

New research compares five retinoids for anti-photoaging therapy

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Over the past decades, increasing evidence has demonstrated that five retinoids, including retinol (ROL), retinol acetate (RAc), retinol propionate (RP), retinol palmitate (RPalm), and hydroxypinacolone

retinoate (HPR), can be potential therapeutic agents for skin photoaging. However, therapeutic efficacies and biosafety have never been compared to these compounds.

A study [published](#) in the journal *Photochemistry and Photobiology* aimed to determine the optimal [retinoid](#) type(s) for anti-photoaging [therapy](#) both in vitro and in vivo.

The data demonstrates that four retinoids (RPalm, RP, HPR and ROL) but not RAc were effective for anti-photoaging treatment at 5 $\mu\text{g}/\text{mL}$ in vitro, with action mechanisms associated with antioxidative, anti-inflammatory and anti-skin ECM degradation activities.

Notably, both RPalm and RP appeared superior to HPR and ROL for those activities. Importantly, both RPalm and RP were shown to be optimal for anti-photoaging therapy when topically applied at 5 mg/kg in a UVB-induced mice model of photoaging, which is consistent with their high anti-photoaging activities in vitro.

Additionally, [topical application](#) of these five retinoids showed satisfactory biosafety without causing significant apoptosis in animal organs, although RP application led to a slight decline in animal body weights.

Collectively, these data have laid a good foundation for the next development of the clinical application of these retinoids for skin health care.

More information: Peng Shu et al, Comparison of five retinoids for anti-photoaging therapy: Evaluation of anti-inflammatory and anti-oxidative activities in vitro and therapeutic efficacy in vivo, *Photochemistry and Photobiology* (2023). [DOI: 10.1111/php.13872](https://doi.org/10.1111/php.13872)

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