

investigating whether the activity of the proteins encoded by the genes is suppressed or increased.

In addition, a composition of the present disclosure which contains galangin, an isomer thereof, a pharmaceutically acceptable salt thereof, a prodrug thereof, a hydrate thereof or a solvate thereof as an effective ingredient can be used to prevent, treat or improve skin diseases such as atopy, psoriasis, etc. because it is effective in moisturizing skin or strengthening skin barrier by promoting the synthesis of filaggrin and keratin and promoting the differentiation of keratinocytes. Also, it may be used to improve skin damaged by microdust.

【Brief Description of Drawings】

Fig. 1 shows cell viability after treatment with microdust extracts. ADSP denotes Asian dust storm particle, or yellow dust, PM10 (particulate matter 10) denotes microdust with a particle size of 10 μm and PM2.5 (particulate matter 2.5) denotes microdust with a particle size of 2.5 μm .

Figs. 2a-2k show decreased expression of genes whose expression is increased in skin cells stimulated by microdust, after treatment with galangin.

Figs. 3a-3k show increased expression of genes whose expression is decreased in skin cells stimulated by microdust, after treatment with galangin.

Figs. 4a-4d show relative mRNA expression levels of filaggrin, keratin 10, keratin 1, keratin 13 and keratin 15 in normal human keratinocytes, depending on the concentration of galangin.

Fig. 5 shows the degree of differentiation of keratinocytes not treated with microdust, depending on the concentration of galangin.

In this aspect, the method may further include: a step of diagnosing that skin cells or skin barrier is damaged by microdust 1) when the expression level of the mRNA of one or more gene selected from a group consisting of CXCL14 (NM_004887) gene, SOD3 (NM_003102) gene, KRT1 (NM_006121) gene, H19 (NR_002196) gene, CASP14 (NM_012114) gene, KRT10 (NM_000421) gene, CASP8 (NM_001080125) gene, KRT15 (NM_002275) gene, KRT13 (NM_002274) gene and filaggrin gene or protein encoded thereby measured from the skin cells of a subject is lower than that of a skin cell sample not damaged by microdust or 2) when the expression level of the mRNA of one or more gene selected from a group consisting of S100A7 (NM_002963) gene, S100A8 (NM_002964) gene, S100A9 (NM_002965) gene, CYP1A1 (NM_000499) gene, CYP1B1 (NM_000104) gene, PI3 (NM_002638) gene, IL36G (NM_019618) gene, IL1B (NM_000576) gene, CCL27 (NM_006664) gene, IL8 (NM_000584) gene, PTGS2 (NM_000963) gene, NOX5 (NM_001184779) gene and XDH (NM_000379) gene or protein encoded thereby measured from the skin cells of a subject is higher than that of a skin cell sample not damaged by microdust.

In this aspect, the expression level of the mRNA or protein of the gene may be measured by one or more method selected from a group consisting of microarray, PCR, NGS (next-generation sequencing), western blot, northern blot, ELISA, radioimmunoassay, radioimmunodiffusion, histological immunostaining and immunoprecipitation assay.

As used in the present disclosure, the “normal level” of gene expression, etc. refers to the gene expression level in normal skin cells not stimulated by microdust. In the present disclosure, skin cell damage is diagnosed by measuring the amount of