

TRANSDERMAL SYSTEM FOR HORMONE DELIVERY BASED ON ELASTIC NANOLIPOSOMES

**nano
PROSPECT**

www.imt.ro/NANOPROSPECT

INSTITUTUL NATIONAL DE CERCETARE DEZVOLTARE CHIMICO FARMACEUTICA

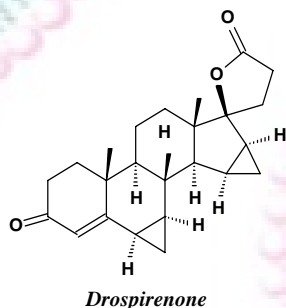
ICCF BUCUREȘTI

C. Hlevca, C. Dinu Parvu, L. Silvestro, A. Ortan, E. Patrut, R. Iuksel, M. Panteli

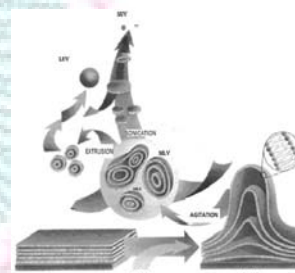
Domain of application

Health. Hormone replacement therapy.

Pharmacological properties of drospirenone



Drospirenone is more similar to natural progesterone, compared to other synthetic progestins and combines potent progestogenic with antimineralocorticoid and antiandrogenic activities. Drospirenone is closely related to spironolactone, a medication used as a diuretic ("water pill"). Like spironolactone, drospirenone can help decrease fluid retention. Also, drospirenone has antiandrogenic activity, which means that it works against testosterone and other "male" hormones.



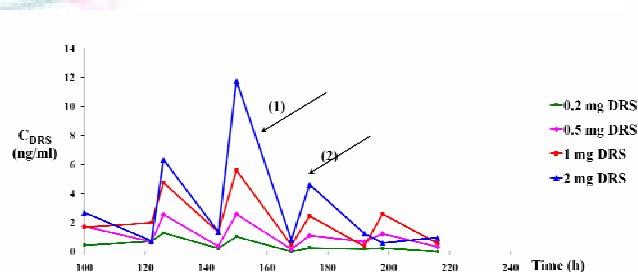
Transferosomes preparation by hydration of the lipid film method

Innovative solution

Transdermal drug delivery system, formulated as gel with ultradeformable liposomes, which provides transdermal delivery of drospirenone, in therapeutic concentrations of milligrams per day.

Advantages of the transdermal delivery

- 1) It circumvents the variables that could influence gastro-intestinal absorption such as pH, food intake and gastro-intestinal motility and eliminates adverse digestive effects
- 2) It increases the bioavailability of the drug because it circumvents the first-pass hepatic metabolism and in the same time reduces toxic side effects
- 3) Gel ratio can be modulated in order to obtain individualised therapy according to patients needs, because pharmacokinetic studies in vivo have shown a good proportion between drospirenone gel concentration, gel quantity, the skin surface of application and drospirenone plasma concentrations.



Drospirenone plasma concentration after gels application on dorsal rabbit skin

(1) after 0.5g gel application (2) after 0.25g gel application