**Anti-photoaging mechanism of *Phellinus linteus***

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**Abstract:** *Phellinus linteus*, which is a typical medicinal fungus, has been shown to have antitumor and anti-inflammatory activities. Studies on the effect of anti-photoaging are limited. We systematically evaluated the anti-aging effects of *Phellinus linteus*. Fungi exosome-like nanovesicles (FELNVs) of *Phellinus linteus* were isolated, and the functional molecular mechanisms were evaluated. The results of volunteer testing showed that *Phellinus linteus* extract had anti-aging activity. Molecular mechanism research results showed that miR-CM1 in FELNVs could inhibit Mical2 expression in HaCaT cells through cross-kingdom regulation, thereby promoting collagen expression; inhibiting Matrix Metallopeptidase 1 expression in skin cells; decreasing the levels of reactive oxygen species, malondialdehyde, and senescence-associated β-galactosidase; and increasing Superoxide dismutase activity induced by ultraviolet rays. Animal studies have shown that miR-Exo (Hyaluronate- Polyethylenimine nanoparticles encapsulating CM1) have better efficacy than native FELNVs in resisting photoaging. The above results indicated that miR-CM1 derived from *Phellinus linteus* inhibited the expression of Mical2 through cross-kingdom regulation and inhibited Ultraviolet-induced skin aging.

**Keywords:** Skin aging, Fungi exosome-like nanovesicles, miRNAs, Anti-aging effects, Cross-kingdom regulations

**Biography: Huijuan Liu**, PhD, Assistant Researcher. She is the second-level talent of the "131" innovative talents training project in Tianjin and the winner of the honorary title of "Tianjin Good Youth of Innovation and Entrepreneurship". She has published 15 SCI-indexed articles (8 in Zone 1) as the first author or corresponding author, 8 granted invention patents, and 2 clinical trial approvals for the drug development projects she participated in. She presided over 2 projects of National Natural Science Foundation of China, and participated in 2 projects of National Natural Science Foundation of China and 1 project of National Major New Drug Creation Project as the main author.

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