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Changing the world of cosmetics with artificial skin models

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Tissue engineering is a field of science that is in use since the late 1970s and since its introduction, it has come a long way by evolving. With the advent of tissue engineering technology, there have been many advances in the field of skin development for different aspects of clinical uses, such as the production of grafts, testing formulations, permeation studies, etc. without which today, we would not be able to safely test cosmetics or treat burn victims. There have been several horrifying cases of cosmetic testing in the pre-artificial skin model era. For example, in 1933, a company named Lash Lure designed a mascara, that when applied on the skin caused customers to develop blisters and ulcers on the face, some went blind, and some got bacterial infections and died. Another example is the manufacture of a skin cream known as Gouraud’s Oriental Cream in 1936. It was supposed to be a magic beautifier but instead caused its users to develop bluish gums, loose teeth and dark rings around the eyes and neck as a result of the presence or mercury in it. These fatal cosmetics could have been stopped from reaching the market and losing millions of dollars in lawsuits through simple cosmetic testing on artificial skin models. Thankfully, today, we have the opportunity to safely test products ranging from cosmetics to drugs, and we owe it all to the collaborative efforts of all the researchers producing the various artificial skin models that we have today. The 3D skin models that help in predicting clinical outcomes for drug testing are currently engineered as scaffold-free and scaffold-based models. These skin models not only reduce the cost of drug development but also reduce the cost for consumers by replacing animal experimentation.

Keywords: Tissue engineering, Artificial skin, Cosmetics, Drugs, Grafts, 3D tissue models, Skin models

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