Supplementary Materials

Maintenance of an acidic skin surface with a novel zinc lactobionate emollient preparation improves skin barrier function in patients with atopic dermatitis

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Supplementary Results

A total of 51 participants completed consent and screening of which 25 were deemed eligible and entered the study. One participant withdrew after the baseline assessment visit. One participant was withdrawn from the study at the 7-day treatment review following an irritant reaction to treatment. During the final data review, prior to unblinding, outliers for a series of metrics were identified that fell well outside the normal distribution for each measurement. These outliers were derived in each case from the same two individuals. High baseline TEWL values for these individuals were suggestive of abnormal skin barrier function. It was noted that one of the individuals had presented with widespread erythema at the test sites and the other with extremely dry and thickened skin. These individuals were removed from the data analysis. Subsequent unblinded analysis confirmed that if data was transformed to normality the study conclusions were unaffected by inclusion of these individuals' data.

Twenty six protocol deviations were recorded during the study of which 25 were minor and unlikely to impact the study results. An important protocol deviation was recorded for 1 participant who was non-compliant with the treatment application regimen having missed 25% of the scheduled applications. For this participant, missed applications occurred equally on both treatment sites and no applications were missed on the day preceding a study visit. No further actions were taken in response to the identified protocol deviations.

Participants were expected to apply treatments for 56 ±4 days and to use 2g a day of each treatment during this time. The majority (12/23, 52%) of participants completed all expected study applications over 8 weeks of treatment. Only 2 participants missed more than 10% of applications.

During the study, 31 adverse events (AEs) were recorded of mild or moderate severity (Table S1). Eight of these AEs were related to use of the study products and were all mild application site reactions which resolved without further treatment. One AE was judged to be ‘definitely due to the administration of the test material’. This was an irritant reaction related to administration of the vehicle and the participant was withdrawn by the investigator 7 days after commencing treatment due to the localised irritation. The remaining 7 related AEs were either ‘probably’ or ‘possibly’ related to use of the study products. Of these related AEs; 3 were related to use of the vehicle only, 3 were related to use of both study treatments and 1 AE could not be assigned to use of either product. Due to the small number of AEs recorded no definitive conclusions can be drawn, but the observed AEs suggest a more favourable safety profile of the test cream compared to the vehicle.

Supplementary Tables

Table S1: Adverse events

	AEs	Related to test cream	Related to vehicle	Related to both IPs
Total*	31	0	4	4
Definitely related to IP	1	0	1	0
Probably related to IP	2	0	1	1
Possibly related to IP	5	0	2	3
Unrelated to IP	23	NA	NA	NA

*Individual events listed, may be present simultaneously

Table S2: Visual skin assessments

	Test	Vehicle
Baseline dryness score†	0 (0,1.5)	0 (0,1.5)
Week 8 dryness score†	0 (0,1)	0 (0,1)
Δ Dryness score†	0 (-1.5,0.5)	0 (-1.5,0.5)
Improved score	6	5
Worsened score	2	3
Unchanged score	13	13
Baseline visual erythema score†	0 (0,1)	0 (0,1)
Week 8 visual erythema score†	0 (0,0.5)	0 (0,0.5)
Δ Visual erythema score†	0 (-1,0.5)	0 (-1,0.5)
Improved score	6	3
Worsened score	2	1
Unchanged score	13	17

†Median (Min,Max)

Supplementary Figures

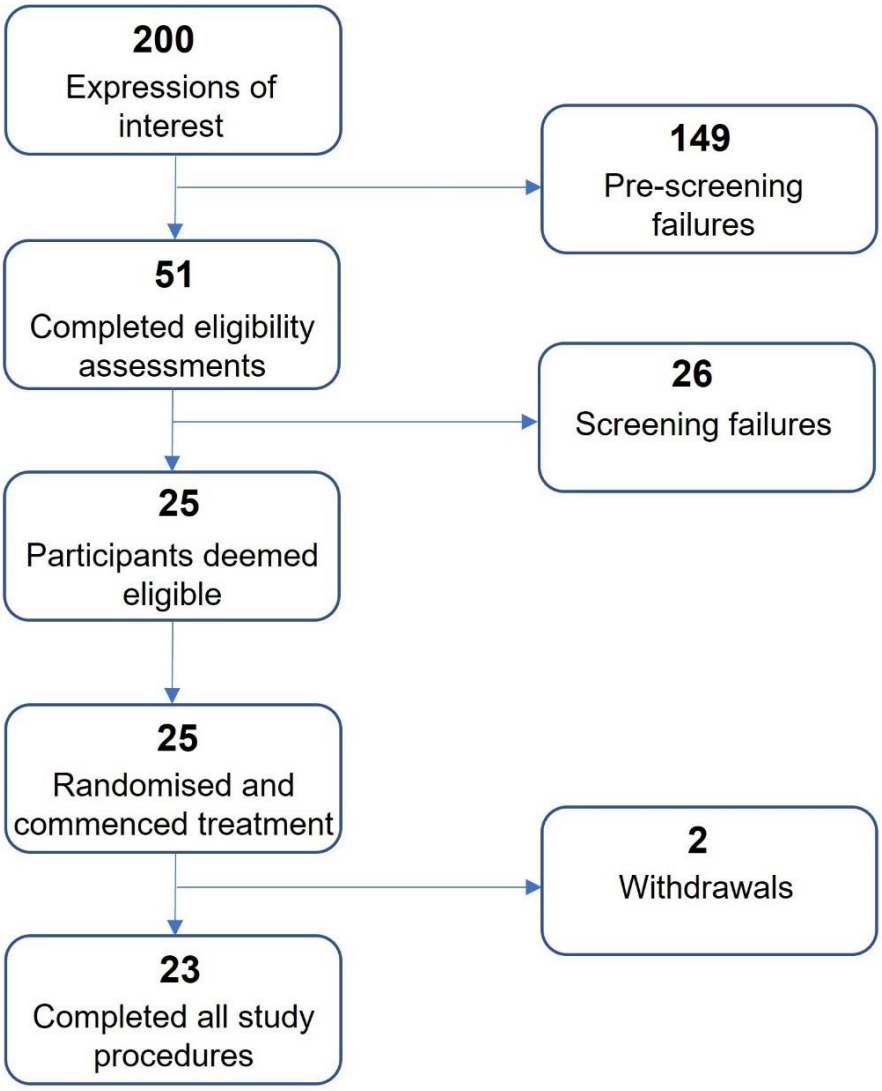

Figure S1: Participant pathway