



MatriSys Announces Positive Results From a Phase I Study of MSB-0221 for the Topical Treatment of Atopic Dermatitis

- Study Reveals the Potential of Beneficial Bacteria to Treat Chronic Skin Diseases -

LA JOLLA, Calif., Feb. 22, 2021 (GLOBE NEWSWIRE) -- MatriSys Bioscience, a company harnessing beneficial bacteria to treat inflammatory skin diseases, today announced the publication of clinical research on the company's lead compound, MSB-0221 (ShA9), for the treatment of Atopic Dermatitis (AD). Data were published in the journal *Nature Medicine* on February 22, 2021 "[Development of a human skin commensal microbe for bacteriotherapy of atopic dermatitis and use in a phase 1 randomized clinical trial](#)". MSB-0221 is a proprietary formulation containing *Staphylococcus hominis* (ShA9) that was selected and designed to target factors that cause AD.

The first-in-human, Phase 1, double-blinded randomized one-week trial of MSB-0221 or vehicle applied topically on forearm skin of 54 adults with *Staphylococcus aureus*-positive AD (NCT03151148) met its primary endpoint of safety. In addition, participants receiving topical application of ShA9 experienced fewer adverse events associated with AD, as well as greatly decreased colonization by *S. aureus* ($P < 0.001$). Expression of mRNA for *psma* was inhibited from *S. aureus* isolated from all participants receiving ShA9 in the trial. A significant correlation was observed within 7 days between improvement in local eczema severity and killing of *S. aureus* by ShA9 ($P < 0.008$). The trial was conducted at the University of California San Diego School of Medicine and the National Jewish Health General Clinical Research Center. The Phase 1 trial was sponsored by the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health.

"The clinical and mechanistic results from this study are highly encouraging, showing the safety and potential benefits of rationally selected bacteria that specifically treat key steps involved in causing inflammatory skin conditions," said Richard Gallo, M.D., Ph.D., Distinguished Professor and Chairman of the Department of Dermatology, UC San Diego School of Medicine and co-founder and member of the MatriSys Scientific Advisory Board. "The discovery platform that identified and selected MSB-0221 and its mechanism of action has allowed us to elucidate several additional beneficial bacteria to treat multiple inflammatory skin diseases beyond AD."

MatriSys plans to conduct a Phase 2 clinical trial with 150 patients over a 12-week treatment period. The trial will include a randomized double-blind, placebo-controlled safety, tolerability, and efficacy study using MSB-0221 to treat Atopic Dermatitis.

"We are excited about the potential of beneficial bacteria as a therapeutic modality for multiple skin disorders," said Philippe Calais, Chief Executive Officer of MatriSys. "MatriSys is incredibly committed to explore this new modality of treatment to meet the needs of the millions of patients suffering from chronic skin diseases such as Atopic Dermatitis."

MSB-0221 (ShA9)

MSB-0221 is a proprietary topical bacterial formulation containing a stabilized lyophilized topical preparation of *Staphylococcus hominis*, universal strain A9 (ShA9). The topical formulation is applied to the skin of patients, and the lyophilized bacteria ShA9 return to an active state and kill *Staphylococcus aureus*. This approach is a dramatic improvement over broad-spectrum antibiotics that destroy pathogenic bacteria but also kill beneficial bacteria by "friendly fire".

Atopic Dermatitis

Atopic Dermatitis is a chronic inflammatory skin disease which affects up to 20% of children and up to 3% of adults worldwide, posing a significant burden on patients' quality of life. AD is frequently characterized by overgrowth of *Staphylococcus aureus* (*S. aureus*), which then triggers proteolytic breakdown of the epidermal barrier and immune dysregulation. Correcting the skin microbial ecosystem with targeted bacteriotherapy by a bacterium selected from healthy human skin could potentially break the *S. aureus* colonization cycle and thereby improve skin immune and barrier dysfunction characteristic of AD.

About MatriSys Bioscience

MatriSys Bioscience is leading the discovery and clinical development of a novel class of biopharmaceuticals to transform the treatment of inflammatory skin diseases. Our groundbreaking technology platform identifies beneficial bacteria derived from healthy human skin to treat the millions of children and adults suffering from difficult to treat chronic skin diseases. With our lead clinical program in patients with Atopic Dermatitis, we are also rapidly advancing therapeutics for Acne and Rosacea. www.matrisysbio.com

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