

# The Skin and Textile Interaction and The Future of Fashion as Therapeutics.

Poster ID 13

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## What is 'Probiotic Clothing'?

We designed 'Probiotic Clothing', where probiotic bacteria are encapsulated into the fibres of clothing. The encapsulated bacteria are associated with reduced body odour, encouraging cell renewal, and improving the skin's immune system. This project not only replaces the need for chemical fabric finishes, but also reduces the need to wash your clothes as frequently [1].

The encapsulated healthy skin commensal bacteria are applied to be both durable on the textile, hydrophilic, and pH neutral and non-toxic. The microorganisms are activated when in contact with the moisture on the skin, allowing them to dominate other less beneficial bacteria.

Active with Sweat

Protects against Malodour

Alternative to toxic anti-bacteria finishes

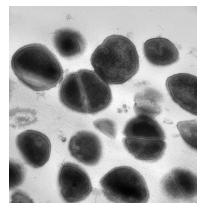
First probiotic clothing product

Encourages cell renewal

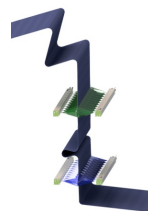
Skin Commensal Bacteria



## Materials & Method



Skin Commensal Probiotic Bacteria



Bio based/ non toxic Application

Helps steer the microbiome towards a healthy, non-odorous, equilibrium. Prevents development of malodours and an alternative for currently used antimicrobials in textile manufacture.

## Why?

Between the skin and textile microbiome this interaction between the wearer and clothing is an opportunity for skin bacteria to attach to the textile surface, which can lead to the growth of certain strain[2]. During this process, the absorption of the wearer's sweat, sebum and bacterial metabolites to clothing can contribute to the outgrowth of pathogenic bacteria [2], [3]. As our clothing is consistently in contact with the human skin; textiles are an important consideration when studying the cutaneous environment.

Thus, textiles and clothing are essential players in the potential causation and treatment of skin diseases. The microbiome plays a key role in body odour and skin health, and antibacterial fabric finishes on clothing have been designed in an attempt to reduce these issues. Yet, these are associated with many drawbacks, such as antibiotic resistance strains and the environmental and toxicity concerns of these chemicals [4],[5].

## Conclusions

Microbiome-smart textiles can be a novel and alternative way to advance the functionality of clothing and to combat odour development, maintain skin health or avoid potential textile-related skin conditions. To make a shift from the effects of the antibacterial ingredients and toxic cosmetics that society has encouraged, the answers may be to look more closely at the skin's living ecosystem and natural skin biome. As research digs deeper into the textiles and skin interactions new developments are being established to nurture these relationships with the textile, the skin microbiome, and the body.

## References

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