Slathering on Stem Cells: A Skincare Trend

By Amy Lew

I am sure many of you have had this experience. I was shopping at the mall, trying to avoid eye contact with aggressively friendly mall kiosk salespeople. Unfortunately, I failed. I was stopped by a woman selling skincare treatments that promised to rejuvenate my skin. I politely excused myself, but not before she pressed some lotion samples into my hand. I walked away, reading the ingredients list as an excuse to avoid looking up, lest I be caught by another salesperson. The lotion claimed to contain something I hadn't seen before: plant stem cells.

If you haven't heard, stem cells have the ability to regenerate indefinitely and can give rise to all the cells in an organism. It's easy to see why the cosmetics industry has latched on to this concept, given that people collectively spend billions of dollars each year trying to keep their skin looking beautiful and young. They sell the idea that if you slather on the stem cells of an exotic plant that can somehow thrive in the harsh desert, your skin will be able to endure the environmental insults that lead to fine lines and wrinkles.

There are some issues with this line of reasoning. First of all, plant stem cells can't survive in lotion. Ask any scientist who works with stem cells. These cells are finicky and require rigid culture conditions to stay alive outside of the source organism[1]. Dead cells can't regenerate.

Furthermore, even if there was a way to apply live plant stem cells to the skin, it is highly unlikely that they would have the same functionality. Stem cells rely on a niche, a set of

specialized and finely-tuned environmental signals, to carry out functions like cell renewal and growth[2]. Human skin does not produce the signals needed to sustain plant cells[3].

Curious, I looked at the websites of some of these companies to see if they backed up their claims with research. One brand linked to a list of "scientific publications" that were formatted to look like legitimate studies (contained data, experimental results, etc.)[4]. However, half of these articles on this list were rehashed versions of the same thing published on different websites. The other half were documents from their sister sites that sold dubious snake oil remedies for burning fat, plumping lips, re-growing hair, and more. The site even had a disclaimer: "The author reserves the right not to be responsible for the topicality, correctness, completeness or quality of the information provided[5]." I don't know about you but this doesn't inspire my faith in their "research."

I also performed a search of the existing scientific literature. While there were a few questionable articles that cited the “studies” above, I found zero studies independently verifying the asserted claims. Due to the lack of reliable information, I will say that if you find yourself tempted to dose your skin with plant stem cells, you should counter it with a healthy dose of skepticism.

References

[1] McKee, C., Chaudhry, G. R. (2017) Advances and challenges in stem cell culture. *Colloids and Surfaces B: Biointerfaces*. 159, 62-77.

[2] http://learn.genetics.utah.edu/content/stemcells/sctypes/

[3] Heidstra, R., Sabatini, S. (2014) Plant and animal stem cells: similar yet different. *Nature Reviews Molecular Cell Biology*. 15, 301–312.

[4] http://mibellebiochemistry.com/products/phytocelltec-argan/

[5] http://mibellebiochemistry.com/disclaimer/