

## World Congress on DERMATOLOGY RESEARCH

April 22, 2022 | Webinar

### A polylysine dendrigraft able to balance acneic and non acneic strains of *Cutibacterium* *acnes* to prevent acne and skin imperfections

**Joan Attia**

Lucas Meyer Cosmetics, France

Acne is one of the most common skin diseases worldwide, affecting up to 85% of the population. At the pathophysiological level, two factors play a crucial role: the sebaceous gland and *Cutibacterium acnes* (*C. acnes*). New genomic analysis tools have shown that *C. acnes*, former *P. acnes*, a major member of the normal skin microbiota was subdivided into heterogeneous species including acneic bacteria such as RT4, RT5 strains, and commensal bacteria such as the RT6 strain. Moreover, recent data indicated also that the loss of diversity of *C. Acnes* species is associated with acne severity.

Taking all this information, we have developed a green polylysine dendrigraft, the Dendrimer (G2), able to rebalance acneic and non acneic stains of *C. acnes* to protect skin from inflammation, imperfections and acne. In vitro studies revealed the capacity of the G2 to increase membrane fluidity of acneic strains RT4 and RT5 and decrease their biomass in contrast to the RT6 strain. Moreover, G2 showed also a strong anti-adhesion power of *C. acnes* on human keratinocytes. Ex vivo studies indicated also an anti-inflammatory effect by decreasing IL1 $\alpha$  and TLR2 expressions. These data were confirmed in vivo: the study was conducted during 28 days on hemi-face, with a twice daily application of G2 (2 ppm) or Placebo cream on 23 volunteers. After 28 days, we observed a significant decrease of the sebo-regulating effect by 11%, retentional and inflammatory lesions by 31% and 63%, respectively. Interestingly, G2 application promoted also the diversity of *C. acnes* by increasing the expression of its non acneic strains compared to its acneic strains. To conclude, we have demonstrated that G2 could be the new skin care ingredient able to balance acneic and non acneic strains of *C. acnes* to improve skin microbiota and protect skin from inflammation, imperfections and acne.

#### Recent Publications

1. Attia-Vigneau, Joan & Barreau, Magalie & Toquin, Esther & Feuilloley, Marc & Loing, Estelle & Lesouhaitier, Olivier. A Polylysine dendrigraft is able to differentially impact *Cutibacterium acnes* strains preventing acneic skin. *Experimental Dermatology*, 2022.
2. Havas, Fabien & Krispin, Shlomo & Cohen, Moshe & Loing, Estelle & Farge, Morgane & Suere, Thierry & Attia-Vigneau, Joan. A *Dunaliella salina* Extract Counteracts Skin Aging under Intense Solar Irradiation Thanks to Its Antiglycation and Anti-Inflammatory Properties. *Marine Drugs*, 2022, 20, 104.
3. Attia-Vigneau, Joan & Loing, E. & Krispin, Shlomo & Perolat, A. & Havas, Fabien. 129 *A Hylocereus Undatus* fruit extract clinically enhances the skin's microbiota balance and improves skin health and beauty. *Journal of Investigative Dermatology*, 2021, 141, S170.

#### Biography

Joan Attia completed her PhD on Biomolecules and therapeutic pharmacology and Master's Degree in Neuroscience. She has more than 13 year's experiences in Dermo-cosmetics research. At IFF-Lucas Meyer Cosmetics since more than 8 years, she is in charge of the research and development for the cosmetics ingredients (active and functional ingredients and delivery systems) for the cosmetics market.

joan.attia@lucasmeyercosmetics.com

Received Date: March 26, 2022; Accepted Date: March 30, 2022; Publishing Date: May 23, 2022