

AKVANO® – a new class of topical medication

Anders Carlsson, PhD, CEO, Lipidor AB / Tel. +46 73 778 06 43 / anders.carlsson@lipidor.se

Overview

Lipidor's AKVANO® technology represents a new proprietary dosage form that creates a lipid layer on the skin surface for effective topical delivery of drugs and skin care treatment.

- Effective drug delivery achieved through highly efficient physicochemical interaction with the skin barrier.
- Lipid-based approach enables skin barrier reinforcement and other possibilities for optimizing topical performance.
- Improved patient experience — non-touch, easy to use, quick drying, non-greasy, pleasant feeling on the skin.

Suitable for healthy, irritated, injured, or diseased skin, and mucous membranes. Partnering and licensing opportunities are available across topical pharmaceutical and skin care treatment markets.

Clinical benefits

- **Prevents skin dehydration:** The lipid layer provides an intrinsic moisturizing effect.
- **Less need for additional creams/emollients:** Selected lipids help to retain moisture and smoothness.
- **Reduces irritation:** AKVANO formulations do not require preservatives or additional components that may cause skin irritation. Formulations also reinforce the skin barrier function, which renders the skin less susceptible to irritation. Non-touch application minimizes irritation for sensitive skin.
- **Minimizes risk of infection:** Non-touch application.
- **Defined dosage:** Spraying device ensures very accurate dosing and an evenly distributed lipid layer.

Principle of AKVANO® technology

As a delivery method for topical treatment, AKVANO technology is fundamentally different from today's ointments and creams.

AKVANO formulations consist of lipid components which are dissolved in a volatile, water-free solvent mixture. When this formulation is applied onto the skin, the solvent evaporates and a non-occlusive lipid layer is formed in an immediate interaction with the skin surface.

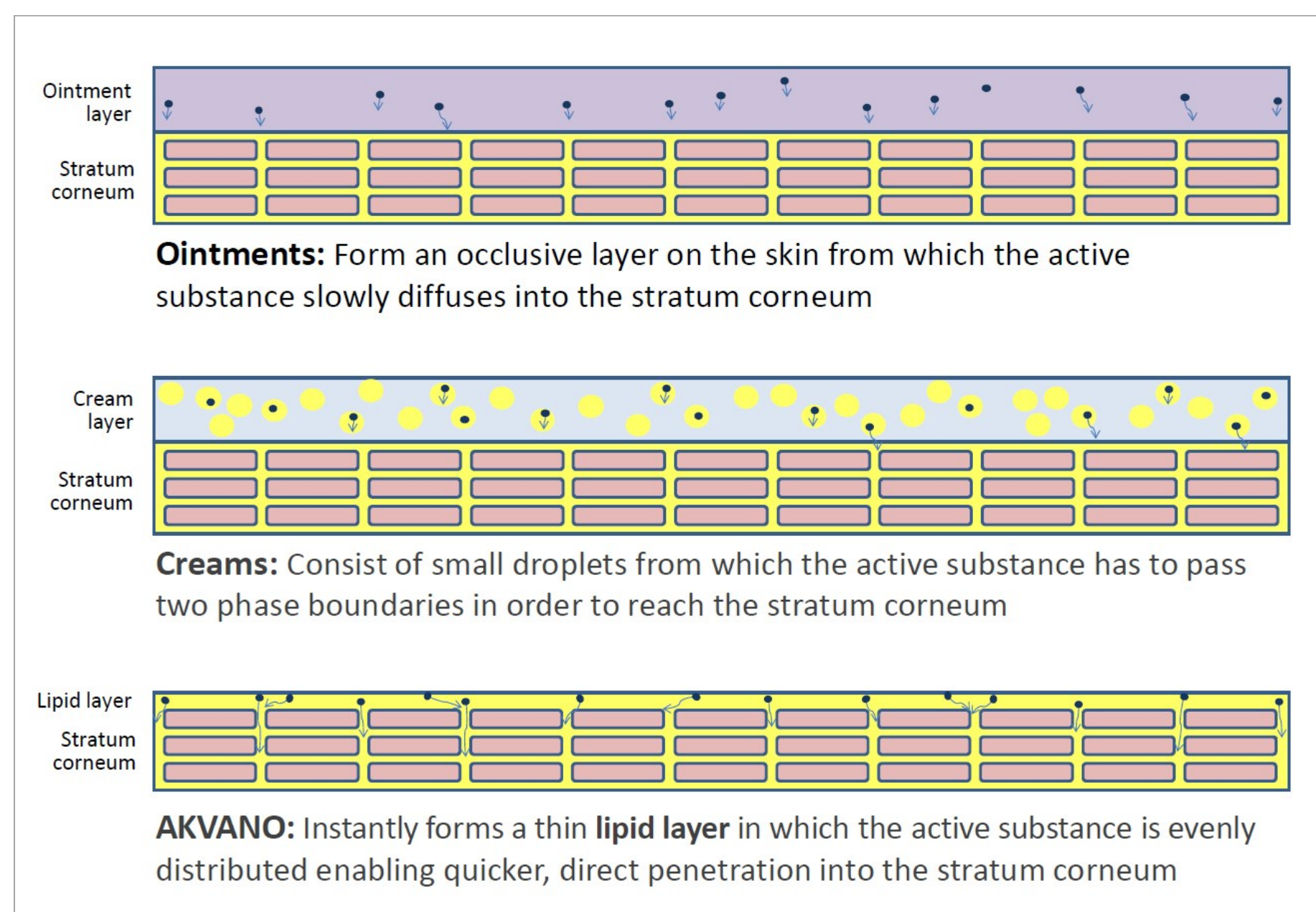
This direct deposition of lipids makes the AKVANO principle fundamentally different from other dosage forms.

Versatility & optimization

The molecular structures of the individual lipid components determine the properties of the layer.

Due to the presence of both polar and non-polar components in the solvent mixture in combination with selected lipids, both lipophilic and hydrophilic drugs can be incorporated in AKVANO and become evenly distributed in the lipid layer after evaporation. Thus, the delivery of a specific drug substance can be optimized by selecting the best proportions of components in AKVANO.

In addition, the lipids in AKVANO can be selected to either reinforce or loosen the barrier in stratum corneum in order to optimize a specific application.

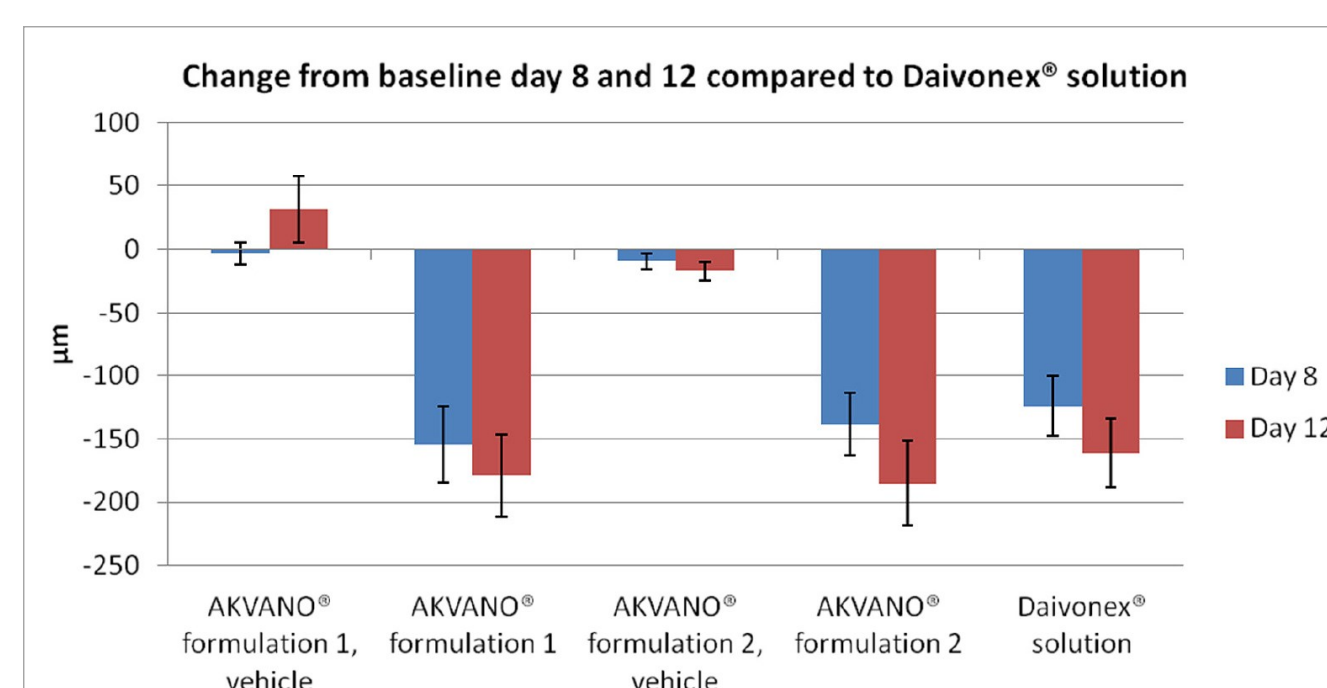


Psoriasis program (Phase I/IIa)

A clinical phase I/IIa trial was completed in 2013. It was a single-center, randomized, controlled trial on subjects with *psoriasis vulgaris* and mild to moderate chronic plaque(s) in a stable phase.

Results

The two AKVANO/calcipotriol formulations both showed a clear antipsoriatic effect, which was confirmed by sonographic measurement and clinical assessment.



The sonographic results demonstrated a continuous decrease in mean thickness in the test fields treated, reflecting a clear clinical improvement of psoriatic lesions.

The antipsoriatic effect of the AKVANO/calcipotriol formulations was statistically significant compared to the vehicle-only formulations, and comparable to the efficacy of marketed treatments (Daivonex® solution and cream).

Business opportunities

Lipidor is looking for partners in the pharmaceutical industry that wish to take advantage of the extensive and varied opportunities AKVANO offers across dermatology and skin care markets.

Opportunities include:

- Lipidor's psoriasis program;
- Use of AKVANO in the development of products with proprietary APIs or with APIs that are no longer patent protected;
- Development of non-pharmaceutical skin treatment (skin barrier reinforcing) products.

