FORMULA #13756

Progesterone skin absorption

Compounded progesterone absorption proven in an anhydrous base

PEER-REVIEWED STUDY

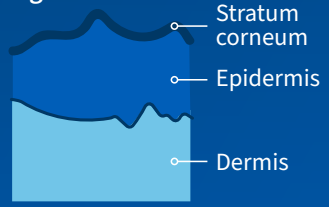
Progesterone is often recommended in hormone replacement therapy (HRT)

- **Drug delivery through the skin** is popular for its convenience, safety and non-invasiveness, but has **low absorption and bioavailability** due to the skin barrier
- Previous studies suggested an **anhydrous (containing no water) topical base** used in compounding with progesterone **could improve absorption**

This in-vitro study:

- Evaluated and compared **skin distribution of progesterone through the skin layers** following application of two formulations using:
  - » an **anhydrous** permeation-enhancing **gel base** (*Anhydrous VersaBase® HRT*)
  - » a **water-based cream** (*non-ionic cream*)
- Tested the **stability** of both formulations
- Used the in-vitro skin model to **test absorption** and **mass spectrometry imaging** for **observing progesterone presence** in skin layers (stratum corneum, epidermis and dermis, Figure 1)

Figure 1



Findings

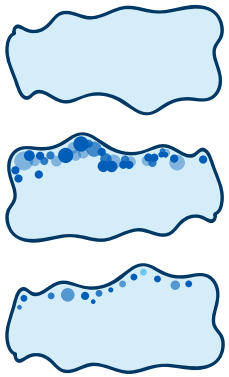
- Progesterone absorption through the skin is **three times higher** with *Anhydrous VersaBase HRT* than with the non-ionic cream (Figure 2)
- Mass spectrometry imaging proved effective: the images show *Anhydrous VersaBase HRT* **delivered more progesterone** compared to the non-ionic cream (Figure 3)
- Progesterone in *Anhydrous VersaBase HRT* is **stable** at room temperature with a **six-month beyond-use date**

Figure 2

1700
optical density
(3x higher absorption)
Anhydrous VersaBase HRT

550
optical density
(lower absorption)
Non-ionic cream

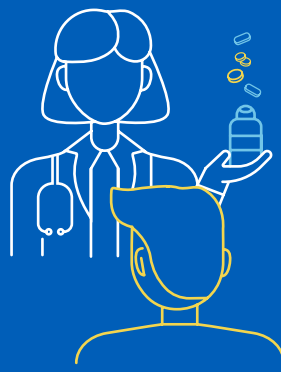
Figure 3



No progesterone in control tissue

Progesterone in *Anhydrous VersaBase HRT*

Progesterone in non-ionic cream



What this means for pharmacists, physicians and patients

- This formulation's longer beyond-use date means **more patient convenience** along with **fewer visits to the pharmacy**
- Better topical progesterone absorption may **decrease hormone deficiency related symptoms**
- *Anhydrous VersaBase HRT* is a **reliable compounding base** for progesterone in HRT, offering **proven skin absorption**

Read the study: Banov, D., Song, G., Ip, K., Seeley, E.H., Linehan, S.T., Bassani, I., Ferron, G., Bassani, A.S., Valdez, B.C. (2024) In vitro evaluation of the percutaneous absorption of progesterone in anhydrous permeation-enhancing base using the Franz skin finite dose model and mass spectrometry. *Archives of Dermatological Research*, 316(6):291. Available at: doi.org/10.1007/s00403-024-03040-x or scan the QR code.

For more information about the study contact: PCCAScience@pccarx.com.

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