

Development of Biocosmeceuticals

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Outline

- Definition
- Development of products
- Dosage form consideration
- Bioactive ingredients
- Challenges



Definition

Cosmetics vs cosmeceuticals

- Cosmeceuticals contains bioactive compounds and intend to treat mind skin disorders
- Cosmetics is used for cleansing, beautifying, promoting attractiveness and keeping the skin and hair healthy

Biocosmetics and biocosmeceuticals

- Cosmetics or cosmeceutical products which are based on natural ingredients



Development of cosmeceutical products

- 1. Defining a desired product**
- 2. Understanding active ingredients**
- 3. Developing a product**



Defined desired products

- Product concept
- Product type or dosage form***
- Required bioactive ingredients
- Ingredients to omit and regulatory issues



Product type

- Skin care products
- Hair care products
- Make up products

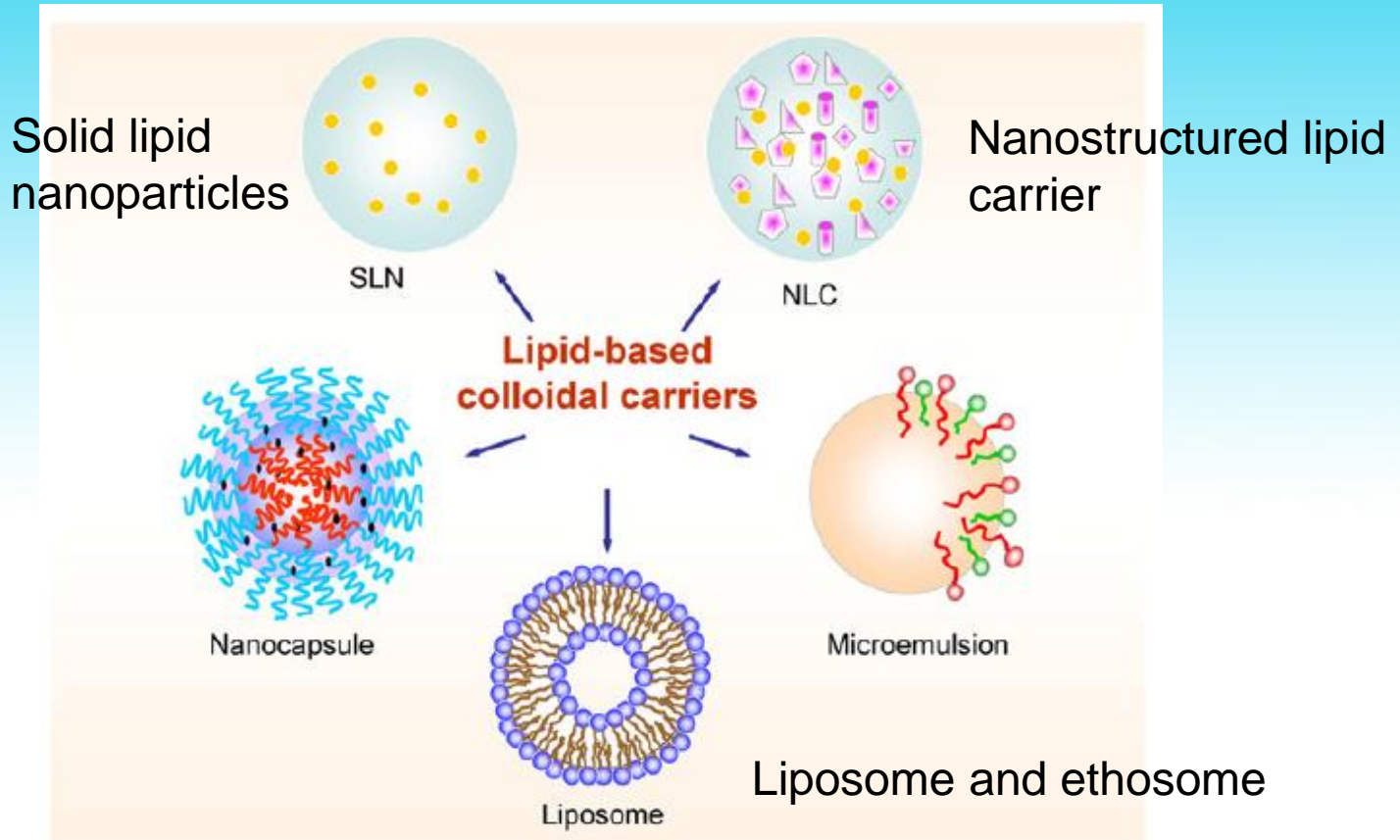


Dosage form consideration

- Solid
- Solution
- Suspension
- Emulsion
- Nano-preparation: liposomes, ethosomes



Advanced lipid-based nanosystems



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Development of cosmeceutical products

1. Defining a desired product
2. **Understanding active ingredients*****
3. Developing a product



Bioactive ingredients

Conventional bioactive ingredients:

- Hydroxyacid, retinoid, vit c, etc.

New bioactive ingredients:

- Lactobionic acid, protein (silk, protein from marine algae), etc.



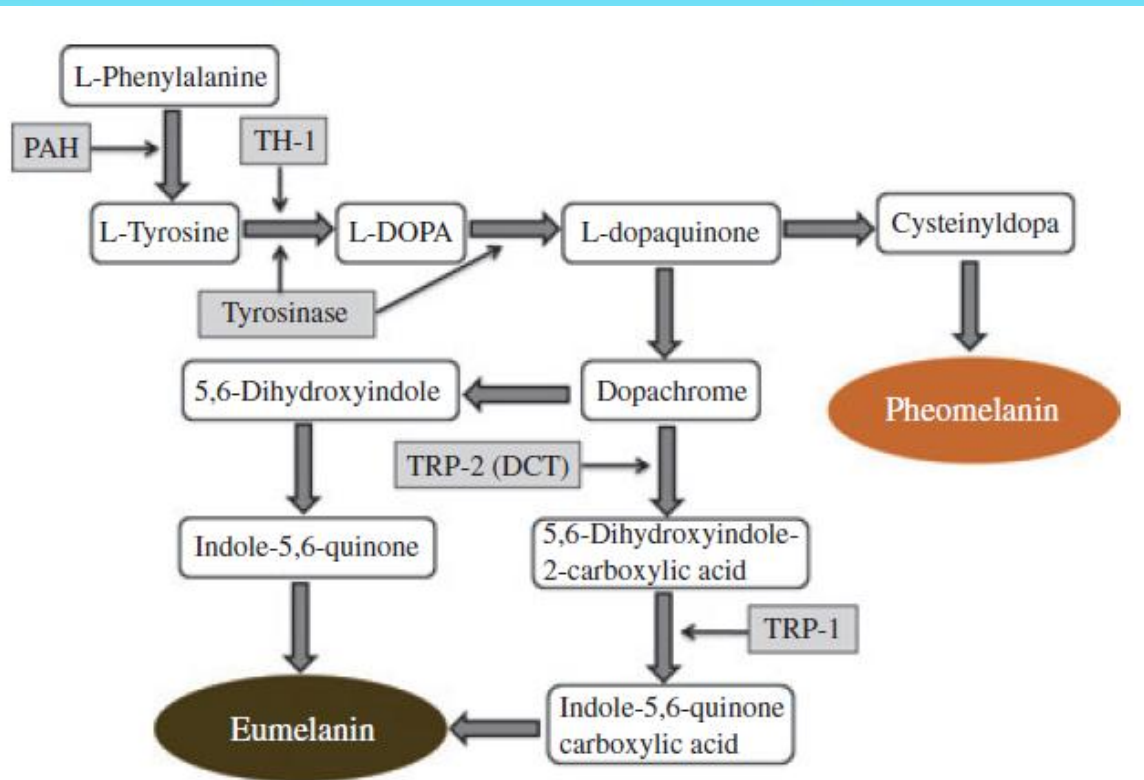
Interesting bioactive ingredients

- Reliable mechanism
- Reliable source of information



Example: mechanism

Melanogenesis



Suppression of tyrosinase:
vit C and licorice extract

International Journal of Cosmetic Science, 2011, 33, 210–221



Challenges to overcome

- Skin penetration of large MW bioactive compounds
- Stability of bioactive compounds



Enhancing penetration by ethosome

Modified ethosomal system enhanced skin penetration of hyaluronic acid (MW of 20-35KDa).

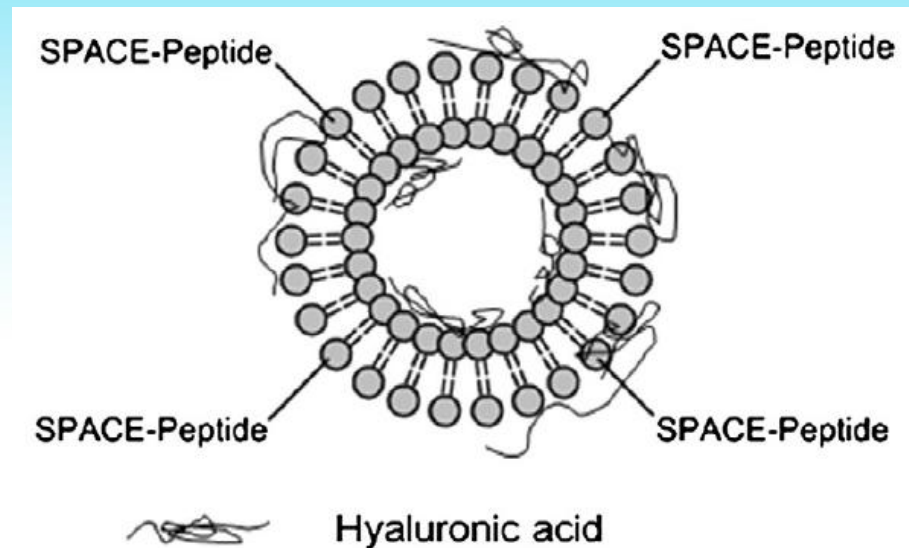


Fig. 1. Schematic of an ethosome modified with SPACE peptide conjugated phospholipids used for topical delivery of hyaluronic acid (HA).

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Increase in stability of retinoids

- Retinoids are known to be unstable.
- Retinyl palmitate in solution:
 - 45% photodegradation in 1 h
- Retinyl palmitate in SLN and liposome:
 - 8% and 15% photodegradation in 4 h



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