Cellular metabolism stimulator
Derivative of pantothenic acid (Vitamin B5) to stimulate skin metabolism.

D-PTA demonstrates a great penetration in the skin to:

- Activate energetic pathways...
- ...for a repairing and soothing effect.

D-Panthenyl Triacetate (D-PTA) is a derivative of D-Panthenol (D-PAN) which is well known in the literature for its several benefits on skin: anti-irritant properties, repairing the skin barrier, or also stimulating proteins involved in UV protection.

- Precursor of Coenzyme A

++ Stimulation of energetic pathways (glycolysis, citric acid or even lipid synthesis)

C Activation ok skin cells regeneration

✗ Wound healing with a better moisture retaining capacity

Sun, extreme temperature, environmental aggressions, shaving, ...
Effect of D-PTA on essential energetic pathways (ex vivo tests)

**Protocol:** D-PTA was tested for its ability to activate several biochemical markers on skin. Twelve explants placed in medium used to support growth were treated, or not, with a cream containing 2% D-PTA. After 6 or 24h of incubation, punches of explants were prepared for mRNA extraction. 27 markers of skin metabolism were then analyzed by qRT-PCR.

**Result:** D-PTA significantly activates 25% of the test markers. These are involved in metabolic pathways such as glycolysis, the citric acid cycle or lipid synthesis.
Penetration of the active in the skin (Clinical efficacy)

Protocol: D-Panthenol (D-PAN) and D-PTA were tested for their ability to penetrate the skin. Three volunteers applied 3 products on 3 areas of their forearm: a control, a gel containing 3% D-PAN, or a gel with 3% D-PTA. The treated areas were measured by confocal Raman technology (3510 Skin Composition Analyzer) 1, 5 and 24h after application.

Result: Comparing this two products, D-PTA offers a quicker and deeper penetration in the skin.
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Result: In 24h, D-PTA is transformed into D-Panthenol in the deeper skin layers, due to its de-acetylation.

Measurements have been done only for 24h. It certainly shows only the beginning of the de-acetylation of D-PTA. After 48h a further increase in the conversion of D-PTA in D-PAN might be expected.
Stimulation of wound healing (Clinical efficacy)

Protocol: A saline treatment, a placebo cream and emulsions containing either 3% D-PAN or 3% D-PTA were tested for their ability to stimulate skin healing. A double-blind clinical trial on 37 volunteers (female and male aged between 40 and 61) was run. Suction blisters were generated by a vacuum of 450-800 mbar on skin and then immediately treated. TEWL was measured after 30 min (T0) and 72h.

Result: After only 72h, D-PTA at 3% improves skin repair by 8.7%.
SAFETY ASSESSMENT

TECHNICAL INFORMATION

INCI: Panthenyl Triacetate
Origin: Organic Synthesis
Preservation: Preservative free
Appearance: Clear, nearly colorless, highly viscous liquid
Solubility: Oils, alcohols, glycols soluble
Dosage: 1% - 5%
Processing: Can be incorporated in any formula in liquid form at pH between 5 and 8 and high or moderate temperature
Regulatory status: CN, JP, KR*, HK, AU, ASEAN, USA, CA, South-Am, Mid-East, EU
Claims: Cellular metabolism activator, repairing, soothing

SAFETY ASSESSMENT

Ocular irritation: BCOP assay - non irritant at 100%
Skin irritation: Closed epicutan patch test - non irritant at 10%
Mutagenicity: Ames assay - OECD 471 - non mutagenic
Thank you