# Improved skin care using nanotechnology to improve.

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***Received:*** *27-Jan-2022, Manuscript No. AARCD-22-53974;* ***Editor assigned:*** *29-Jan-2022, PreQC No. AARCD -22-53974(PQ);* ***Reviewed:*** *12-Jan-2022, QC No AARCD - 22-53974;* ***Revised:*** *18-Jan-2022, Manuscript No. AARCD- 22-53974(R);* ***Published:*** *25-Jan-2022, DOI:10.35841/aarcd-5.1.105*

## Abstract

**Nanoscience and nanotechnology have emerged as critical concepts in medication delivery, with inherent appeal in the field of cosmeceutical skin care due to their advantageous and practical qualities. The most difficult task is ensuring adequate drug absorption across the epidermal barrier, which is notoriously difficult to penetrate. The cosmetics business is being revolutionised by improvements to various formulations for transdermal hydration, such as liposomes and nanolipids. Apart from sufficiently downsizing the substances to provide the prerequisites for penetration to the desired level, one of the challenges faced by this industry is retaining the substances' chemical properties at this reduced size, so as not to compromise effectiveness once delivered to the desired skin level. Furthermore, new active pharmaceutical ingredients (APIs) and excipients are constantly being developed.**

**Keywords**: Nanotropocollagen, Micro formulations, Cosmeceuticals, Antiwrinkle.

## Introduction

Collagen, for example, has been a widely used and extensively researched substance in this field, proving to be useful, adaptable, and relevant to a variety of technologies. Nanotropocollagen-containing compounds have skin-hydrating properties as well as antioxidative activity that helps to rejuvenate the skin. It is crucial to be aware of the allergic and poisonous potential of any chemical administered percutaneously, and that Nano technological forms may cause reactions not seen with macro- and micro formulations when using collagen or any other API or excipient. As a result, marine collagen and hyaluronic acid have a known safety record, which is why varied forms and procedures of transcutaneous distribution are so appealing from an experimental standpoint .Nanotechnology is often recognised as the most important technology of the twenty-first century, and it is seen as a major boon to the cosmetics business. Nanotechnology is made up of two words: technology and the Greek number "nano," which signifies dwarf in Greek. As a result, nanotechnology is defined as the science and technology that is utilised to generate or manipulate particles with a size range of 1 to 100 nanometers. Nanotechnology has been used in a variety of sectors since 1959, including engineering, physics, chemistry, biology, and science, and it has been nearly 40 years since it was first used in cosmetics, health products, and skin preparations [1].

Cosmeceuticals are cosmetics that contain biologically active ingredients that have therapeutic advantages when applied to the skin. These are used as cosmetics, claiming to improve attractiveness. Between medications and personal care goods, there is a chasm called cosmetics. Cosmeceutical products have measurable therapeutic efficacy on the skin, as drugs and formulations have expanded from skin to body to hair and are used to treat a variety of conditions such as hair damage, wrinkles, photoaging, skin dryness, dark spots, uneven complexion, hyperpigmentation, and so on [2].

Cosmeceuticals are thought to be the fastest-growing segment of the personal care sector, and the personal care market is expanding rapidly. Despite their numerous advantages, little is known about nanoparticles' short- and long-term health consequences on the environment and organisms. The suspected toxicity and potential risks of nanoparticles have generated safety concerns. The current article examines the various types of nanocarriers, such as liposomes, niosomes, solid lipid nanoparticles, nanostructured lipid carriers, nanoemulsions, and others, that are used to deliver nanocosmeceuticals, as well as their benefits and drawbacks [3].

Nanocosmeceuticals have a variety of advantages. They do this by modulating the release of active compounds from carriers based on a variety of criteria such as physical or chemical interactions between the components, drug content, polymer and additives, ratio, and production process. They're found in hair care products like Identik Masque Floral Repair, Origem hair recycling shampoo, and Nirvel hair-loss control shampoo, which are meant to treat hair loss and prevent hair from turning grey. Nanocosmeceuticals extend the life of scents, such as Chanel's Allure Parfum and Allure Eau Parfum spray. These enhance the efficacy of skin care formulations and improve the performance of sunscreens by increasing UV protection. The surface area of the particles is boosted by their small size, allowing active transport of the active substances into the skin. The penetration is improved by occlusion, and skin moisture is raised. Cosmeceuticals are more stable than conventional cosmetics and have a high entrapment efficiency and good

sensory characteristics. The majority of the nanoparticles can deliver drugs in both lipophilic and hydrophilic forms. Antiwrinkle treatments, moisturising creams, skin whitening creams, hair restoring shampoos, conditioners, and serums are all made with nanomaterials [4].

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***Citation:*** *Lotti.T Improved skin care using nanotechnology to improve. Res Clin Dermatol. 2022;5(1):105*