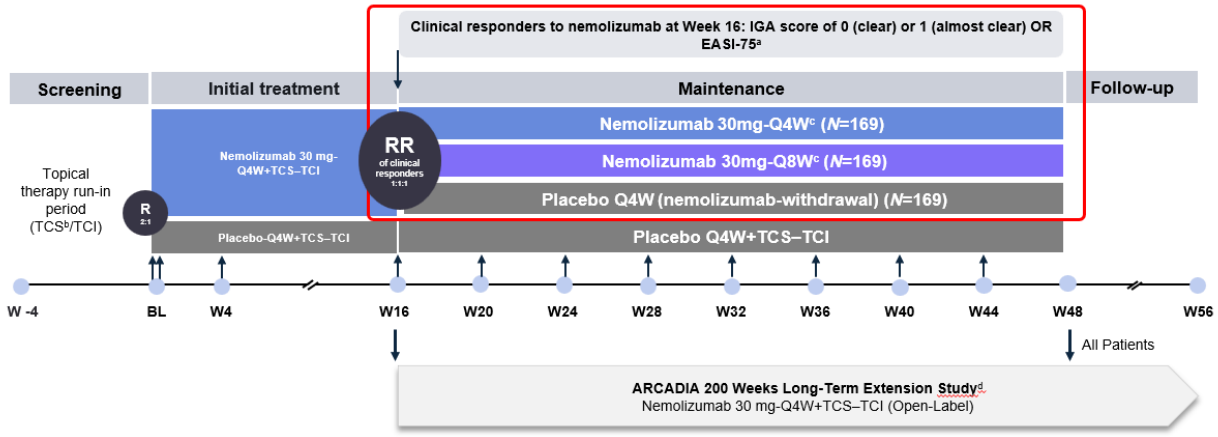
Fig. S1: Study design



BL, baseline; EASI, Eczema Area and Severity Index; IGA, Investigator's Global Assessment; *N*, total number of patients in the treatment group; Q4/8W, every 4/8 weeks; R, randomization; RR, re-randomization; TCI, topical calcineurin inhibitors; TCS, topical corticosteroids; W, week

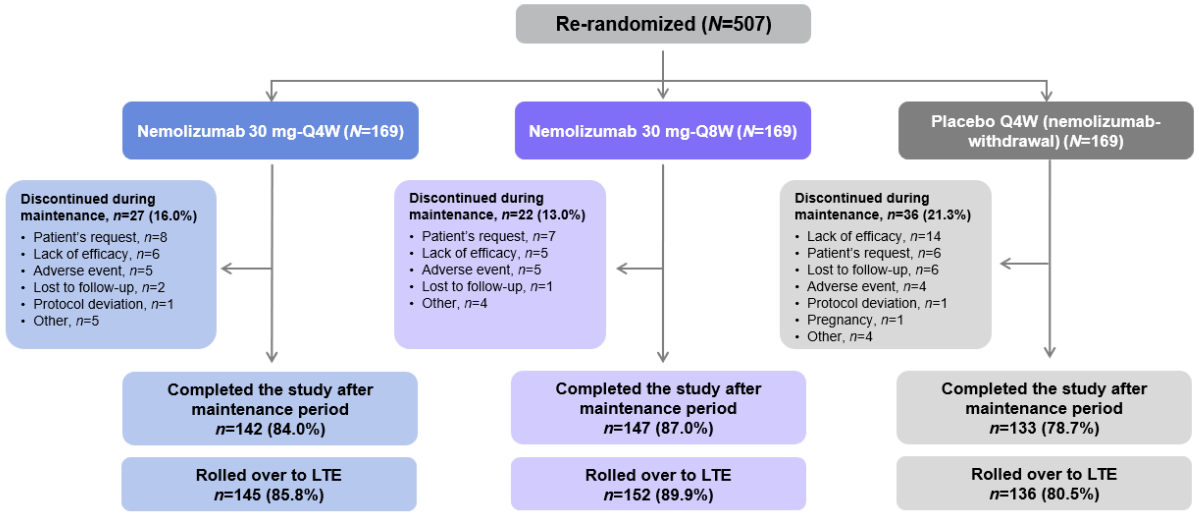
[a]EASI-75 was defined as ≥75% improvement in EASI from the initial baseline.

[b]TCS were of low/medium potency.

[c]With topical background therapy (TCS-TCI)

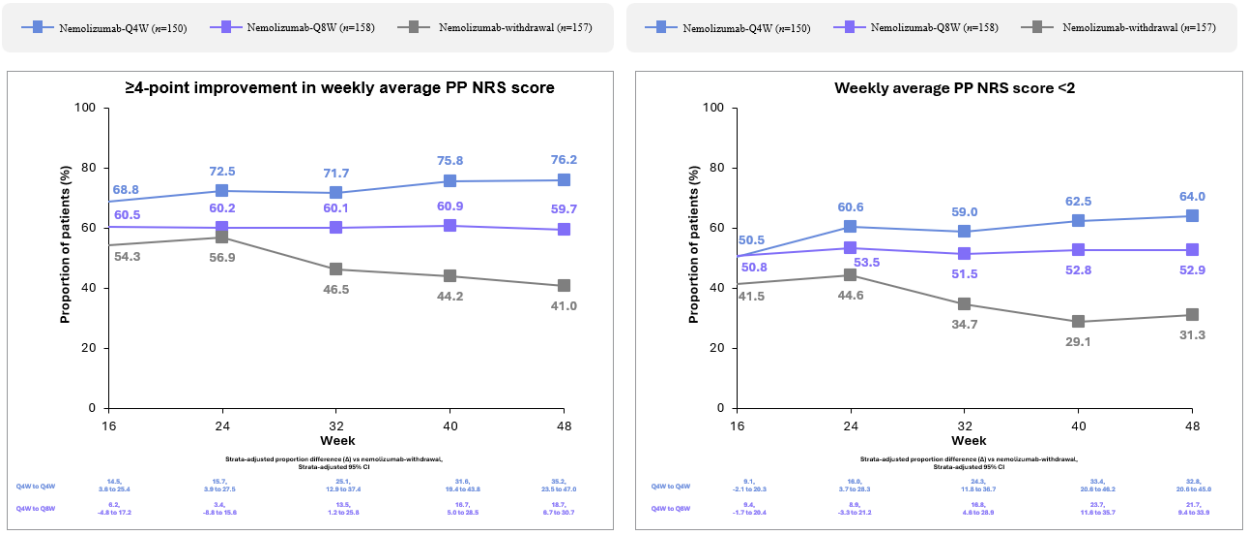
[d]Patients who received the rescue medications during the study period, non-responders at W16, patients who received rescue medication prior to W48 visit and patients who completed maintenance period may be eligible for long-term extension

Fig. S2: Study disposition, ITT population



ITT, intent-to-treat; LTE, long-term extension; *n*, number of patients with available data; *N*, total number of patients in the treatment group; Q4/8W, every 4/8 weeks; TCI, topical calcineurin inhibitors; TCS, topical corticosteroids

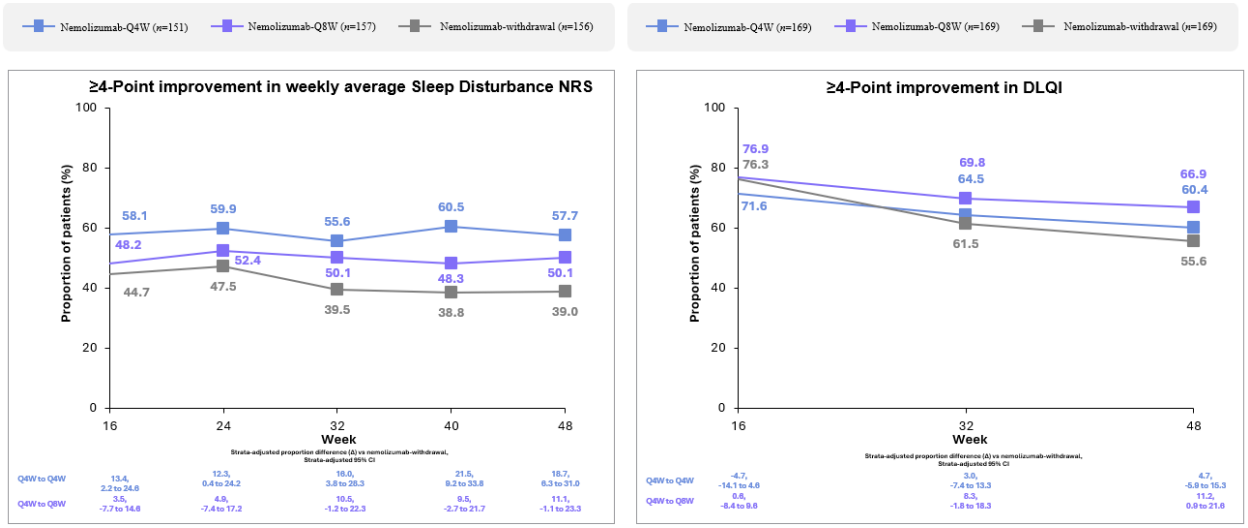
Fig. S3: ≥4-point improvement from initial baseline in weekly average PP NRS score (itch response) and weekly average PP NRS score <2 (itch-free or nearly itch-free state) up to W48 (MI MAR analysis; ITT population)



CI, confidence interval; ITT, intent-to-treat; MAR, missing at random; MI, multiple imputation; *n*, number of patients with data after imputation; NRS, Numerical Rating Scale; PP NRS, Peak Pruritus Numerical Rating Scale; Q4/8W, every 4/8 weeks; W, week

Weekly PP NRS score was calculated using 7 consecutive days' diary data and set to missing if less than 4 days' data were available. These analyses were conducted post hoc. The estimates were from 50 complete datasets by MI with MAR assumption. A total of 169 patients were randomized to each group; however, for 42 patients, values at W16 were missing and no imputation were performed for them. The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period. If a patient received any rescue therapy, the data after receipt of rescue therapy were imputed to the worst possible value

Fig. S4: ≥4-Point improvement from initial baseline in weekly average Sleep Disturbance NRS[a] score (MI MAR analysis[b]) and Dermatology Life Quality Index (NRI analysis[c]) up to 48 weeks (ITT population)



CI, confidence interval; DLQI, Dermatology Life Quality Index; ITT, intent-to-treat; MAR, missing at random; MI, multiple imputation; *n*, number of patients with data after imputation; NRI, non-responder imputation; NRS, Numerical Rating Scale; Q4/8W, every 4/8 weeks

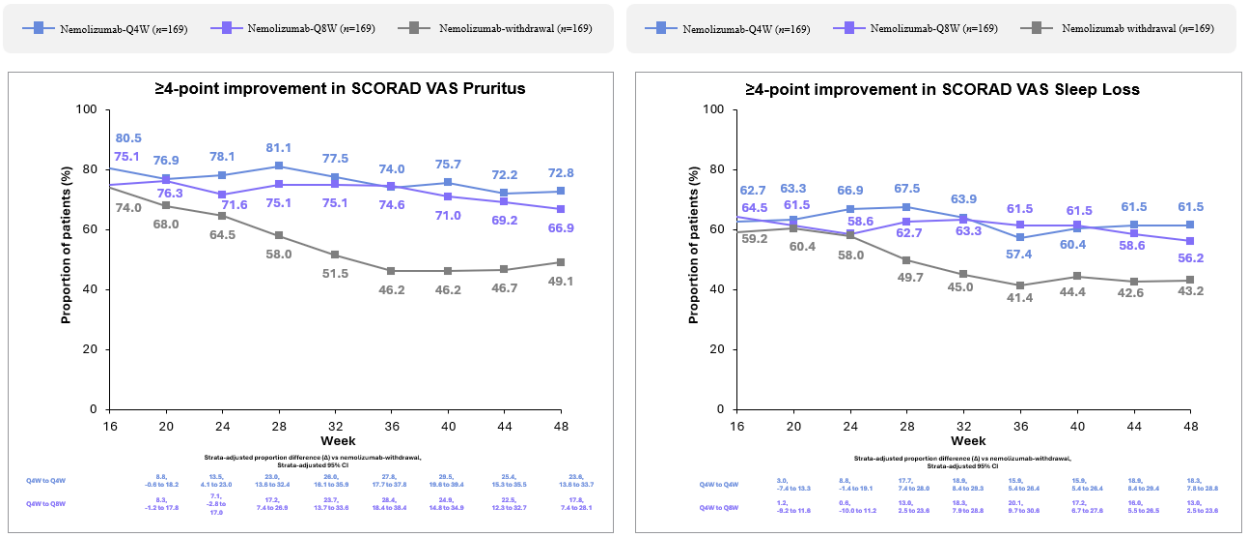
These analyses were conducted post hoc. The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period.

[a]Weekly average Sleep Disturbance NRS score was calculated using 7 consecutive days' diary data and set to missing if less than 4 days' data were available.

[b]The estimates were from 50 complete datasets by MI with MAR assumption. Percentage (%) was calculated using the number of patients with available data (*n*) at the analysis visit as the denominator. If a patient received any rescue therapy, the data after receipt of rescue therapy were imputed to the worst possible value.

[c]Patients with data collected after use of rescue therapy or with missing data at a visit were regarded as non-responders for that visit.

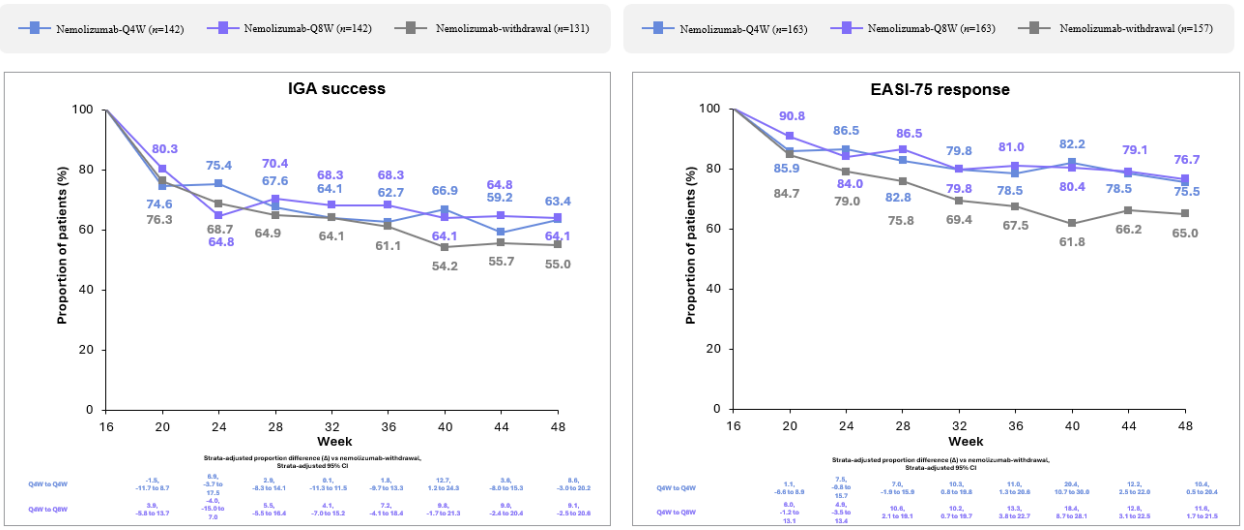
Fig. S5: Proportion of patients with ≥4-point improvement from initial baseline in SCORAD VAS Pruritus and SCORAD VAS Sleep Loss (NRI analysis; ITT population)



CI, confidence interval; ITT, intent-to-treat; *n*, number of patients with data after imputation; NRI, non-responder imputation; NRS, Numerical Rating Scale; Q4/8W, every 4/8 weeks; SCORAD, SCORing Atopic Dermatitis; VAS, visual analog scale

These analyses were conducted post hoc. The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period. For non-responder imputation, patients with data collected after use of rescue therapy or with missing data at a visit were considered non-responders. SCORAD VAS Pruritus Improvement ≥4 was defined as at least 4 cm improvement in VAS Pruritus score from the initial baseline. SCORAD VAS Sleep Improvement ≥4 was defined as at least 4 cm improvement in VAS Sleep score from the initial baseline.

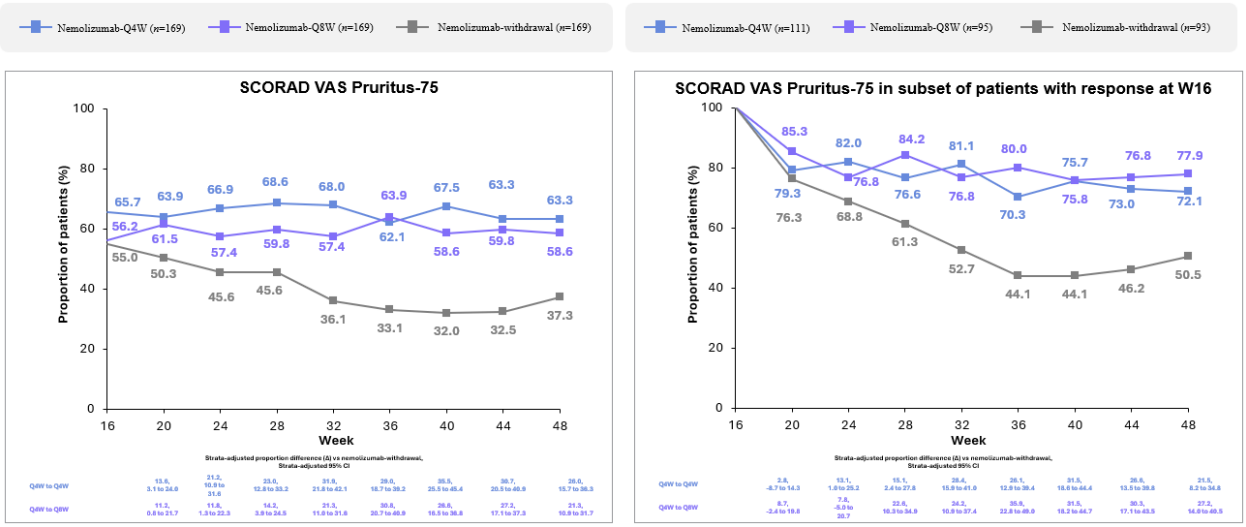
Fig. S6: Proportion of patients with IGA success and EASI-75 response at each visit from W16 to W48 for the subset of patients with such responses at W16 (NRI analysis, ITT population)



CI, confidence interval; EASI, Eczema Area and Severity Index; IGA, Investigator's Global Assessment; ITT, intent-to-treat; *n*, number of patients with data after imputation; NRI, non-responder imputation; Q4/8W, every 4/8 weeks; W, week

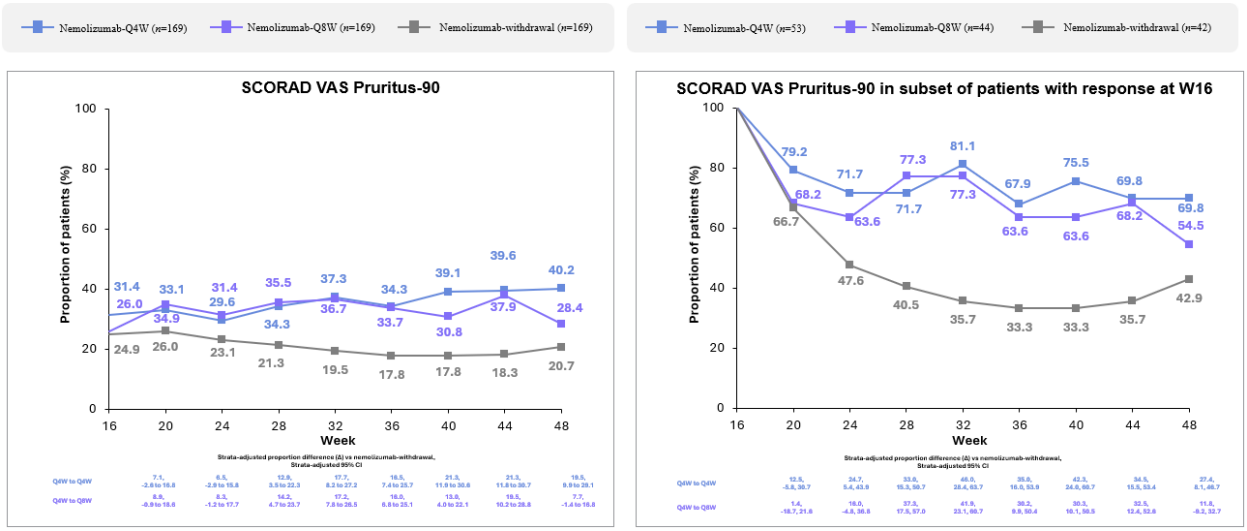
These analyses were conducted post hoc. For non-responder imputation, patients with data collected after use of rescue therapy or with missing data at a visit were considered non-responders.

Fig. S7: Proportion of patients with ≥75% improvement in SCORAD VAS Pruritus at each visit from W16 to W48 and for the subset of patients with such response at W16 (NRI analysis; ITT population)



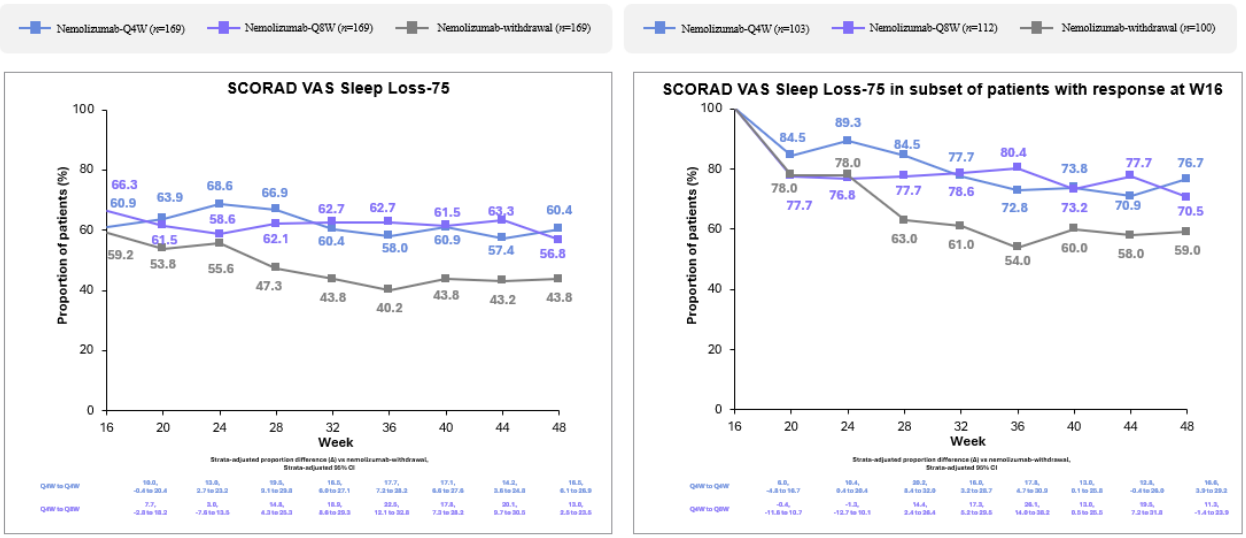
CI, confidence interval; ITT, intent-to-treat; *n*, number of patients with data after imputation; NRI, non-responder imputation; Q4/8W, every 4/8 weeks; SCORAD, SCORing Atopic Dermatitis; VAS, visual analog scale; W, week
VAS Pruritus-75 was defined as ≥75% improvement in VAS Pruritus from the initial baseline. These analyses were conducted post hoc. The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period. For non-responder imputation, patients with data collected after use of rescue therapy or with missing data at a visit were considered non-responders.

Fig. S8: Proportion of patients with ≥90% improvement in SCORAD VAS Pruritus at each visit from W16 to W48 and for the subset of patients with such response at W16 (NRI analysis; ITT population)



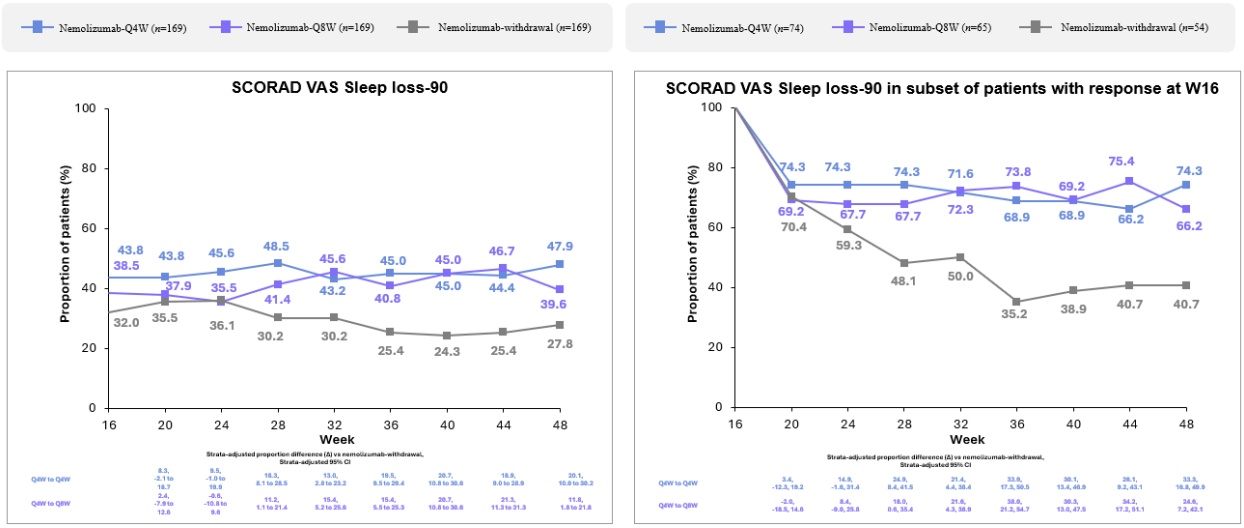
CI, confidence interval; ITT, intent-to-treat; *n*, number of patients with data after imputation; NRI, non-responder imputation; Q4/8W, every 4/8 weeks; SCORAD, SCORing Atopic Dermatitis; VAS, visual analog scale; W, week
VAS Pruritus-90 was defined as ≥90% improvement in VAS Pruritus from the initial baseline. These analyses were conducted post hoc. The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period. For non-responder imputation, patients with data collected after use of rescue therapy or with missing data at a visit were considered non-responders.

Fig. S9: Proportion of patients with ≥75% improvement in SCORAD VAS Sleep Loss at each visit from W16 to W48 and for the subset of patients with such response at W16 (NRI analysis; ITT population)



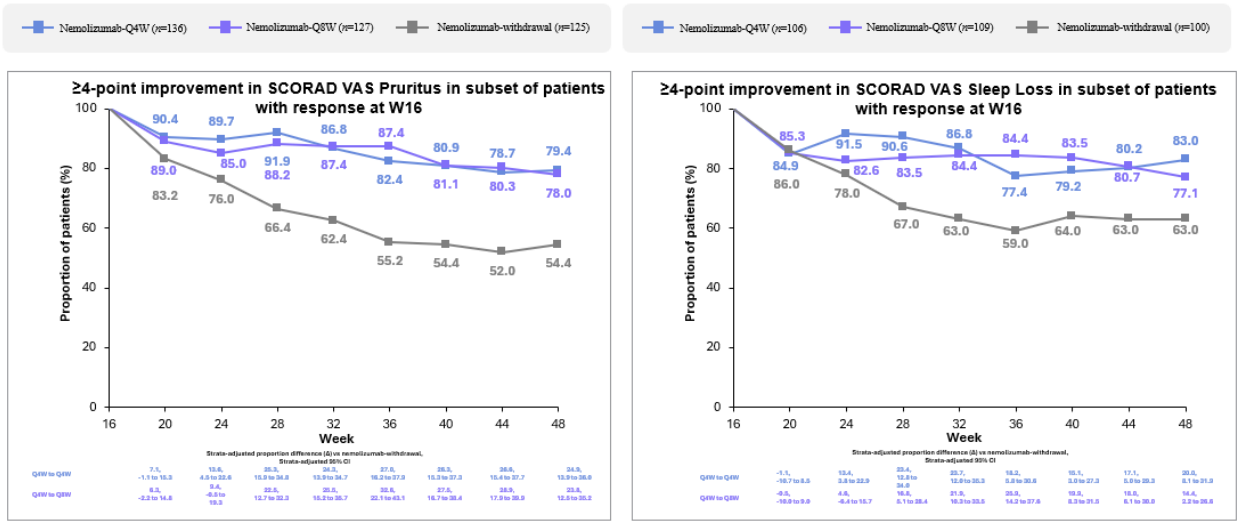
CI, confidence interval; ITT, intent-to-treat; *n*, number of patients with data after imputation; NRI, non-responder imputation; Q4/8W, every 4/8 weeks; SCORAD, SCORing Atopic Dermatitis; VAS, visual analog scale; W, week
VAS Sleep-75 was defined as ≥75% improvement in VAS Sleep from the initial baseline. These analyses were conducted post hoc. The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period. For non-responder imputation, patients with data collected after use of rescue therapy or with missing data at a visit were considered non-responders.

Fig. S10: Proportion of patients with ≥90% improvement in SCORAD VAS Sleep Loss at each visit from W16 to W48 and for the subset of patients with such response at W16 (NRI analysis; ITT population)



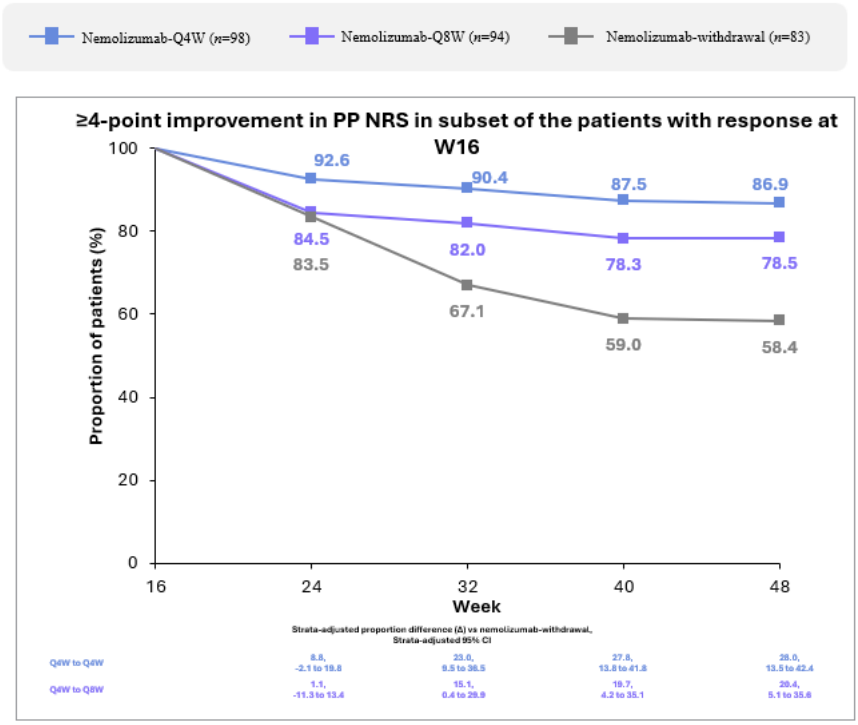
CI, confidence interval; ITT, intent-to-treat; *n*, number of patients with data after imputation; NRI, non-responder imputation; Q4/8W, every 4/8 weeks; SCORAD, SCORing Atopic Dermatitis; VAS, visual analog scale; W, week
VAS Sleep-90 was defined as ≥90% improvement in VAS Sleep from the initial baseline. These analyses were conducted post hoc. The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period. For non-responder imputation, patients with data collected after use of rescue therapy or with missing data at a visit were considered non-responders.

Fig. S11: Proportion of patients with ≥4-point improvement in SCORAD VAS Pruritus and SCORAD VAS Sleep Loss for the subset of patients with such responses at W16 (NRI analysis; ITT population)



CI, confidence interval; ITT, intent-to-treat; *n*, number of patients with data after imputation; NRI, non-responder imputation; Q4/8W, every 4/8 weeks; SCORAD, SCORing Atopic Dermatitis; VAS, visual analogue scale; W, week
VAS Pruritus improvement ≥4 was defined as at least 4 cm improvement in VAS Pruritus from initial baseline. VAS Sleep improvement ≥4 was defined as at least 4 cm improvement in VAS Sleep from the initial baseline. These analyses were conducted post hoc. The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period. For non-responder imputation, patients with data collected after use of rescue therapy or with missing data at a visit were considered non-responders.

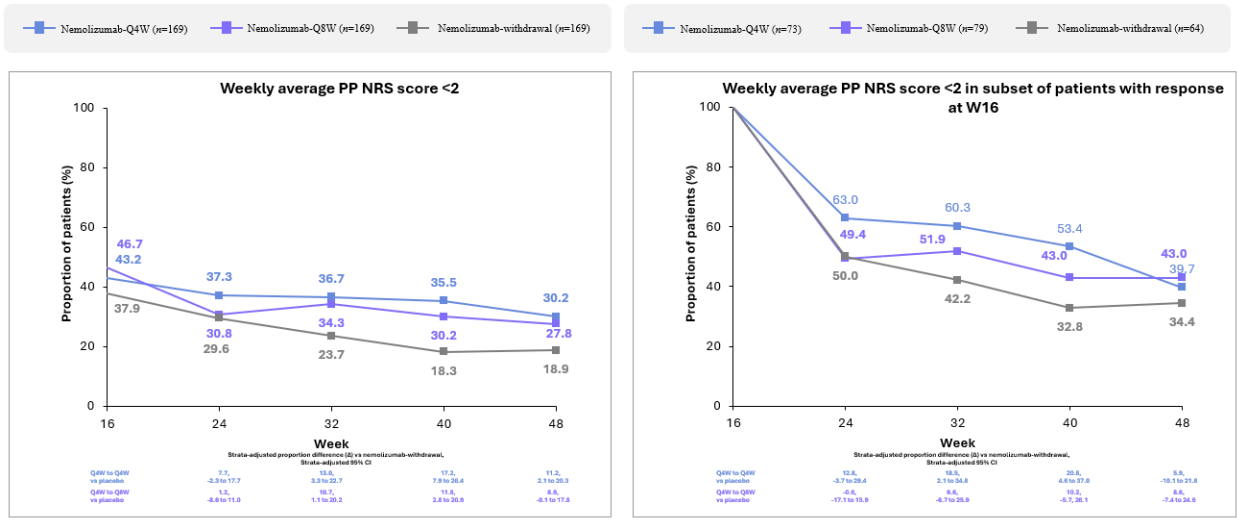
Fig. S12: Proportion of patients with ≥4 improvement in weekly average PP NRS in subset of patient with such response at W16 (MI MAR analysis; ITT population)



CI, confidence interval; ITT, intent-to-treat; MAR, missing at random; MI, multiple imputation; *n*, number of patients with data after imputation; NRS, Numerical Rating Scale; PP NRS, Peak Pruritus Numerical Rating Scale; Q4/8W, every 4/8 weeks; W, week

Weekly PP NRS score was calculated using 7 consecutive days' diary data and set to missing if less than 4 days' data were available. This analysis was conducted post hoc. The estimates were from 50 complete datasets by MI with MAR assumption. A total of 169 patients were randomized to each group; however, for 42 patients, values at W16 were missing and no imputation were performed for them. If a patient received any rescue therapy, the data after receipt of rescue therapy were imputed to the worst possible value.

Fig. S13: Proportion of patients with PP NRS score <2 from W16 up to W48 and subset of patients with such a response at W16 (NRI analysis, ITT population)



CI, confidence interval; ITT, intent-to-treat; *n*, number of patients with data after imputation; NRI, non-responder imputation; PP NRS, Peak Pruritus Numerical Rating Scale; Q4/8W, every 4/8 weeks; W, week

Weekly PP NRS score was calculated using 7 consecutive days' diary data and set to missing if <4 days' data were available.

The initial baseline value was the last valid value prior to the first injection of study treatment of the initial period.

For non-responder imputation, patients with data collected after use of rescue therapy or with missing data at a visit were considered non-responders.