

Supplementary table 1. Interventional studies with topical bacteriotherapy in dermatology.

Target	Source	Participants	Probiotic Strains	Strain origin	Skin commensal	Downstream process	Viable	Dose	Main results
Atopic dermatitis	Nakatsuji et al, 2018 ¹	14 Adults	<i>Staphylococcus epidermidis</i> , <i>Staphylococcus hominis</i> , <i>Staphylococcus capitis</i> , <i>Staphylococcus warneri</i>	Skin	YES	freeze-dried	YES	Single dose 1×10^5 CFU/cm ²	After 1 week “>90% reduction in <i>S. aureus</i> load ($p = 0.013$) and significant improvements in local EASI ($p = 0.029$).”
Atopic dermatitis	Myles et al, 2018 ²	10 Adults	<i>Roseomonas mucosa</i>	Skin	YES	freeze-dried	YES	Twice weekly for 6 weeks (increasing dosages 4×10^3 , 4×10^4 , 4×10^5)	“Significant reduction in pruritus ($p < 0.01$), SCORAD values, and steroid usage ($p < 0.05$).”
Atopic dermatitis	Blanchet-Rethore et al, 2017 ³	21 Adults	<i>Lactobacillus johnsonii</i>	Vagina	NO	heat inactivated	NO	Twice daily for 21 days	“Reduction in <i>S. aureus</i> load, correlating with 4.93 ± 8.23 decrease in mean SCORAD between days 8 to 28 ($p = 0.012$).”
Atopic dermatitis	Di Marzio et al, 2003 ⁴	11 Adults	<i>Streptococcus thermophilus</i>	Skin, plant and dairy	NO	sonicated	NO	Twice daily for 14 days	Significant improvement “in scores of erythema, pruritus, vesiculation, and scaling ($p = 0.003$). Stratum corneum ceramide levels increased ($12.86 \pm 1.97 \text{ pmol/cm}^2$; $p = 0.002$).”
Atopic dermatitis	Gueniche et al, 2008 ⁵	75 Adults and Children	<i>Vitreoscilla filiformis</i>	Thermal water	NO	lysate	NO	Once daily for 30 days	“Significant reduction of SCORAD values ($p = 0.0044$), pruritus ($p = 0.0171$), loss of sleep ($p = 0.0074$)”

Atopic dermatitis	Butler, 2020 ⁶	36 adults	<i>Lactobacillus reuteri</i> (DSM 17938)	Gastrointestinal	NO	freeze-dried	YES	Twice daily for 8 weeks (10 ⁸ CFU/gram)	Both vehicle and verum compared to baseline improved significantly (SCORAD index). No significant difference in the overall effect between the control and treatment
Acne vulgaris	AOBiome Clinical trial (2018) (not published *)	358 Adults	<i>Nitrosomonas eutropha</i>	Amerindian skin (not Western skin)	NO	NA	YES	NA	"2-point reduction in Investigator's Global Assessment, ($p = 0.03$) at 12 weeks. Number of inflammatory lesions also reduced ($p = 0.028$). " (results from AOBiome press-release)
Acne vulgaris	Karoglan et al, 2019 ⁷	14 Subjects	<i>Cutibacterium acnes</i> (C3, K8, A5, F4)	Skin	YES	NA	YES	Twice daily for 5 weeks (10 ⁶ CFU/g)	Significant reduction in non-inflamed lesions (C3 + K8 $p = 0.029$, C3 + K8 + A5 + F4, $p = 0.036$)
Seborrheic dermatitis	Geuniche et al, 2008 ⁸	60 Adults	<i>Vitreoscilla filiformis</i>	Thermal water	NO	NA	NO	Once daily for 4 weeks	"Significant reduction in erythema and scaling treated vs vehicle (Chi-square, $P < 0.0001$)"
Non-Healing Ulcers	Peral et al, 2010 ⁹	34 diabetic and non-diabetic adults	<i>Lactobacillus plantarum</i>	Gastrointestinal	NO	NA	YES	Daily for 10 days (whole culture 10 ⁵ / ml)	"10 days of treatment resulted in a 3-fold decrease in biofilm producing bacteria ($p < 0.001$). After 30 days, 43% of diabetics and 50% of non-diabetics experienced ulcer resolution."
Burns	Peral et al, 2009 ¹⁰	80 Adults	<i>Lactobacillus plantarum</i>	Gastrointestinal	NO	NA	YES	Daily for 10 days (whole culture 10 ⁵ / ml)	"7-13 days of treatment increased rates of granulation tissue (relative rate = +17.19) compared to the standard of care for delayed 3 rd degree burns. No significant

									difference observed in 2 nd degree or early 3 rd degree burns.”
Sensitive skin	Gueniche, 2010 ¹¹	66 Adults	<i>Bifidobacterium longum reuteri</i>	Gastrointestinal	NO	lysate	NO	Twice daily for 2 months	Significant decrease in skin sensitivity (p < 0.01), significant improved resistance to physical aggression (p < 0.01)
Healthy	Di Marzio, 2008 ¹²	20 elderly	<i>Streptococcus thermophilus</i>	Skin, plant and dairy	NO	sonicated	NO	Twice daily for 15 days	Significant increase in skin hydration (p = 0.001)
Healthy	Nodake, 2015 ¹³	21 adults	<i>Staphylococcus epidermis</i>	Skin	YES	freeze-dried	YES	Twice weekly for 4 weeks (1.36 x 10 ⁹ cells/mL)	Significant increase in hydration , significant decrease in TEWL (p < 0.05), significant increase in lipid content (p < 0.05), significant decrease in pH (p < 0.05)

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