

From Surface to Structure: Skincare Effects on the Collagen-Associated Epidermal Basement Membrane



Poster
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BACKGROUND & OBJECTIVE

In vivo evidence for skincare-induced changes in collagen-associated structures at the epidermal basement membrane is limited. This exploratory study compared the effects of two topical skincare products with untreated skin after eight weeks of use.

METHODS

Randomized pilot study in five women aged 44–60 years. Two test products were applied twice daily to defined volar forearm sites for eight weeks; untreated sites served as controls. Suction blister roofs were collected at baseline and after eight weeks and analyzed by scanning electron microscopy (SEM) with quantitative image analysis of collagen-associated fiber-network area.



Figure 1. Study design: baseline suction blister sampling, twice-daily product application for 8 weeks, post-treatment sampling and SEM-based quantitative analysis.

RESULTS

Both products increased collagen-associated fiber-network area relative to untreated control skin after eight weeks, with distinct structural response patterns.

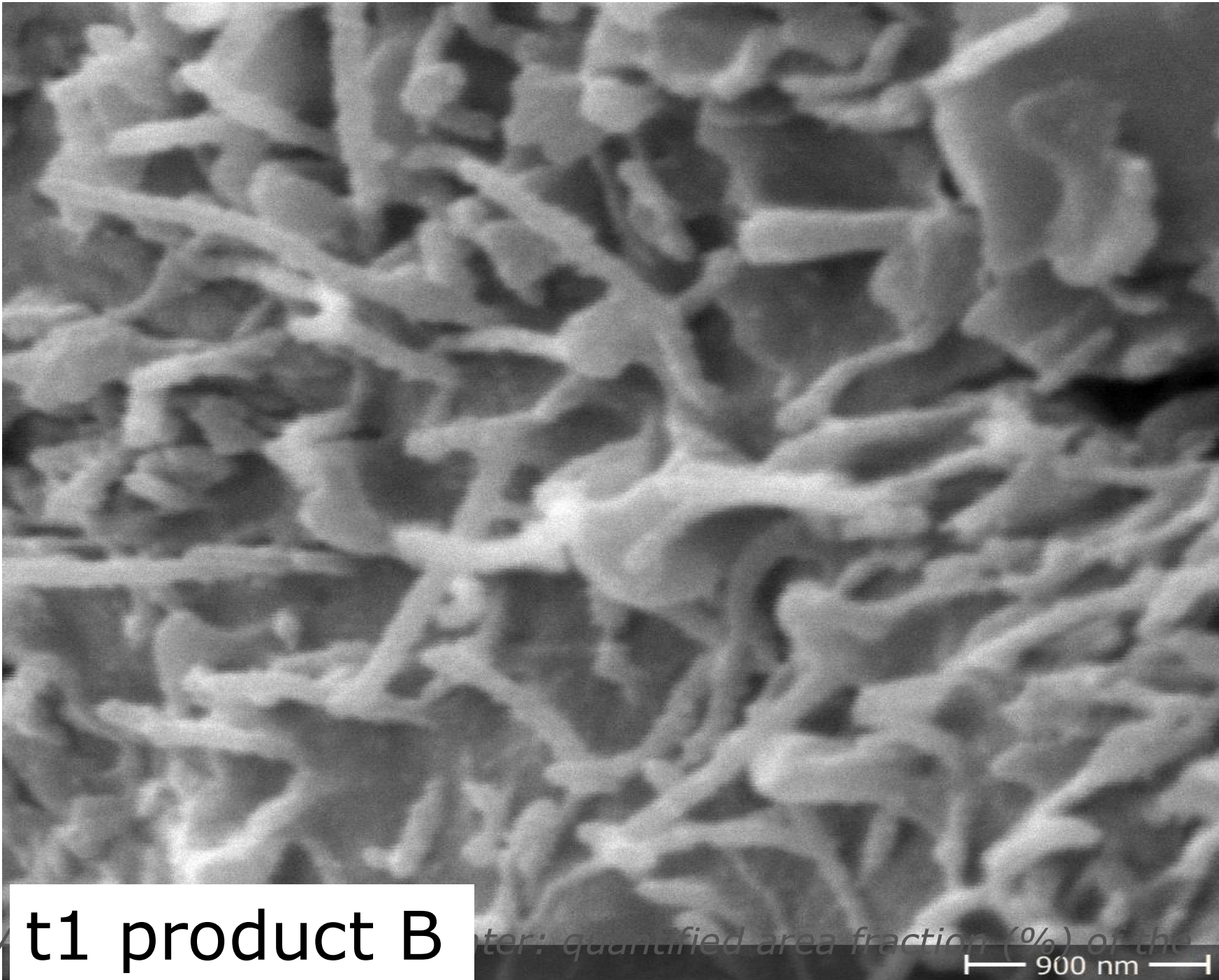
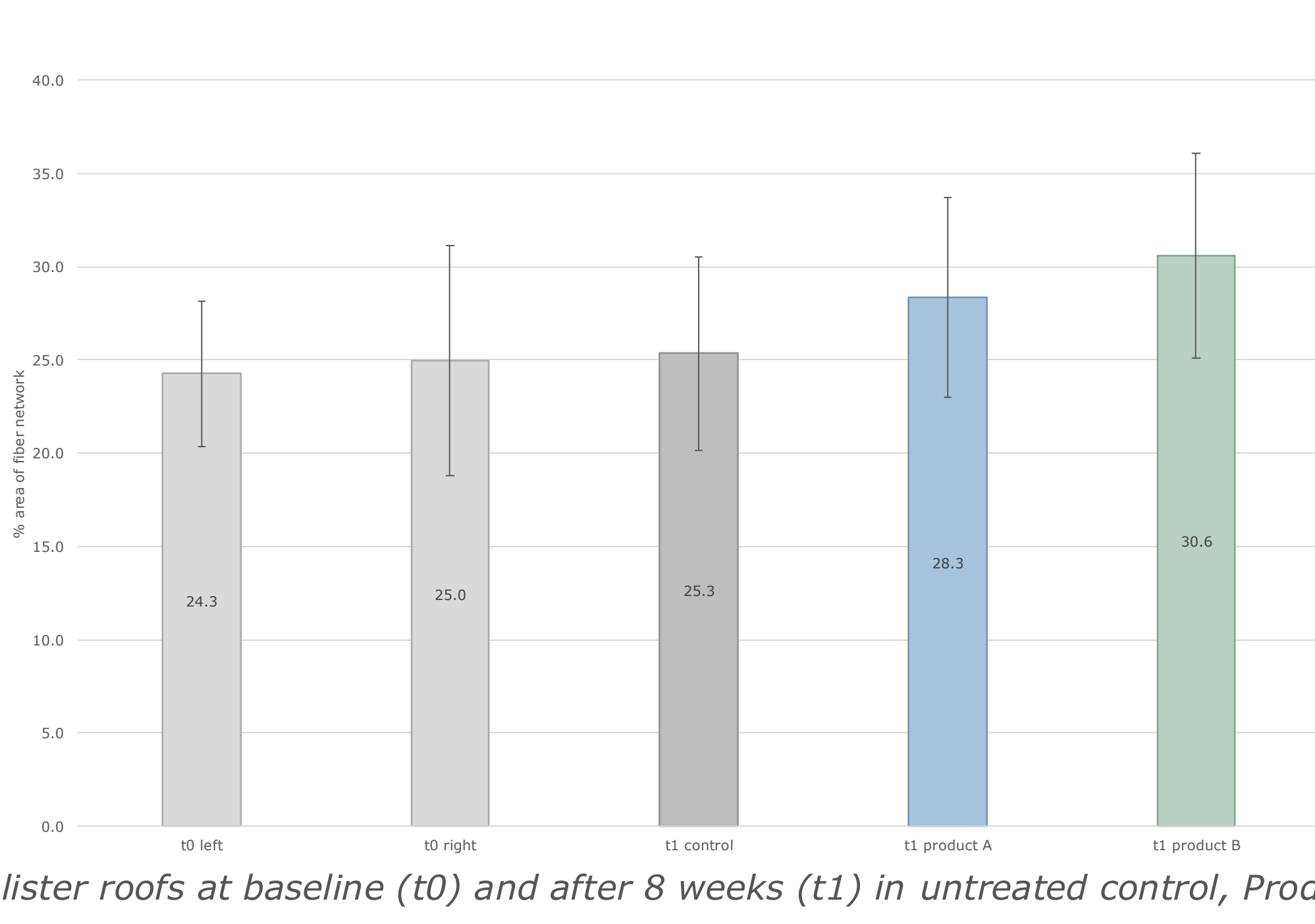
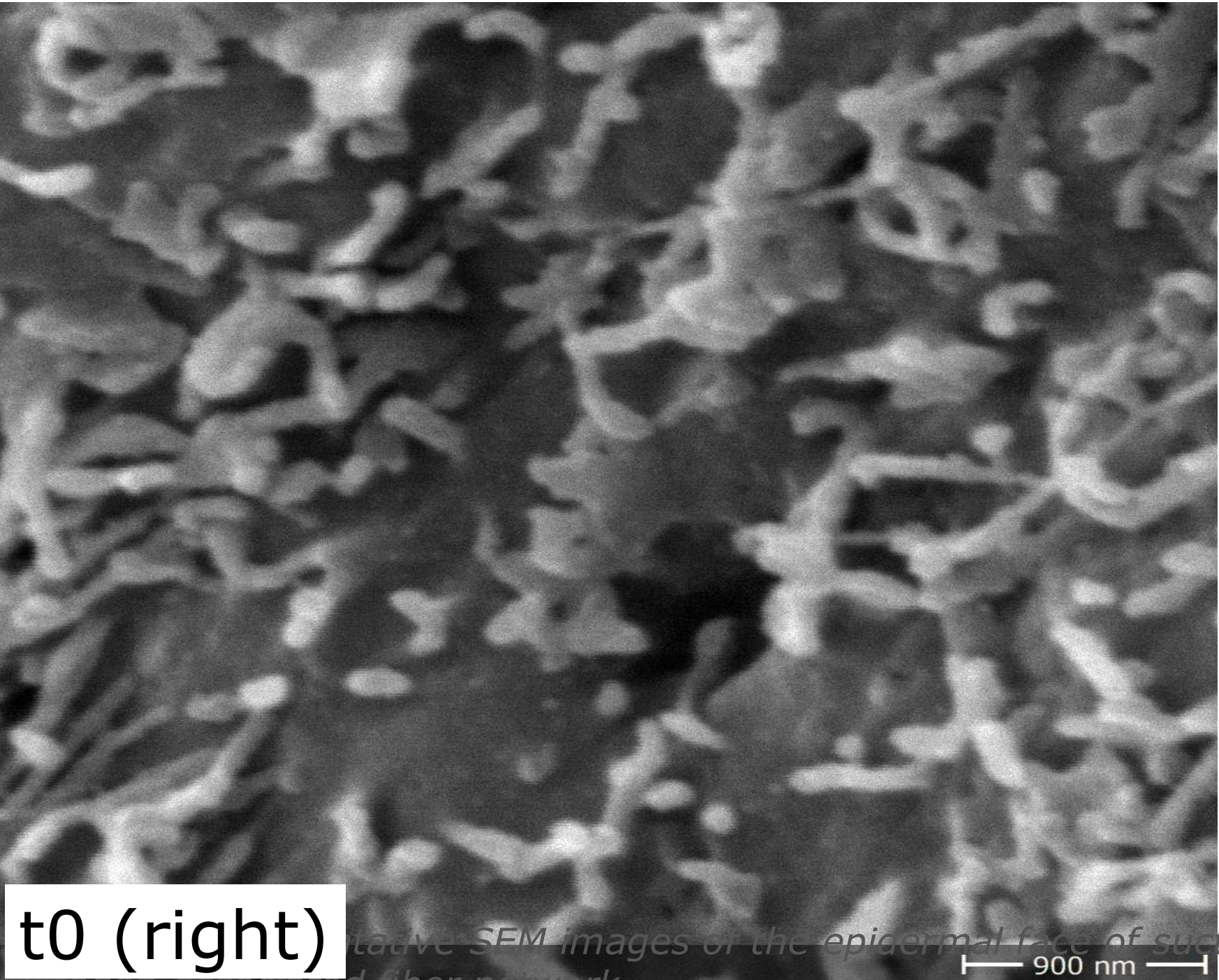
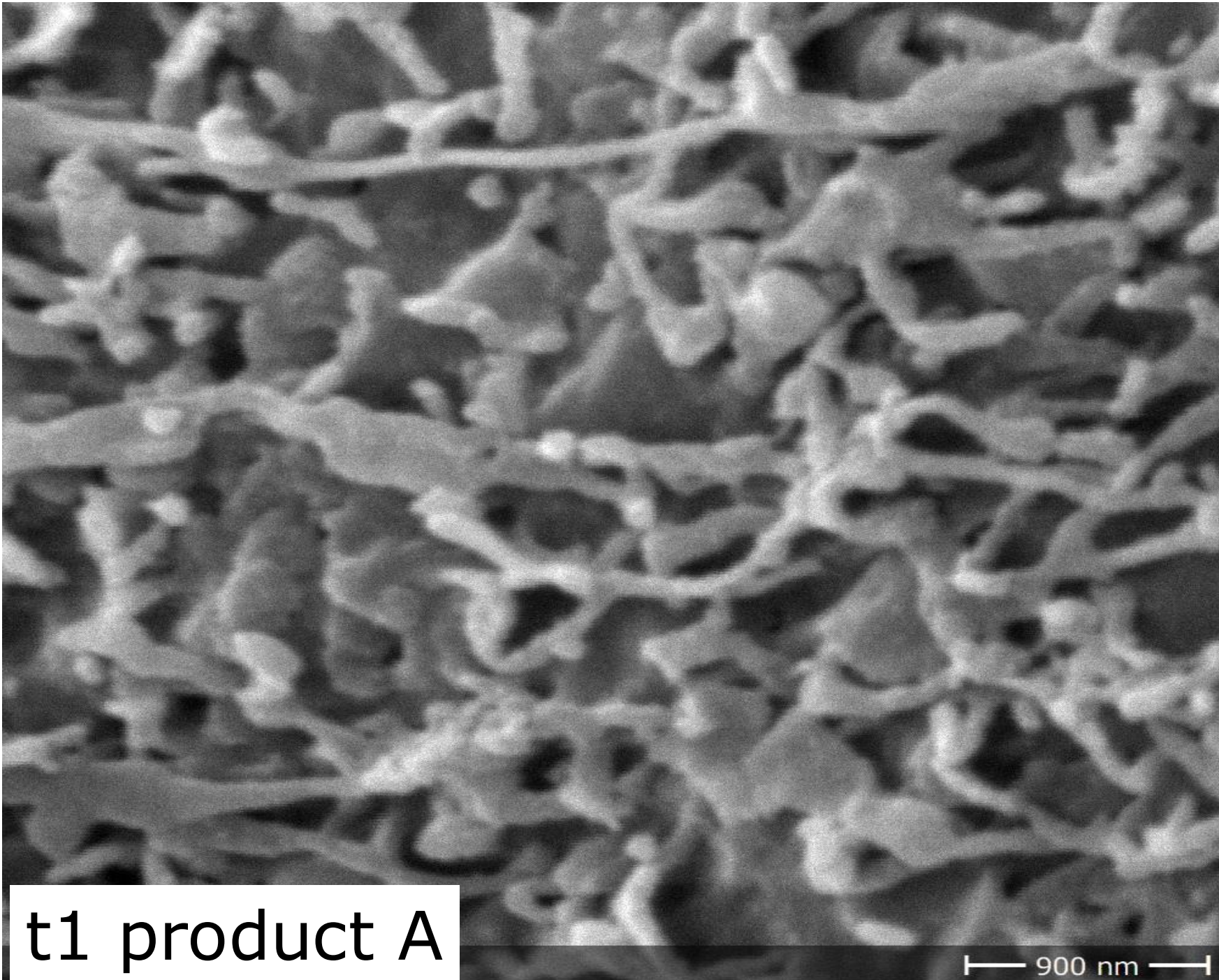
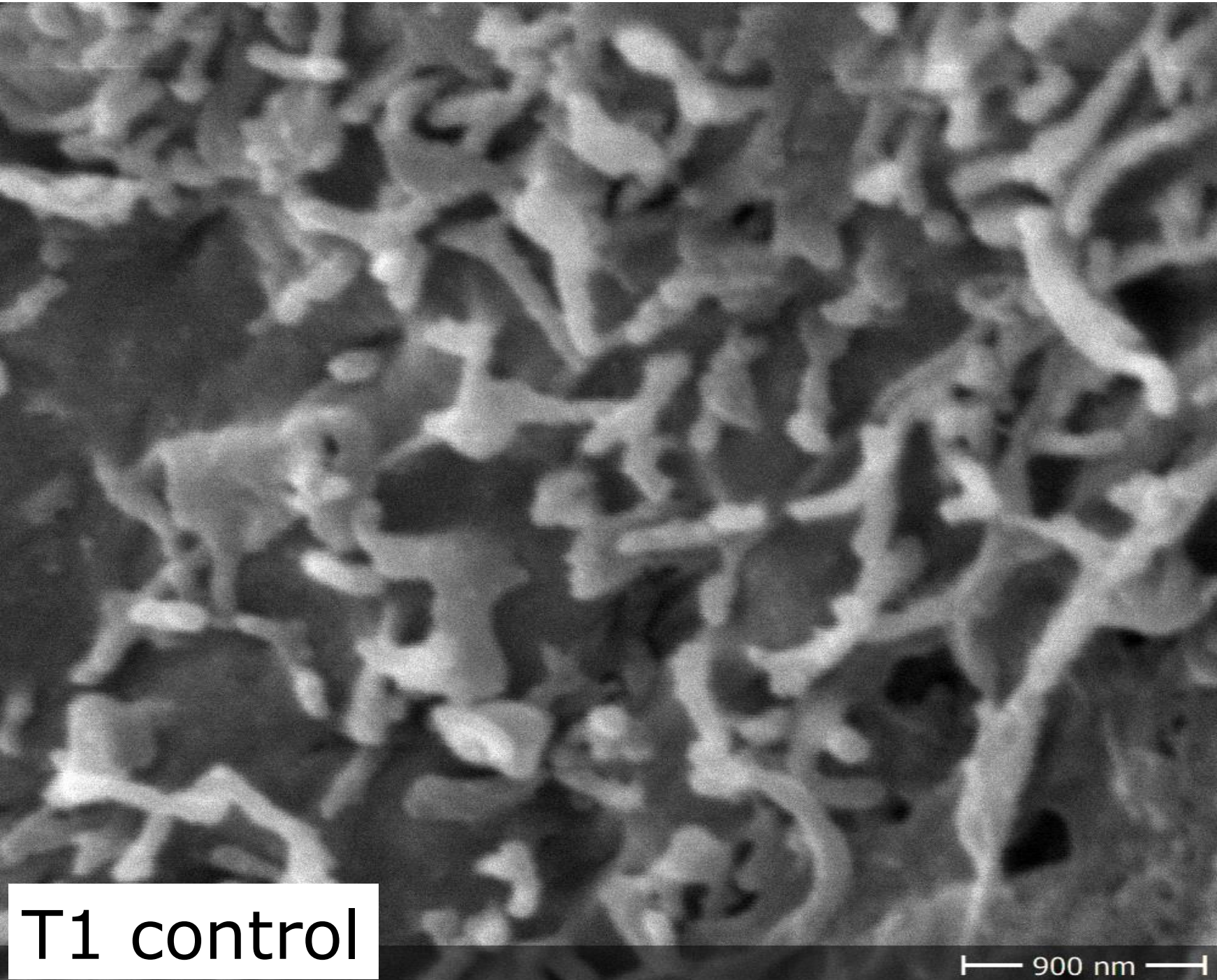
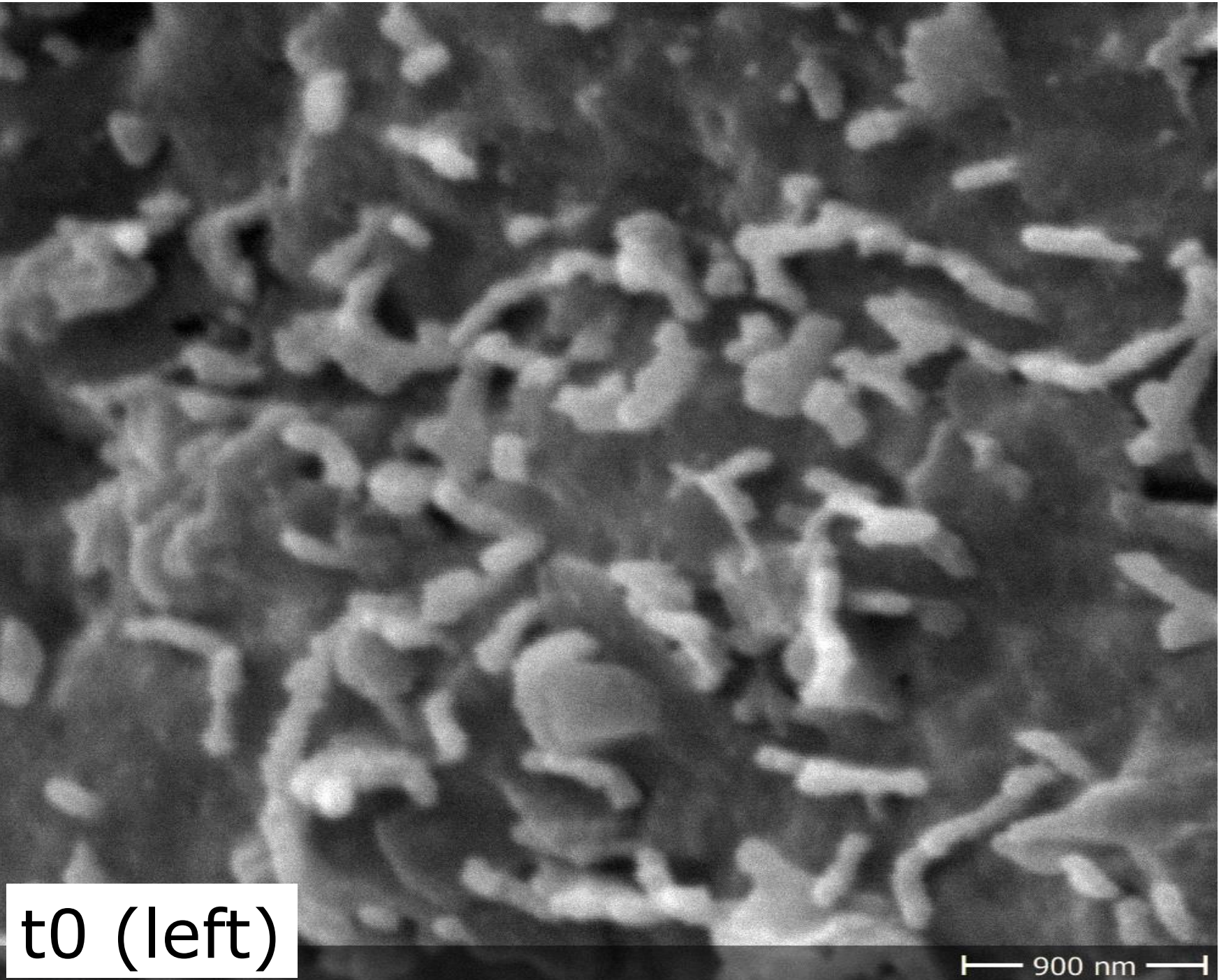
PRODUCT A
mean +13%
individual range +3–20% vs control

PRODUCT B
mean +22%
individual range +12–28% vs control

UNTREATED CONTROL
No relevant change
structural parameters remained stable

Structural pattern: Product A showed mainly localized fiber compaction and bundling; Product B produced a more homogeneous, area-wide increase in fiber distribution. Interindividual, age-related differences were evident.

SEM MORPHOLOGY AND QUANTITATIVE FIBER-NETWORK ANALYSIS



t0 = baseline; t1 = after 8 weeks. SEM = scanning electron microscopy.

CONCLUSION

Eight weeks of topical skincare were associated with measurable increases in collagen-associated structural parameters at the epidermal basement membrane. Product A and Product B produced distinct SEM response patterns, with a larger mean increase in fiber-network area for Product B. Because this was an exploratory pilot study with n = 5, the findings require confirmation in larger, statistically powered studies.