SUPPLEMENTARY METHODS SECTION

Criteria for Atopic Dermatitis participants

Participants must have, according to medical records, or based on a careful and credible history (provided by the participant, caregiver, parent, or guardian) or by physical exam by an ADRN investigator:

1. Pruritus
2. Eczema (acute, subacute, chronic)
    a. Typical morphology and age-specific patterns which include:
        i. Facial, neck, and extensor involvement in infants and children
        ii. Current or prior flexural lesions in any age group
        iii. Sparing groin and axillary regions
    b. Chronic or relapsing history
    c. Most participants will have the following clinical associations that add support to the diagnosis:
        i. Early age at onset
        ii. Atopy
            1. Personal and/or family history
            2. IgE reactivity
        iii. Xerosis

Participants may have the following clinical associations which help to suggest the diagnosis of AD but are too non-specific for defining or detecting AD for research or epidemiological studies:

1. Atypical vascular responses (e.g., facial pallor, white dermographism, delayed blanch response)
2. Keratosis pilaris/hyperlinear palms/ichthyosis
3. Ocular/peri-orbital changes
4. Other regional findings (e.g., peri-oral changes/peri-auricular lesions)
5. Peri-follicular accentuation/lichenification/prurigo lesions

Criteria for Non-atopic controls

Non-atopic controls must have:

1. No personal or first degree family history or current manifestations (based on self-report) of AD, asthma, or allergic rhinitis.

2. No personal or first degree family history or current manifestations of food allergy based on evidence of allergy (self-report of positive skin test, positive blood test, and/or anaphylactic reaction). Note: If a non-atopic participant reported a reaction to a food

allergy (gastrointestinal, hives or swelling, respiratory) without evidence, the participant's eligibility was assessed by the study physician.

3. No personal history of or clinical evidence of a chronic, inflammatory skin disease as determined through participant interview using the Medical History Case Report Form.

ELIGIBILITY CRITERIA

Inclusion Criteria:

Participants who meet *all* of the following criteria are eligible for enrollment.

1. Non-Hispanic Caucasian males and females 18 to 60 years of age, inclusive, at the time of Enrollment.
2. Who were enrolled in the ADRN Registry study.
3. Who have active AD (lesions present) with or without a history of EH as defined in the ADRN Standard Diagnostic Criteria, included in the MOP
    a. OR
    b. Who meet criteria for the NA diagnostic group as defined in the ADRN Standard Diagnostic Criteria.
4. Who are willing to sign the informed consent form prior to initiation of any study procedures.

Exclusion Criteria:

Participants who meet any of the following criteria are *not* eligible for enrollment.

1. Who are pregnant.
2. Who have an active systemic malignancy. Uncomplicated non-melanoma skin cancer and melanoma *in situ* with documentation of complete excision are not exclusionary.
3. Who have any skin disease other than AD that might compromise the SC barrier (e.g., bullous disease, psoriasis, cutaneous T cell lymphoma [also called Mycosis Fungoides or Sezary syndrome], dermatitis herpetiformis, Hailey-Hailey, or Darier's disease).
4. Who have a history of systemic immunological illness (e.g., human immunodeficiency virus [HIV] or systemic lupus erythematosus [SLE]) other than the condition being studied.
5. Who have active EH or eczema vaccinatum (EV).
6. Who have a history of serious or life-threatening reaction to latex, tape, or adhesives.
7. Who are determined to be not eligible based on the opinion of the Investigator.

SAMPLE COLLECTION RESCHEDULING CRITERIA

If a participant meets any of the rescheduling criteria below, then sample collection will need to be rescheduled.

Rescheduling Criteria:

1. Does not have active AD on arms (AD ONLY).
2. Has active EH or EV (AD ONLY).*
3. Has a fever ≥ 38.5 ºC (101.3ºF).
4. Has used oral antibiotics within the last 7 days.
5. Has taken systemic immunosuppressive drugs including cyclosporine or oral steroids within the last 7 days.
6. Has received total body phototherapy (e.g., ultraviolet light B [UVB], psoralen plus ultraviolet light A [PUVA], tanning beds [>1 visit per week]) within the last 7 days.
7. Has used topical prescription medications including (but not limited to) Elidel, Protopic, topical corticosteroids, or topical antibiotics on arms within the last 7 days.
8. Has used a bleach bath within the last 7 days.
9. Has used creams/lotions on arms within 24 hours of the day of sampling.
10. Has bathed or showered 24 hours before the time of sampling.