sample bioanalysis.

MICROBIOTA FRIENDLY PREBIOTIC & PROBIOTIC EFFECTS

	in vitro	Bacterial growth Yeast growth ¹	Bacterial strain Bacterial mix Yeast (<i>Malassezia</i> 1)	 Photometry (OD) Colony-forming unit (CFU) qPCR (SYBR Green & Taqman[™])
		Bacterial adhesion on RHE² surface	RHE + Bacteria	 Colony-forming unit (CFU) qPCR (SYBR Green & Taqman[™]) Radioactivity Scanning electron microscopy
	clinical bioanalysis	Bacterial & yeast quantification & identification	Clinical sampling (swabing)	 Traditional microbiology on agar Targeted qPCR Non targeted metagenomic (MiSeq)

QUANTIFICATION OF BACTERIAL ADHESION by CFU enumeration



¹Coming soon ²Reconstructed Human Epidermis



Contact us ls@qima.com +33 (0)5 49 36 11 37 **BACTERIAL ADHESION ON RHE SURFACE** by Scanning Electron Microscopy - X60 000



Life Sciences

BACTERIAL QUANTIFICATION ON CLINICAL SAMPLING - qPCR (log₁₀CFU/cm²)



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FROM IN SILICO SCREENING TO CLINICAL BIOANALYSIS

ANTI-MICROBIAL PROPERTIES

in silico	Biological target Active molecule	Virtual screening models: • Protein-based design • Ligand-based design	• SELNERGY
	Bacterial viability Bacterial growth /Yeast growth ¹ Bacterial identification	Bacterial strain Bacterial mix Yeast (<i>Malassezia</i>)'	 Photometry (OD) - MIC / MBC / TKC Colony-forming unit (CFU) qPCR (SYBR Green & Taqman[™])
in vitro	Bacterial adhesion on RHE surface Epidermal protein analysis (antimicrobial peptides) Inflammation assay (cytokine release)	Cells + Bacteria RHE + Bacteria	 Colony-forming unit (CFU) qPCR (SYBR Green & Taqman[™]) Radioactivity Scanning Electron Microscopy
ex vivo	Wound healing delay after bacterial infection	Skin explant + Bacteria	Wound diameterTissue morphology (HES)
clinical bioanalysis	Bacterial quantification Bacterial identification	Clinical sampling (swabing)	 Traditional microbiology on agar Targeted qPCR Non targeted metagenomic (MiSeq)

MIC DETERMINATION



Antibiotic sensitive bacteria vs antibiotic resistant bacteria

QUANTIFICATION OF IL-6 RELEASE AFTER BACTERIAL STIMULATION



WOUND HEALING DELAY ASSAY



D7 without S. aureus



D7 with S. aureus

SKIN MICROBIOTA & BEYOND

Skin microbiota & Secretum

-> Impact of your product on secretum -> Impact of your product on the response of a model treated with a standardized secretum







RHE + C. acnes secretum

Skin microbiota & Exposome

-> Impact of Exposome on skin microbiota -> Impact of your product on skin microbiota exposed to environmental factors

As your partner in innovation, we provide you with new concepts to substantiate your claims
Let's talk about it!



¹Coming soon

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