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## Scientific Literature Review Notice to Proceed – February 19, 2025

## **Lactobacillus Ferment Ingredients**

Cosmetic Ingredient Review (CIR) Procedures call for the development of a review of the available scientific literature for each cosmetic ingredient (and wherever appropriate, closely related ingredients) on the basis of the annual priority list. The Scientific Literature Review (SLR) shall consist of a bibliography of relevant scientific literature, study reports that have been submitted by interested parties, and a description of each literature reference or submitted study report.

The ingredients in this grouping include Lactobacillus Ferment, Lactobacillus Ferment Filtrate, Lactobacillus Ferment Lysate, and Lactobacillus Ferment Lysate Filtrate. The ingredient in this group with the highest number of uses according to United States (US) Food and Drug Administration (FDA) Voluntary Cosmetic Registration Program (VCRP) data obtained in 2023 and Registration and Listing Data (RLD) submitted to CIR in 2024 is Lactobacillus Ferment.<sup>1,2</sup> Lactobacillus Ferment is reported to be used in 266 and 2106 in the VCRP and RLD, respectively. In 2022, this ingredient also had the highest reported maximum concentration of use (at 1.5% in makeup bases) in response to a survey conducted by the Personal Care Products Council (Council).<sup>3</sup>

Although use information has been reported for this ingredient group, an extensive search of the published literature resulted in insufficient information pertaining to the safety of these ingredients as used in cosmetics to justify preparation of a formal SLR. CIR, therefore, is issuing this SLR Notice to Proceed (NTP) to alert interested parties that a safety assessment is being prepared, and significant data needs remain.

A search was performed on the ingredients included in this grouping, as well as the species of *Lactobacilli* that are used in the manufacturing of these ingredients (identified below). Although ample data were found on these species as live bacteria, as demonstrated by the sampling of references included in this NTP (e.g., as probiotics in clinical studies<sup>4-11</sup> and case reports<sup>12-20</sup>), toxicological data on the fermented products of these bacteria were not found. The products derived from the fermentation of *Lactobacilli* may include substances such as antimicrobial peptides and fragments of dead cells (postbiotics).<sup>21</sup>

According to personal communication with the Council, species that may be used in the manufacture of the ingredients included in this group are:

- Lactobacillus Ferment
  - Lactobacillus acidophilus
  - o Lactobacillus crispatus
- Lactobacillus Ferment Filtrate
  - Lactobacillus bulgaricus
  - Lactobacillus paracasei
  - Lactobacillus rhamnosus
  - Lactobacillus plantarum
- Lactobacillus Ferment Lysate
  - Lactobacillus acidophilus
  - o Lactobacillus brevis
  - Lactobacillus bulgaricus
  - Lactobacillus casei
  - o Lactobacillus casei
  - o Lactobacillus delbrueckii
  - o Lactobacillus gasseri
  - o Lactobacillus helveticus
  - o Lactobacillus plantarum

- o Lactobacillus rhamnosus
- Lactobacillus sakei
- Lactobacillus Ferment Lysate Filtrate
  - Lactobacillus bifidus
  - Lactobacillus bulgaricus

All interested persons are provided 60 days from the above date (i.e., **April 20, 2025**) to submit comments and/or published or unpublished data.<sup>\*</sup> A draft report will be prepared, and reviewed by the Expert Panel for Cosmetic Ingredient Safety at a future meeting. If data are provided in response to this SLR NTP, those data will be incorporated into that draft report.

Given that this notice is being issued because of a general absence of information, CIR is seeking information in a wide range of areas, including:

- Composition (on products produced via the fermentation of the species listed above) and impurities data;
- Method of manufacturing data;
- Toxicokinetics data relevant to routes of exposure expected with cosmetic use;
- General toxicity data;
- Developmental and reproductive toxicity data;
- Genotoxicity data;
- Carcinogenicity data;
- Dermal irritation and sensitization data;
- Inhalation toxicity data; and
- Any other relevant safety information that may be available
- Clarification of the species of Lactobacilli used in the production of these ingredients

Please forward relevant data and comments to Dr. Bart Heldreth, Executive Director. This notice was prepared, and the search indicated above was performed, by Priya Cherian, M.S., Senior Scientific Analyst/Writer.

\*Because all unpublished data submitted to CIR will be evaluated in public meetings and may be included in the final published safety assessment, CIR may not accept any confidential or proprietary data or information that cannot be made public. Information may be submitted without identifying the source or the trade name of the cosmetic product containing the ingredient.

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