



Effect of atmospheric fine particles on epidermal growth factor receptor mRNA expression in mouse skin tissue

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ABSTRACT. We investigated the effect of atmospheric fine particles on epidermal growth factor receptor (*Egfr*) mRNA expression in mouse skin tissue and explored the effect of atmospheric fine particles on skin aging. Forty female BALB/c mice were randomly divided into four groups (each comprising 10 mice) as follows: a saline control group and low-, medium-, and high-dose atmospheric fine particle groups (1.6, 8.0, and 40.0 mg/kg, respectively) (fine particles were defined as those with a diameter of ≤ 2.5 μm , i.e., PM_{2.5}). Each dose group was exposed to intratracheal instillation for 3 days. Twenty-four hours after the last exposure, real-time quantitative polymerase chain reaction was used to detect the expression of *Egfr* mRNA in the skin tissue of each mouse. The expression levels of *Egfr* mRNA in the medium- and high-dose PM_{2.5} groups were significantly higher ($P < 0.05$) than that in the control group, and were positively correlated with the dose.

Medium and high concentrations of PM2.5 can induce the expression of *Egfr* mRNA and promote skin aging.

Key words: Atmospheric fine particles; Epidermal growth factor receptor; Real-time fluorescent quantitative PCR