

Medi Quest BRS Hospital

A monthly News Letter from BRS Hospital

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UNDERSTANDING IMMUNOCAP TESTING FOR FOOD ALLERGENS AND AEROALLERGENS:

A Practical Guide for Primary Care and Non-Specialist Clinicians

Price Rs. 5/- Only

December - 2025

Medi - 19

Quest - 10

Yearly Subscription

Rs.50/- only

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Introduction: Why Immuno CAP Matters

Food allergy diagnosis begins—not with a test—but with a **good clinical history**. A careful history helps determine whether symptoms are likely IgE-mediated, non-IgE-mediated, or unrelated to allergy altogether. When IgE-mediated allergy is suspected, the next step is usually a **skin prick test (SPT)**. However, many non-specialist test practitioners, especially in office practice, do not have access to SPT facilities.

This is where ImmunoCAP specific IgE testing becomes invaluable.

ImmunoCAP is a **proprietary, FDA-cleared FEIA (Fluorescent Enzyme Immunoassay)** platform that quantitatively measures allergen-specific IgE antibodies in serum. It is widely regarded as the **gold standard** for blood-based allergy testing because of its high analytical sensitivity, reproducibility, and extensive allergen library.

When to Order ImmunoCAP

- When SPT is unavailable or contraindicated
- When the patient has extensive eczema
- When antihistamines cannot be stopped
- When there is a risk of anaphylaxis during SPT
- When the clinician needs quantitative IgE values for monitoring

What ImmunoCAP Measures

ImmunoCAP detects only IgE-mediated sensitization. It does not diagnose:

- Non-IgE food allergies
- Food intolerances
- Celiac disease
- Eosinophilic GI disorders

A positive result indicates **sensitization**, not necessarily **clinical allergy**. Interpretation must always be correlated with history.

Ordering ImmunoCAP: Core Food Allergen Menu

These are the most clinically relevant allergens in India and globally.

Common Individual Food Allergens (Level 1)

Egg

- Non-IgE food allergies
- Egg yolk (optional depending on lab)

Milk

- Whole milk
- Casein (if needed for deeper evaluation)

Seafood

- Fish (Cod)
- Shellfish (Shrimp)
- Crab

Meat

- Chicken
- Beef
- Mutton
- Pork

Nuts & Legumes

- Groundnut (Peanut)
- Tree nuts: Almond, Hazelnut, Coconut

Cereals & Seeds

- Wheat
- Soy
- Sesame

These allergens are also listed in major ImmunoCAP menus globally.

Convenient Panels for Primary Care Non Vegetarian Panel

- Egg white
- Shrimp
- Fish
- Chicken
- Mutton

Vegetarian Panel

- Milk
- Peanut
- Almond
- Soybean
- Wheat

Panels reduce cost and simplify ordering when the history suggests multiple possible triggers.

Aeroallergen Menu: Environmental Sensitization

Environmental allergens are essential to test in patients with:

- Allergic rhinitis
- Asthma
- Atopic dermatitis
- Chronic cough
- Recurrent wheeze

Common Aeroallergens (ImmunoCAP)

House Dust Mites

- Dermatophagoidesfarinae
 - Dermatophagoidespteronysinus
- (These are among the most validated allergens in ImmunoCAP systems.)

Animal Dander

- Dog dander
- Cat dander

Insects

- Cockroach
- Pigeon protein

Molds

- Aspergillus flavus
- Aspergillus niger
- Alternaria tenuis

Trees, Weeds, and Grasses

- Acacia
- Mesquite
- Parthenium
- Common ragweed
- Johnson grass
- Bermuda grass

These allergens are widely available in ImmunoCAP test lists across laboratories globally.

Interpreting ImmunoCAP Results

Although **>0.1 kUA/L** is considered detectable sensitization, there is **no universal magic cutoff** for diagnosing clinical allergy. Each food has its own predictive values.

General Interpretation Framework

IgE Level (kUA/L) Interpretation (General) Notes

<0.10	Undetectable	Allergy unlikely
0.10–0.34	Very low	Often clinically irrelevant
0.35–0.69	Low	Possible sensitization
0.70–3.49	Moderate	Higher likelihood of clinical relevance
3.50–17.4	High	Strong sensitization
>17.5	Very high	Often correlates with clinical allergy

(These ranges are consistent with ImmunoCAP class interpretations.)

Grey zone values require correlation with history and sometimes oral food challenges.

Component Resolved Diagnostics (CRD): The Next Step

Traditional ImmunoCAP tests measure IgE to **whole allergen extracts**. Component Resolved Diagnostics (CRD) measures IgE to **individual allergenic proteins** within a food.

This allows clinicians to distinguish:

- True allergy vs cross reactivity**
- High risk vs low risk sensitization**
- Likelihood of severe reactions**
- Persistence vs outgrowing of allergy**

Why CRD Matters

1. Identifying High Risk Proteins

Example: **Peanut**

- Ara h 1, 2, 3 → Storage proteins → High risk of systemic reactions
- Ara h 8 → PR 10 protein → Cross reactive with birch pollen → Usually mild oral symptoms

2. Distinguishing Primary vs Cross Reactive Sensitization

Example: **Hazelnut**

- Cor a 9, Cor a 14 → True hazelnut allergy
- Cor a 1 → Birch related cross reactivity

3. Predicting Severity

Example: **Milk**

- Casein sensitization → More persistent, higher risk
- Whey proteins → Often outgrown earlier

4. Improving Decision Making

CRD helps answer:

- Is the child likely to react to baked milk or baked egg?
- Is the peanut allergy likely to be severe?
- Is the shrimp IgE due to dust mite cross reactivity (tropomyosin)?
- Is immunotherapy appropriate?

When to Order CRD

- When extract IgE is positive but history is unclear
- When multiple foods are positive and cross reactivity is suspected
- When assessing risk before food challenges
- When counseling families about prognosis

Conclusion

ImmunoCAP provides a **robust, accessible, and quantitative** method for evaluating IgE mediated allergies, especially in settings where SPT is unavailable. The menu of food allergens, panels, and aeroallergens allows clinicians to tailor testing to patient history. Component Resolved Diagnostics adds a deeper layer of precision, helping differentiate true allergy from cross reactivity and guiding risk assessment.

Used thoughtfully, these tools empower primary care clinicians to deliver safer, more accurate allergy care.

Here's a clear, clinician friendly way to think about what to do next when Phadiatop is positive. I'll keep it practical, algorithmic, and aligned with how you train staff in Chennai—simple, recall friendly, and actionable.

What a Positive Phadiatop Means

A **Positive Phadiatop** indicates that the patient has **IgE sensitization to one or more aeroallergens**.

It does not tell you which allergen is responsible.

So the next step is **targeted identification**.

☑ Step by Step Approach After a Positive Phadiatop

1. Correlate with Clinical History

Ask:

- Are symptoms perennial or seasonal
- Indoor vs outdoor triggers
- Presence of asthma, rhinitis, eczema
- Exposure to pets, dust, mold, cockroaches

This helps you decide which allergen groups to test next.

2. Order a Focused Aeroallergen Panel

Based on your practice context, the most relevant ImmunoCAP aeroallergens include:

House Dust Mites

- *Dermatophagoides pteronyssinus*
- *Dermatophagoides farinae*

Insects

- Cockroach
- Pigeon droppings/protein (important in India)

Animal Dander

- Cat
- Dog

Molds

- *Aspergillus flavus*
- *Aspergillus niger*
- *Alternaria tenuis*

Pollens

- Parthenium
- Bermuda grass
- Johnson grass
- Acacia
- Mesquite
- Ragweed

If symptoms are perennial: start with mites, cockroach, molds.

If seasonal: start with grasses, weeds, trees.

3. Interpret 0.1 kUA/L = sensitization

- Higher values often correlate with stronger sensitization
- No universal “magic number”
- Always correlate with symptoms

If multiple allergens are positive, identify the **dominant clinical allergen** based on exposure and seasonality.

5. Assess for Asthma or Rhinitis Severity

A positive Phadiatop often correlates with:

- Allergic rhinitis
- Asthma
- Atopic dermatitis

Evaluate:

- Spirometry (if respiratory symptoms)
- ARIA classification for rhinitis
- Need for inhaled corticosteroids

or antihistamines

6. Consider Allergen Immunotherapy (AIT)

If:

- Symptoms are moderate to severe
- Allergen is clinically relevant
- Avoidance + pharmacotherapy are insufficient

Then AIT may be considered for:

- Dust mites
- Pollens
- Cat/dog dander (depending on availability)

7. Reassure When Needed

A positive Phadiatop does not mean:

- The patient is allergic to everything
- The patient will develop asthma
- The patient needs lifelong medication

It simply means **sensitization is present**, and we now need to identify the specific allergen.

Quick Algorithm (Staff Friendly)

Phadiatop Positive →

- ☞ Take focused history →
- ☞ Order targeted aeroallergen ImmunoCAP panel →
- ☞ Identify clinically relevant allergen →
- ☞ Provide avoidance advice →
- ☞ Treat rhinitis/asthma as needed →
- ☞ Consider immunotherapy if indicated

4. Begin Allergen Avoidance Counseling

Once the culprit allergen(s) are identified, provide:

- Dust mite reduction strategies
- Cockroach control
- Mold remediation
- Pet dander avoidance
- Pollen exposure reduction

This is where your recall friendly bilingual handouts shine.



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