

external link (opens in a new window)

Search Sources Analytics Alerts My list Settings Live Chat Help Tutorials

## Quick Search

Search

Back to results | &lt; Previous 41 of 125 Next &gt;

[Link to Full Text](#) | [View at publisher](#) | [Download](#) | [Export](#) | [Print](#) | [E-mail](#) | [Create bibliography](#) | [Add to My List](#)

## International Journal of Pharmaceutics

Volume 323, Issue 1-2, 12 October 2006, Pages 1-10

## Enhancement of follicular delivery of finasteride by liposomes and niosomes. 1. In vitro permeation and in vivo deposition studies using hamster flank and ear models

Tabbakhian, M.<sup>a</sup>, Tavakoli, N.<sup>a</sup>, Jaafari, M.R.<sup>b</sup>, Daneshamouz, S.<sup>a</sup><sup>a</sup> Department of Pharmaceutics, School of Pharmacy, Isfahan Pharmaceutical Sciences Research Center, Isfahan, Iran<sup>b</sup> Department of Pharmaceutics, School of Pharmacy, Mashad University of Medical Sciences, Mashad, Iran

## Abstract

[View references \(67\)](#)

Finasteride is indicated orally in the treatment of androgenetic alopecia and some other pilosebaceous unit (PSU) disorders. We wished to investigate whether topical application of finasteride-containing vesicles (liposomes and niosomes) could enhance drug concentration at the PSU, as compared to finasteride hydroalcoholic solution (HA). Liposomes consisted of phospholipid (dimyristoyl phosphatidylcholine (DMPC) or egg lecithin):cholesterol:dicetylphosphate (8:2:1, mole ratio). Niosomes were comprising non-ionic surfactant (polyoxyethylene alkyl ethers (Brij<sup>®</sup> series) or sorbitan monopalmitate):cholesterol:dicetylphosphate (7:3:1, mole ratio). Vesicles were prepared by the film hydration technique and characterized with regard to the size, drug entrapment efficiency and gel-liquid transition temperature ( $T_g$ ). In vitro permeation of <sup>3</sup>H-finasteride through hamster flank skin was faster from hydroalcoholic solution (0.13  $\mu\text{g}/\text{cm}^2 \text{ h}$ ) compared to vesicles (0.025-0.058  $\mu\text{g}/\text{cm}^2 \text{ h}$ ). In vivo deposition of <sup>3</sup>H-finasteride vesicles in hamster ear showed that liquid-state vesicle, i.e. those made of DMPC or Brij97:Brij76 (1:1), were able to deposit 2.1 or 2.3% of the applied dose to the PSU, respectively. This was significantly higher than drug deposition by gel-state vesicles (0.35-0.51%) or HA (0.76%). Both in vitro permeation and in vivo deposition studies, demonstrated the potentials of liquid-state liposomes and niosomes for successful delivery of finasteride to the PSU. © 2006 Elsevier B.V. All rights reserved.

## Reaxys Database Information

## Author keywords

Finasteride deposition in the pilosebaceous units; Follicular drug delivery; Hamster; Liposomes; Niosomes; Skin permeation

## Indexed Keywords

EMTREE drug terms: cholesterol; dicetyl phosphate; dimyristoylphosphatidylcholine; finasteride; liposome; niosome; nonionic surfactant; phospholipid; polidocanol; polyoxyethylene alkyl ether; sorbitan palmitate

EMTREE medical terms: animal cell; animal experiment; animal tissue; article; controlled study; drug absorption; drug delivery system; drug penetration; drug synthesis; ear; film coating; gel; gel permeation chromatography; hamster; hydration; male; nonhuman; particle size; priority journal; sebaceous gland; skin penetration; topical treatment; transition temperature

MeSH: Administration, Cutaneous; Animals; Cholesterol; Cricetinae; Drug Carriers; Drug Delivery Systems; Ear, External; Enzyme Inhibitors; Finasteride; Liposomes; Male; Mesocricetus; Particle Size; Phosphatidylcholines; Phosphoric Acid Esters; Plant Oils; Polyethylene Glycols; Skin; Skin Absorption

Medline is the source for the MeSH terms of this document.

Chemicals and CAS Registry Numbers: cholesterol, 57-88-5; dicetyl phosphate, 2197-63-9; dimyristoylphosphatidylcholine, 13699-48-4, 18194-24-6; finasteride, 98319-26-7; polidocanol, 60828-78-6, 9002-92-0; sorbitan palmitate, 26266-57-9; Cholesterol, 57-88-5; Drug Carriers; Enzyme Inhibitors; Finasteride, 98319-26-7; Liposomes; Phosphatidylcholines; Phosphoric Acid

## Cited by since 1996

This article has been cited **36 times** in Scopus: (Showing the 2 most recent)

Dragicevic-Curic, N., Fahr, A.  
**Liposomes in topical photodynamic therapy**  
(2012) *Expert Opinion on Drug Delivery*

Gupta, M., Agrawal, U., Vyas, S.P.  
**Nanocarrier-based topical drug delivery for the treatment of skin diseases**  
(2012) *Expert Opinion on Drug Delivery*

[View details of all 36 citations](#)

Inform me when this document is cited in Scopus:

[Set alert](#) | [Set feed](#)

## Other citing sources

Web: **1 time**

## Related documents

Showing the 2 most relevant related documents by all shared references:

Chourasia, R., Jain, S.K.  
**Drug targeting through pilosebaceous route**  
(2009) *Current Drug Targets*

Choi, M.J., Maibach, H.I.  
**Liposomes and niosomes as topical drug delivery systems**  
(2005) *Skin Pharmacology and Physiology*

[View all related documents based on all shared references or select the shared references to use](#)

Find more related documents in Scopus based on:

[Authors](#) | [Keywords](#)

## Lipid Structures (beta)

1 Instances found

**Dimyristoyl phosphatidylcholine**[Show Details](#)  
Occurrences  
- 1

## More By These Authors

The authors of this article have a total of **94 records** in Scopus: (Showing 5 most recent)

Alavizadeh, S.H., Badiee, A., Khamesipour, A., Jalali, S.A., Firouzmand, H., Abbasi, A., Jaafari, M.R.

**The role of liposome-protamine-DNA nanoparticles containing CpG oligodeoxynucleotides in the course of infection induced by Leishmania major in BALB/c mice**  
(2012) *Experimental Parasitology*

Bavarsad, N., Fazly Bazzaz, B.S., Khamesipour, A., Jaafari, M.R.  
**Colloidal, in vitro and in vivo anti-leishmanial properties**

[Add apps](#) | [Help](#)