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Prevention of childhood asthma using house dust mite allergen tablets

Submission date 11/07/2025	**Recruitment status** Recruiting	[X] Prospectively registered [X] Protocol [_] Statistical analysis plan [_] Results [_] Individual participant data [X] Record updated in last year
Registration date 11/09/2025	**Overall study status** Ongoing	
Last Edited 18/11/2026	**Condition category** Respiratory	

Plain English summary of protocol

Background and study aims
Asthma is common in the UK. It often starts in early childhood and can cause lifelong illness. We cannot currently reduce the risk of developing asthma. Allergen Immunotherapy (AIT) is a treatment commonly used for people to tolerate things that trigger their allergies. House dust mite (HDM) is the most common allergen for children with asthma. We think that the chance of developing asthma can be greatly reduced by giving HDM allergen in purified form to these children.

Who can participate?
Infants aged 5 to 12 months across NHS sites in the UK. Infants can be approached before 5 months but must be at least 4 months old to undergo screening visit assessments and must be at least 5 months old (maximum 12 months old) at the time of randomisation. They will all have a close relative with asthma or allergy and/or already have early signs of an allergy such as having eczema.

What does the study involve?
Infants will be allocated by chance to receive either the HDM tablet or placebo. The tablet dissolves within seconds and our experience with this medication is that there is no risk of choking. This treatment would be given once a day for 3 years. All infants will be reviewed every 6 weeks by telephone/video call, in the first year and then every 3 months. The researchers will be contactable 24 hours a day and if there are any concerns, they will arrange an in-person visit to the hospital clinic. Each year, children will also be seen in clinic to complete a questionnaire and have allergy tests. A breathing test will be done at the last visit. We would like to take a sample of blood when the child is recruited at the beginning of the study and at their last visit. All this information will allow us to decide whether or not each child has developed allergic wheeze by the end of the trial, which is an early indicator of later childhood asthma.
The tablet will need to be administered by the parent/carer at home. The first dosing will take place at the research site to show the parent/carer how to administer the tablet. The participant will be under medical supervision for at least 60 minutes after the tablet intake, which will help to alleviate any worries/concerns the parent/carer might have. The parent/carer will also be given written instructions for administering the tablet at home and can contact the study team if there are any concerns.

What are the possible benefits and risks of participating?
Benefits:
Participants will have access to and be closely observed by expert paediatric physicians and qualified nurses. If the trial results are statistically and clinically significant, participants in the active arm could have a reduced risk of developing asthma.
Risks:
Remembering to administer the tablet on a daily basis over a period of 3 years may be burdensome for parents - parents will download an app to log compliance and alerts from the app will notify/remind them to administer the tablet.

Remembering to log adherence on the app - parents will receive alert notifications to log adherence and have the option to receive reminders throughout the day.

Using the app - sites will help parents setup the app on their mobile phones at the baseline visit and show them how to navigate it. Parents will also be provided with written instructions on how to use the app at home.

Multiple visits to the hospital - parents will be able to complete an initial screening questionnaire online which will help to avoid any unnecessary trips to the hospital for ineligible participants.

Blood samples on infants - (i) it is a routine procedure and otherwise safe apart from some discomfort, (ii) Those taking blood samples will be trained, (iii) They will use an anaesthetic cream to number the skin minimising any discomfort, (iv) our PI group of parents of young children were in agreement of the need of this and were not too concerned.

Where is the study run from?
Imperial Clinical Trials Unit (UK)

When is the study starting and how long is it expected to run for?
July 2025 to February 2031

Who is funding the study?
National Institute for Health and Care Research (NIHR) (UK).

Who is the main contact?
papatrial@imperial.ac.uk

For more information about the study and to register your interest, please visit the study website: https://papastudy.uk/

Contact information

Type(s)
Public, Scientific

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Additional identifiers

Integrated Research Application System (IRAS)
1012148

Protocol serial number
89828

Study information

Scientific Title
Preventing childhood Asthma using Prophylactic house dust mite Allergen immunotherapy

Acronym
PAPA

Study objectives
Can three years of treatment with house dust mite allergen in infants with a high risk of developing asthma, prevent them from developing asthma?

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 08/09/2025, Nottingham 2 Research Ethics Committee (2 Redman Place, Stratford, London, E20 1JQ, United Kingdom; +44 207 104 8065; nottingham2.rec@hra.nhs.uk), ref: 25/EM/0185

Primary study design

Interventional

Study design
Interventional double blind randomized parallel group placebo controlled trial

Study type(s)
Efficacy, Safety

Health condition(s) or problem(s) studied
Paediatric asthma

Interventions
Active intervention: Acarizax (12 SQ-HDM SLIT). Control: Placebo. Dose: 30 µg. Dose frequency: Once daily. Route of administration: Sublingual. All infants will be reviewed every 6 weeks by telephone/video call, in the first year and then every 3 months. The researchers will be contactable 24 hours a day and if there are any concerns, they will arrange an in-person visit to the hospital clinic. Each year, children will also be seen in clinic to complete a questionnaire and have allergy tests. A breathing test will be done at the last visit. A sample of blood will be collected when each child is recruited at the beginning of the study and at their last visit. Randomisation method: minimisation through Sealed Envelope.

Intervention Type
Drug

Phase
Phase II

Drug/device/biological/vaccine name(s)
Prophylactic house dust mite Allergen immunotherapy

Primary outcome(s)
At final year 3 visit:
A. *Recurrent wheeze (2 or more wheezing episodes) in the last 12 months of treatment AND
B. **Positive SPT and/or sIgE to one or more common allergens during the last 12 months
* A wheezing episode is defined as parental or documented report of an episode of wheezing or whistling in the chest that lasts at least 24 hours. Wheezing events separated by at least 5 consecutive days without wheezing shall be counted as separate episodes.
**The common allergens include HDM in duplicate (Dermatophagoides pteronyssinus and Dermatophagoides farinae), grass mix, tree mix, cat, dog, cow's milk, egg, peanut), as assessed both by; 1) SPT ≥3 mm wheal diameter, OR 2) sIgE ≥0.35 kU/litre.

Key secondary outcome(s)
3 years post randomisation, in the last 12 months, 1-2 years post randomisation, over 3 years of the study:

1. Allergic Sensitisation and Allergic Disease
1.1 Proportion of participants with ARW assessed at 3 years post-randomisation. Atopy defined as per the primary endpoint and wheeze defined as per the primary endpoint but excluding wheeze episodes occurring only in March to August (inclusive).

1.2 Proportion of participants at 3 years post-randomisation with allergic sensitisation to HDM, as assessed by 1) SPT ≥ 3mm and/or 2) sIgE ≥0.35 kU/litre and recurrent wheeze during the last 12 months.

2. Allergic Sensitisation
2.1 Cumulative proportion of participants with sensitisation to one or more common allergens over the 3 years of study. The common allergens include HDM (D. pteronyssinus and D. farina), cockroach, grass pollen, tree pollen, ragweed pollen, cat, dog, cow's milk, egg, peanut), as assessed both by 1) SPT ≥3 mm and/or 2) sIgE ≥0.35 kU/litre.
2.2 Cumulative proportion of participants with allergic sensitisation to HDM over the 3 years of study, as assessed by 1) SPT ≥ 3mm and/or 2) sIgE ≥0.35 kU/litre.

3. Allergic Disease
3.1 Proportion of participants with ARW at 1- and 2-years post-randomisation:
(a) Recurrent wheeze: defined as two or more separate wheezing episodes in the last 12 months treatment period. A wheezing episode is defined as parental or documented report of an episode of wheezing or whistling in the chest that lasts at least 24 hours. Wheezing events separated by at least 5 consecutive days without wheezing shall be counted as separate episodes.
(b) Atopy: Sensitisation to one or more common allergens in the last 12 months treatment period. The common allergens include HDM (D. pteronyssinus and D. farina), cockroach, grass pollen, tree pollen, ragweed pollen, cat, dog, cow's milk, egg, peanut), as assessed by SPT ≥3 mm.
3.2 Proportion of participants with allergic rhinitis in the 12 months before the final study visit at 3 years post-randomisation, as assessed by the Allergy and Environment questionnaire based on the standardised ISAAC questionnaire, and evidence of allergic sensitisation to the relevant allergen.
3.3 Proportion of participants with atopic dermatitis (AD) recorded using standard criteria in the 12 months before the final study visit at 3 years post-randomisation, using standardised criteria.
3.4 Proportion of participants with any recurrent wheeze assessed at 3 years post-randomisation (recurrent wheeze defined in 3.1(a)).
3.5 Impulse Oscillometry: Summaries of air flow measurements at the final visit at 3 years post-randomisation.
3.6 Proportion of participants with abnormal exhaled nitric oxide (FeNO) at the final visit at 3 years post-randomisation where a cutoff of < 20 parts per billion (ppb) will be considered normal, as per ATS guidelines.
3.7 Summaries of peak flow measurements at the final visit at 3 years post-randomisation.

4. Safety
4.1 Proportion of participants with any adverse events
4.2 Proportion and incidence with clinically relevant asthma exacerbations over 3 years
4.3 Proportion and incidence with clinically relevant anaphylactic reactions, anaphylaxis and/or systemic allergic reactions over 3 years
4.4 Proportion and incidence treated with adrenaline/epinephrine over 3 years
4.5 Proportion and incidence with severe local swelling or oedema of the mouth and/or throat over 3 years
4.6 Proportion and incidence with eosinophilic esophagitis over 3 years
4.7 Proportion with an increase in proportion and incidence of HDM sensitisation over 3 years

5. Tolerability
5.1 Proportion of participants who stop treatment prior to planned 3 years of treatment of active HDM tablet compared with placebo
5.2 Proportion of participants who stop treatment due to adverse events prior to planned 3

years of treatment of active HDM tablet compared with placebo
5.3 Proportion of participant who took 60% of the treatment over 3 years as recorded in the MedSearchTM App

6. Mechanistic
6.1 Functional IgG and IgA antibodies linked to the prevention of asthma
6.2 Induction of regulatory T and B cell subsets that can produce immunomodulatory cytokines linked with the prevention of asthma

Completion date
28/02/2031

Eligibility

Key inclusion criteria
1. Parent/guardian must be able to understand and provide informed consent.
2. Aged 5 to 12 months of age at randomisation.
3. High risk of asthma (two or more of the three criteria):
a. Single OR dual heredity for allergy (at least one biological mother, father or sibling affected by asthma or allergy, assessed through standardised questionnaires).
b. Atopic dermatitis.
c. Allergen sensitisation.

Participant type(s)
Other

Healthy volunteers allowed
No

Age group
Child

Lower age limit
5 Months

Upper age limit
12 Months

Sex
All

Total final enrolment
0

Key exclusion criteria
1. Evidence of sensitisation to HDM on skin prick test (SPT) ≥3 mm wheal diameter OR sIgE ≥ 0.35 kU/L
2. Prematurity (<37 weeks)
3. Faltering growth and/or need for oxygen for more than 5 days in the neonatal period or history of intubation or mechanical ventilation

4. Other significant medical conditions including but not limited to eosinophilic esophagitis, seizures, major congenital anomalies, cardiac disorders requiring medical therapy, cystic fibrosis, chronic pulmonary diseases, bronchopulmonary dysplasia, significant developmental delay, cerebral palsy, immunodeficiency (primary or secondary)
5. Use of investigational drugs since birth
6. Expecting to relocate out of country within 4 years of study initiation
7. Deemed as unable to adhere to study activities by the investigator
8. Past or current medical problems or findings from physical examination or laboratory testing that are not listed above, which, in the opinion of the investigator, may pose additional risks from participation in the study, may interfere with the participant's ability to comply with study requirements or that may impact the quality or interpretation of the data obtained from the study
9. Has any clinically significant abnormal vital sign or laboratory value that in the opinion of the investigator would preclude participation in the trial

Date of first enrolment
01/11/2025

Date of final enrolment
01/10/2027

Locations

Countries of recruitment
United Kingdom

England

Scotland

Study participating centre
Imperial College Healthcare NHS Trust
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Sponsor information

Organisation
University of Southampton

ROR
https://ror.org/01ryk1543

Funder(s)

Funder type
Government

Funder Name
National Institute for Health and Care Research

Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Data sharing statement to be made available at a later date

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
HRA research summary			18/11/2026	No	No
Protocol (other)	V2.1	19/05/2026	18/11/2026	No	No
Study website			30/07/2026	No	No