

Lipex Shea Tris – The natural bioactive ingredient for functional skin care.

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INCI name: (EU) Butyrospermum Parkii Butter Extract
(US) Butyrospermum Parkii (Shea Butter) Extract

Appearance: Yellowish thick paste

Melting point: 45-55 °C

Composition: Triterpene esters, 50–65 %
Shea butter di- and triglycerides, typical 35–50 %

Processing: Produced from high-quality shea butter by modern separation techniques

Safety: No skin or eye irritation (HRIPT & HET-CAM testing)

Use level: 0.1–0.5 % in formulation

Applications: Skin care; face, body and sun care products.

Lipex Shea Tris

Shea butter has long been known for its excellent skin benefits. In ancient times the peoples of West Africa used this valuable butter to restore, soothe and protect their skin. Today, these properties can be directly related to the triterpene esters contained in shea butter, and their documented skin functionalities (Ref. 1).

Lipex® Shea Tris is a further development of the AAK shea butter range, offering a concentrated bioactive fraction of shea butter triterpene esters. The bioactive lipids have been concentrated to a high content and have been shown to possess potent skin caring and protecting properties. The documented skin functionality and safety profile of Lipex® Shea Tris makes it well suited to high-end skin care and dermocosmetic applications.

Chemical and physical characteristics

Lipex® Shea Tris is a triterpene fraction of high-quality shea butter comprising lupeol, α -amyirin, β -amyirin and butyrospermol cinnamates and acetates.

Functionality of triterpenes

Triterpenes are secondary plant metabolites originating from squalene and widely distributed in plant surface structures such as fruit peel, leaves and stem bark, and are typically found at a low concentration in plant oils. A wide range of natural triterpenes and their derivatives have been identified as potent bioactive components and their various bioactivities have been substantiated in numerous publications. Properties such as anti-inflammatory, anti-tumour, anti-protease and anti-microbial are reported (Ref. 2).

Shea butter triterpenes

Shea butter is unique among vegetable oils with its high content of lipophilic triterpenes. The typical ester form results in a lower melting point and greater oil solubility and bioavailability in comparison with the non-esterified triterpene alcohols. Studies of triterpenes derived from shea butter (Ref. 3) together with studies including lupeol and amyryns from other sources indicate potent bioactivities that are of high value for skin care applications.

Barrier strengthening			
Properties	Test	Ref.	Results
Epidermis	Ex vivo	4	Explants treated with 0.5 % Lipex® Shea Tris (0.3 % TE) show 38 % increase of epidermal thickness versus placebo cream after 6 days (Fig. 1).
Dermis	In vitro	5	Significant increase (80 %) in formation of fibroblasts versus control cells, following exposure to shea triterpene-conditioned medium.
Dermis	Ex vivo	4	Significant increase in dermal collagen after 6 days of treatment with cream including 0.5 % Lipex® Shea Tris (0.3 % TE) versus placebo cream (Fig. 2).
Protease inhibiting			
Properties	Test	Ref.	Results
Epidermis	In vitro	7	Gene expression analysed using RT-qPCR on mRNA extracted from keratinocytes indicate a 66 % decrease of MMP-3 gene expression with 0.1 % Lipex® Shea Tris (600 ppm TE) versus control.
Dermis	Ex vivo	6	Significant reduced collagenase activity shown in explants treated with cream including 0.5 % Lipex® Shea Tris (0.3 % TE) versus placebo cream.
Anti-inflammatory			
Properties	Test	Ref.	Results
Epidermis	In vitro	8	Anti-inflammatory response by keratinocytes exposed to croton oil, 25 % reduction of intracellular IL-1 α cytokine released after treatment with shea butter triterpenes (100–500 ppm TE) versus control (Fig. 3).

Abbreviations:

TE Triterpene esters

RT-qPCR Reversed transcription-quantitative polymerase chain reactions.

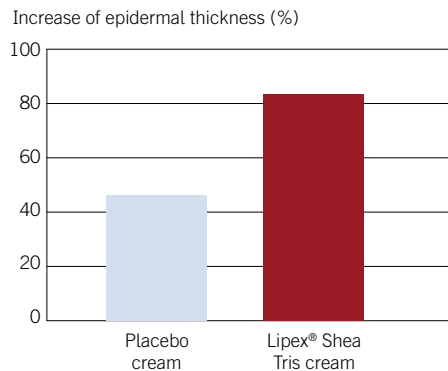
Efficacy testing of Lipex Shea Tris

The efficacy of Lipex® Shea Tris has been evaluated with regard to skin barrier strengthening, protease inhibiting and anti-inflammatory properties. Results are summarized in the table above.

Shea butter triterpene esters give a stronger skin barrier

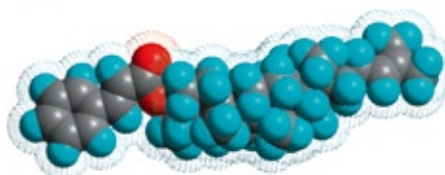
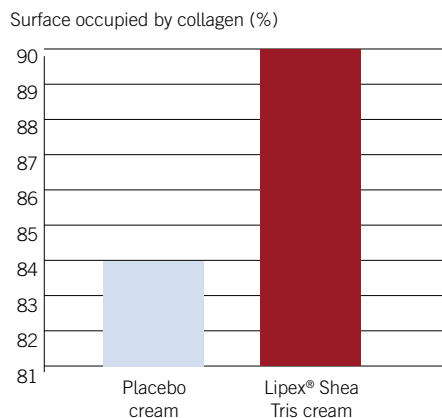
Shown beneficial effect on skin barrier properties of Lipex® Shea Tris (Fig. 1) is further confirmed by morphological studies showing very good skin morphology with a well-laminated epidermis and stratum corneum.

Fig. 1 Improved epidermal barrier



Further evaluation of skin dermal structures illustrates an increased content of dermal collagen (Fig. 2). Following morphological studies show additionally a dense and well-formed collagen network in the papillary dermis.

Fig. 2 Increased dermal collagen



Butyrospermol cinnamate – one of the bioactive esters in Lipex® Shea Tris.

Observed MMP-3 inhibition and collagenase-inhibiting activities further indicate skin-protecting properties of Lipex® Shea Tris. The triterpene esters may give protection against effects of environmental aggression, skin ageing and resulting loss of skin elasticity and firmness.

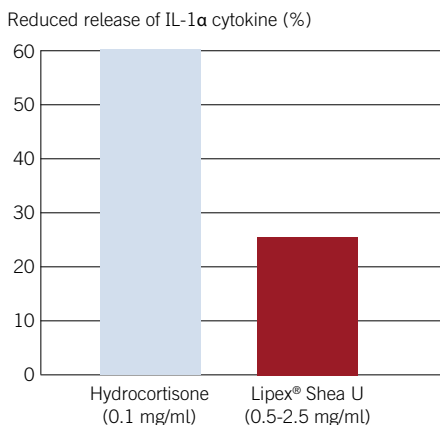




...and protect against environmental stress

The reduction of inflammatory markers (Fig. 3) indicates that shea butter triterpene esters can reduce the effect of environmental stress and other damaging processes, resulting in a healthy, well-balanced skin.

Fig. 3 Anti-inflammatory activity



Lipex Shea Tris is easy to use

Lipex® Shea Tris dissolves easily in esters, vegetable oils and other commonly used non-polar or semi-polar emollients, making it easy to formulate all types of emulsions. Thanks to its semi-polar character it can also be formulated into serums and facial cleansers at concentrations up to 0.5%.

Use Lipex Shea Tris in:

- Facial and body care products for a healthy skin appearance
 - reducing premature breakdown of skin structures
 - supporting the formation of a good skin barrier
 - moisturizing and relieving dry skin
- After-sun formulations
 - reducing the negative effects of UV exposure
 - stimulating skin renewal processes
- Eye and lip care formulations
 - natural protection for sensitive skin
 - healing dry and scaly lips

References

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