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Fig. S1. Study design and subject disposition in PSORITUS. (a) PSORITUS study design and treatment regimen. (b) subject flow.

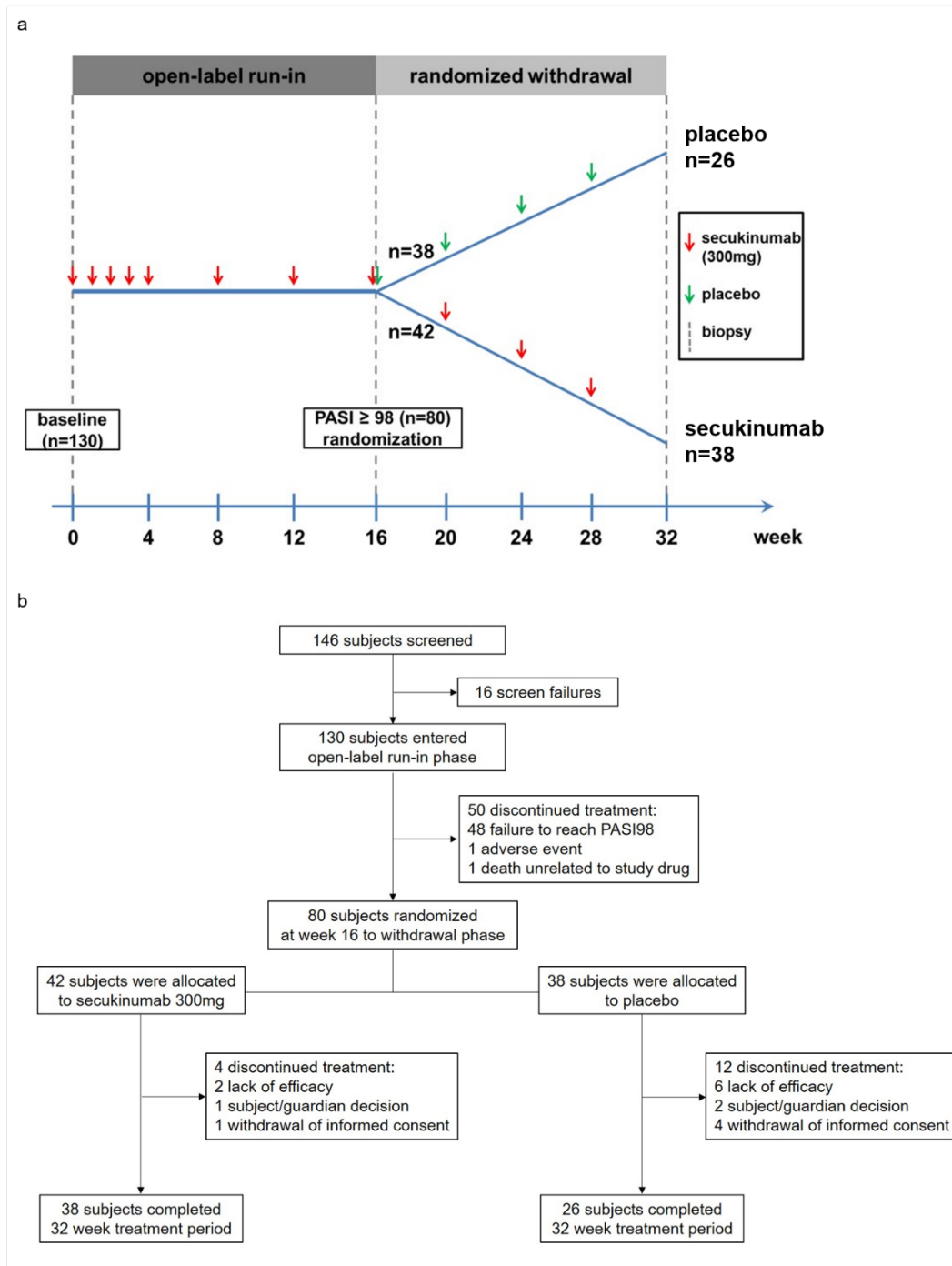


Fig. S2. Worst pruritus intensity and PASI 75/90/100 assessed by the visual analogue scale (0-100) during the open-label secukinumab treatment period. (a) Mean (SE) WI-VAS-24h (n=57) up to week 16 (OL phase). (b) Mean (SE) PASI_{max} (n=57) up to week 16 (OL phase). (c) Percentage of patients achieving PASI 75, 90, and 100 in the OL phase. PASI: psoriasis area and severity index; WI-VAS-24h: worst itch of the previous 24h assessed using a visual analogue scale (100mm), OL: open-label.

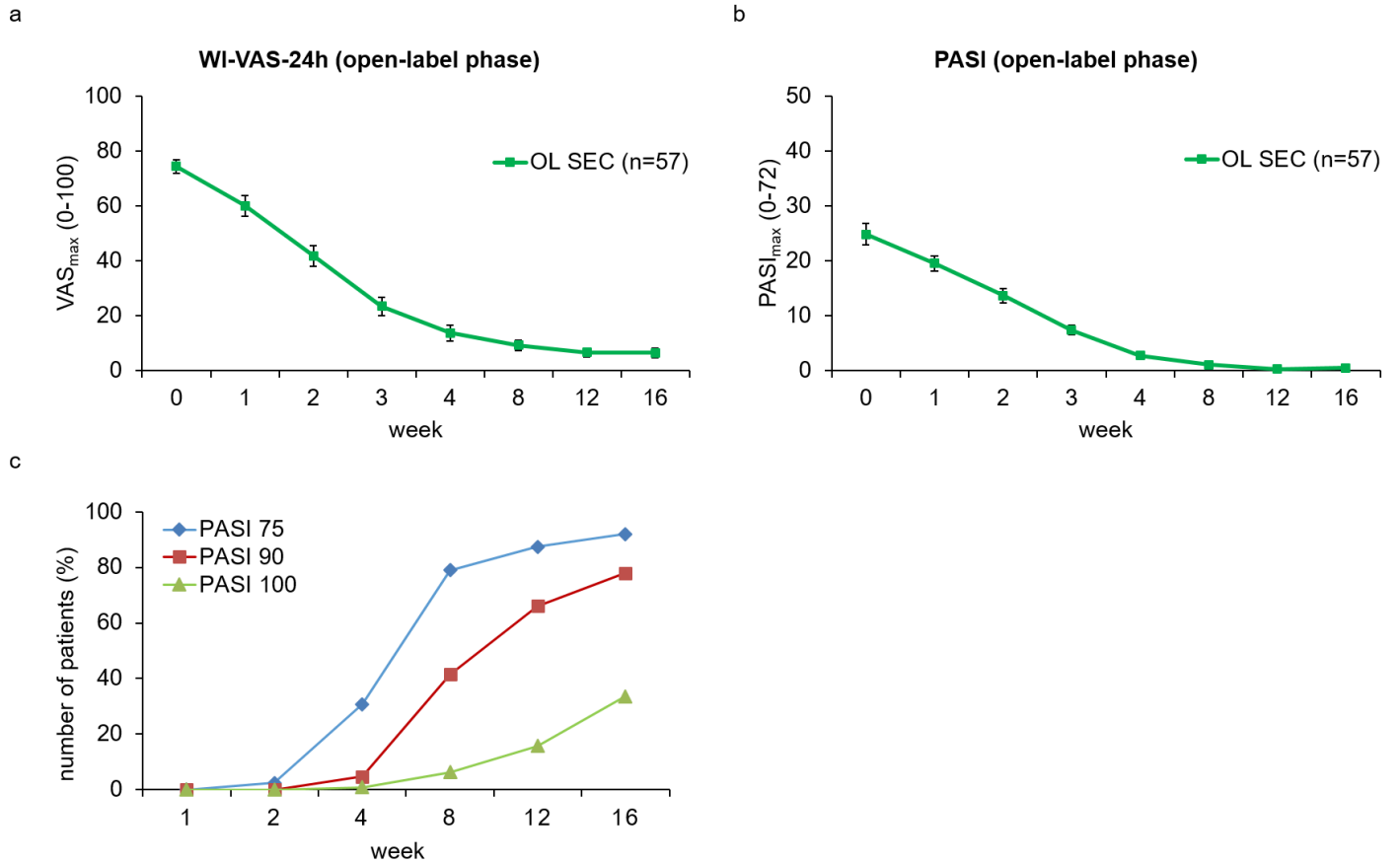


Fig. S3. Secukinumab reduces histopathological characteristics in lesional plaques. Bar graphs showing percentage presence of hyperkeratosis (a), dilated blood vessels (c), erythrocyte extravasation (c), hyperplasia (d), neutrophils in horny layer (e) and papillary edema (f) in LS or NL skin obtained from psoriasis patients at baseline (n=70), week 16 (n=64) and week 32 (SEC: n=26, placebo: n=18). LS: lesional skin, NL: non-lesional skin, SEC: sekukinumab. Statistics: independent samples: Mann-Whitney-U Test; related samples: Wilcoxon Test *p<0.05, **p<0.01, ***p<0.001.

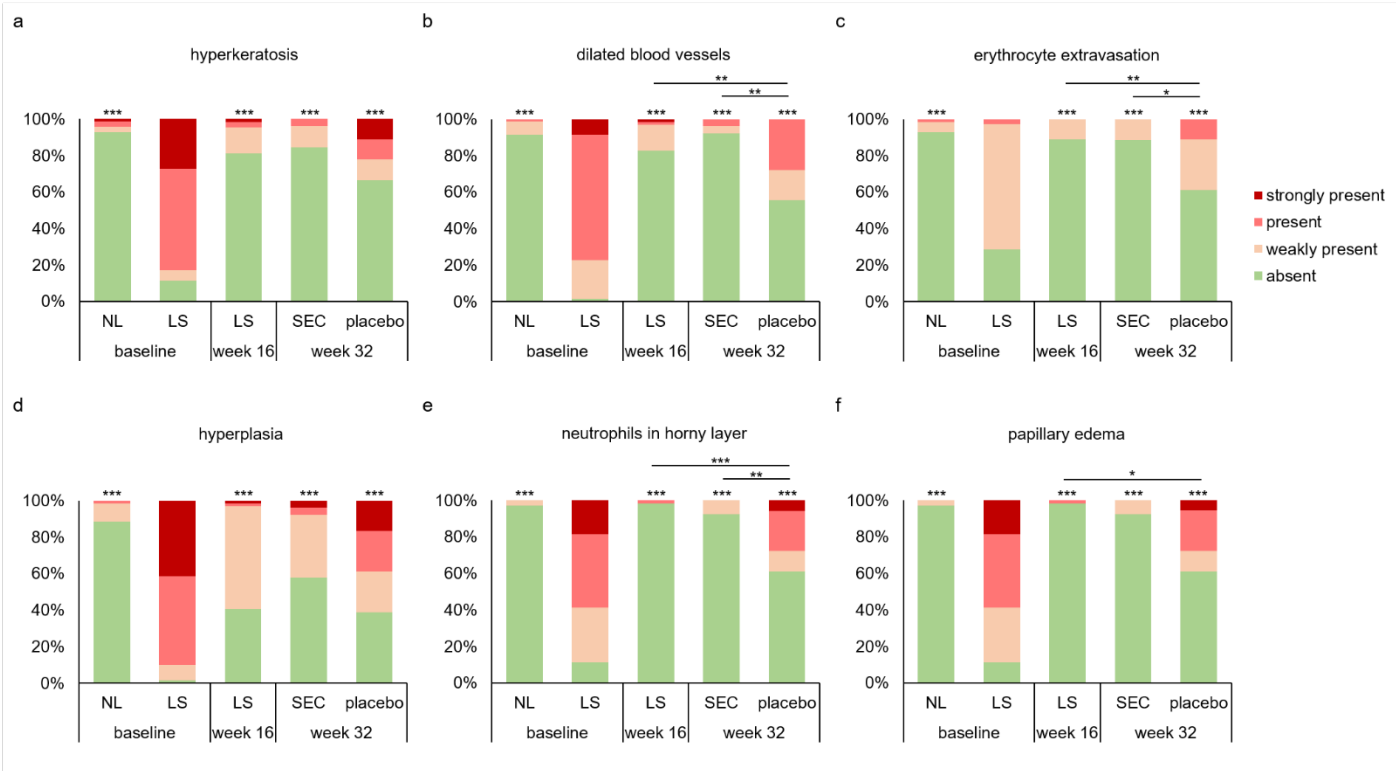


Fig. S4. Psoriatic histopathological alterations improve with secukinumab. Representative hematoxylin and eosin stainings of psoriatic LS and NL skin at baseline, recovered LS skin at week 16 after OL SEC as well as still recovered LS skin after SEC and relapsed LS skin after placebo treatment at week 32. LS: lesional skin, NL: non-lesional skin, OL: open-label, SEC: secukinumab, scale bar = 100 μ m.

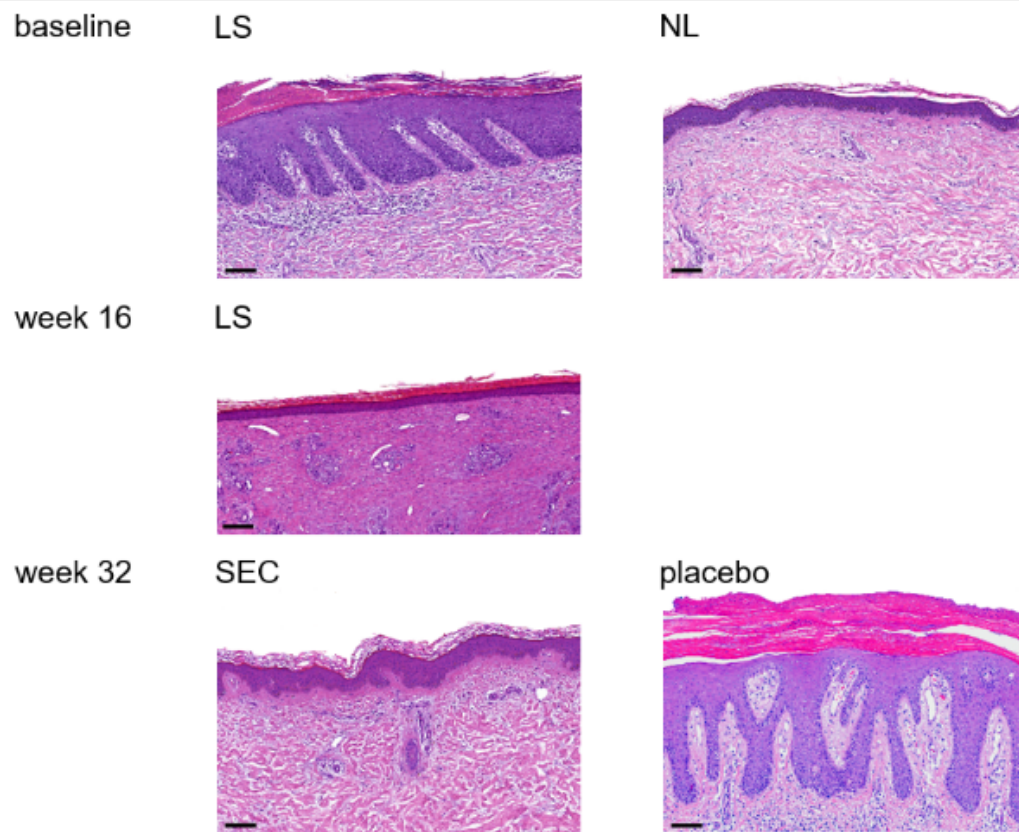


Fig. S5. Secukinumab impairs elevated histological expression levels of psoriasis-associated markers.

(a), (b) Box plots showing changes in semi-quantitative expression levels of psoriasis-related markers CK16 (a) and S100 A7 (b) in histological staining of NL and LS skin from psoriasis patients at baseline (n=20), week 16 (n=20) and week 32 (SEC: n=12, placebo: n=8). CK16: cytokeratin 16, S100 A7: S100 calcium-binding protein A7/ psoriasin, LS: lesional skin, NL: non-lesional skin, SEC: sekukinumab. Statistics: Wilcoxon-Test, Mann-Whitney-Test *p<0.05, **p<0.01, ***p<0.001.

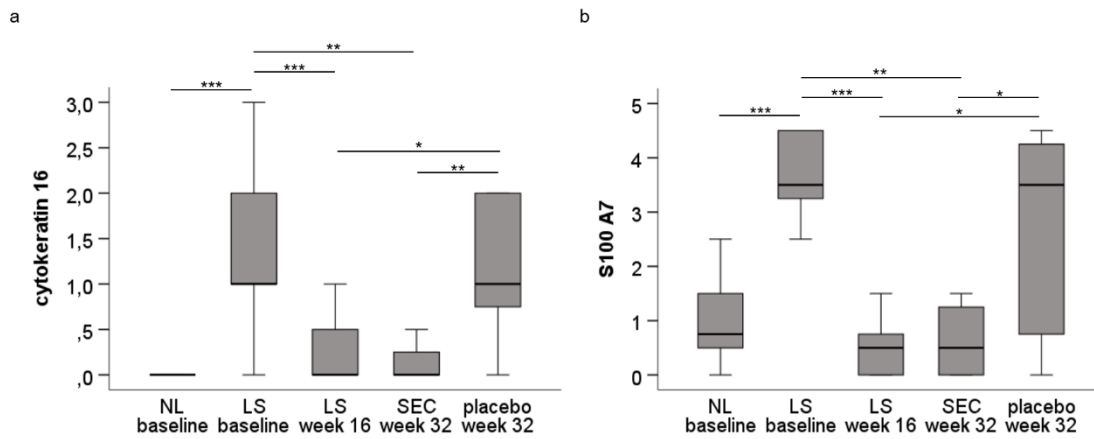


Fig. S6. Assessment of cutaneous neuromorphological characteristics. (a) Representative visualization of deconvolved stacked images (26 images, x200) before processing of computer-assisted analysis of nerve fibre characteristics. (b) Representative visualization of a processed deconvolved image for the evaluation of nerve fibre characteristics and the epidermis height. The upper and lower border of the epidermis is traced by yellow lines and the intraepidermal nerve fibres are traced in purple. (c) IENFD at different localizations: trunk (n=16), upper limbs (n=14) and lower limbs (n=8) at every time point. IENFD: intraepidermal nerve fibre density, LS: lesional, NL: non-lesional, Statistics: Wilcoxon Test, Kruskal-Wallis Test. $p < 0.1$, $*p < 0.05$, $**p < 0.01$, $***p < 0.001$.

