

PROFILE:**Name:** Maca Barrera**Category:** Skincare**Country:** UK**Discipline:** Biodesign Consultant & Sustainable Innovator**LinkedIn:** <https://www.linkedin.com/in/maca-barrera/>**IN-TREND'S TAKE:****Who?:** Multidisciplinary designer with a focus on biodesign & innovation.**What?:** Melwear: A speculative concept that proposes garments made with bacteria-derived melanin as an alternative to typical sunscreen. A thin suit amplifies the role melanin already plays in our skin.**Why?:** A new natural gesture of UV protection mimics the body's own defence mechanisms, appealing to toxic-free consumers while adding a valuable aspect to the beauty industry's microbiome narrative.**INTERVIEW:****Date of interview:** 28/05/24**Please tell us about your UV protection project, Melwear**

We really need to look to biological design to develop new materials and products across areas from architecture, product design, services, beauty and more. It's no longer the future, it's already happening.

My project has a focus in skincare. I was looking for alternatives to UV protection, considering all the negative impacts that conventional sunscreen has on marine environments. Most of them use toxic chemicals that damage the ecosystem and enhance coral bleaching and can also damage DNA.

My focus was looking for alternative ingredients and dyes that can be used in skincare that can be biodegradable and biocompatible with our skin. I looked at different microorganisms. I worked at the grow lab with algae and different types of bacteria until I found one to produce bacterial melanin.

Melanin is basically something that we all have in our skins. Plants, animals and microbes have it. It's biocompatible, biodegradable and natural. I started to develop and produce melanin with different gradients and concentrations of UV observance.

It has been a very enriching project: reconnecting with microbes, which we normally see as bad, as pathogens. We've been killing them using antibiotics and cleaning products but in the end, they live in our skin, our environment and the more we are connected with nature and the more healthy bacteria we are exposed to, the more protection from pathogens and benefits for our skin.

I found this bacteria which I produced as biocompatible and biodegradable sunscreen and my final piece was an application of how this can be used in the future. It was a speculative idea of a wearable that is going to be reactive to the environment and it's going to change depending on the level of UV exposure. Based on that, the wearable will react and will release melanin protection to the body. I envision this in the future for skincare protection, but also for pigments because melanin ranges from beige to brown and dark colors. My idea is to start finding some solutions for the beauty and skincare industry based on microbes like bacteria and algae.

Is there any way for the application to translate from wearable into topical for a more direct skincare use?

Yeah, definitely. I'm looking into more research and testing because this project is the first stage and I still have the experimentation process going on. I've been working with it and interacting it with my skin. I haven't had any reaction. I've been thinking about foundation for example, for a collection and how it will interact with the body.

In the existing UV protection space and in your research have you come across any great innovations that contradict the more damaging side of the mainstream sunscreen industry?

I read something about a project in development where they are focusing on how our eyes function with their own UV protection properties. It's in the biomimicry space where they are replicating this function that we have in our eyes. It's a very interesting solution because most alternatives are trying to replace the toxic chemicals but in the future we are going to be more exposed to extreme temperatures, which means we are going to need more diverse solutions for UV protection.

Are you able to share a bit about just your work in biodesign and sustainable innovation? What are you currently working on?

Previously, I was mostly working in the fashion industry for startups and retailers with a focus on proposing sustainable ways of designing. That's how I came to biodesign: I wanted to move away from a greenwashing environment and focus on making an impact and finding solutions. I was working in the textiles industry and noticed how textiles relate to skincare. Our skin is basically a textile protecting the body. That's when I started working with microbes: to understand how the skin microbiome is connected to our health, gut and mind and that's why I came out with Everything is interconnected.