

GESKES Day Ospedale Regionale di Lugano-Civico

Nutrizione e problematiche gastroenterologiche

09.10.2025

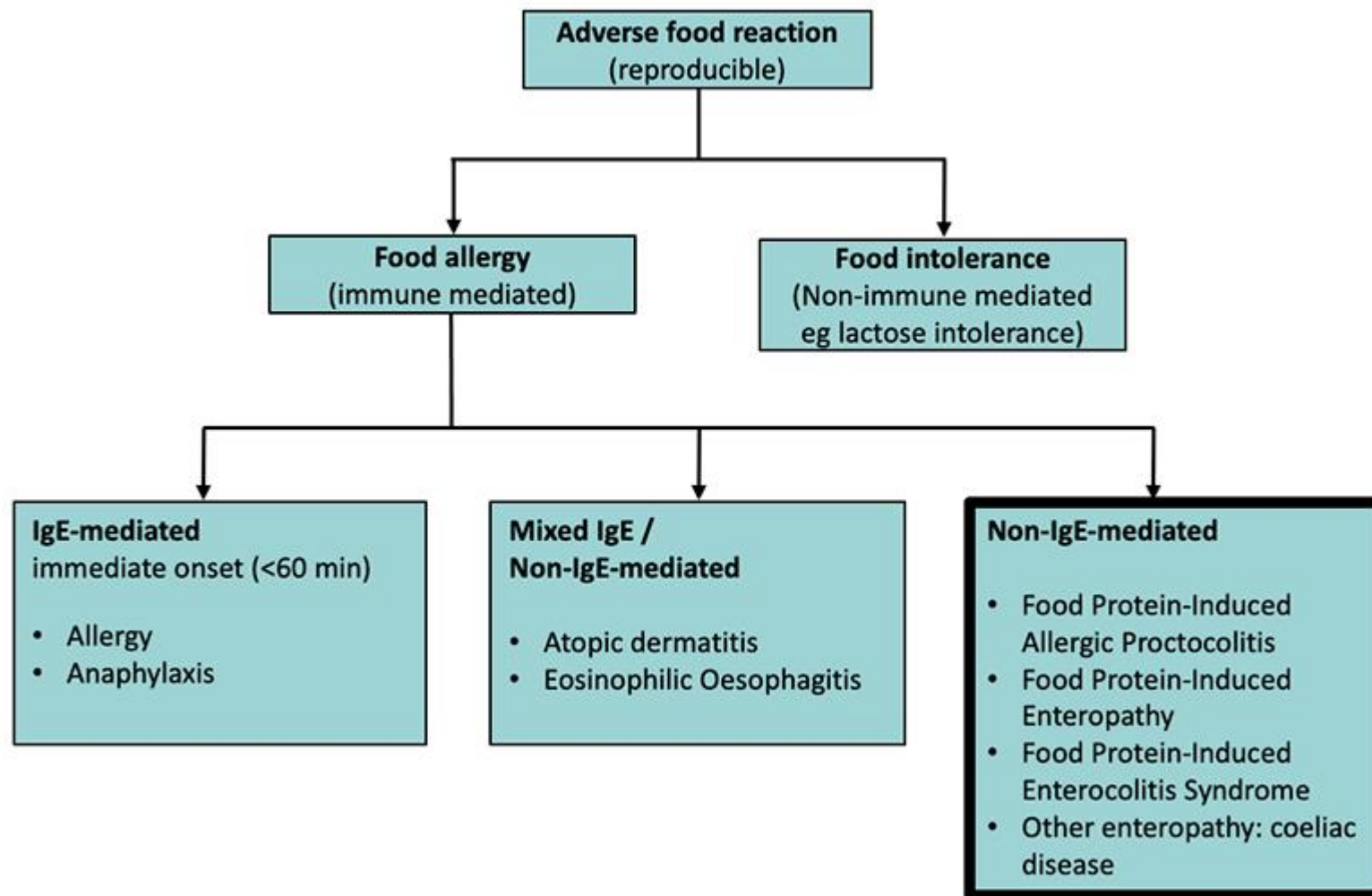
Allergie alimentari

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Nonimmunologic adverse food reactions

Gastrointestinal disorders
Nonceliac gluten sensitivity
Gastroesophageal reflux
Carbohydrate malabsorption - Lactase deficiency - Sucrose-isomaltase deficiency
Irritable bowel syndrome
Intolerance of short-chain fermentable carbohydrates (FODMAPs)
Yeast overgrowth syndrome
Pancreatic insufficiency (cystic fibrosis)
Peptic ulcer disease
Gallbladder disease
Toxic reactions
Seafood - Scombroid poisoning (fresh tuna and mackerel) - Ciguatera poisoning (grouper, snapper) - Saxitoxin (shellfish)
Other food poisoning
Fungal toxins
Intolerances
Pharmacologic agents - Caffeine - Theobromine (tea, chocolate) - Histamine and histamine-like compounds (berries, wine, fish, sauerkraut) - Tryptamine (tomato, plum) - Tyramine (aged cheeses, pickled fish) - Serotonin (banana, tomato) - Phenylethylamine (chocolate) - Glycosidal alkaloid solanine (potatoes) - Alcohol
Flavorings and preservatives - Sodium metabisulfite - Monosodium glutamate
Neurologic reactions
Auriculotemporal syndrome
Psychologic reactions
Food phobias
Food aversions
Accidental contaminations
Pesticides
Antibiotics (if allergy present)

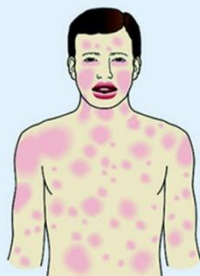
Adapted from: Sampson HA. Differential diagnosis in adverse reactions to foods. J Allergy Clin Immunol 1986; 78:212.

Esempi di sintomi nell'allergia alimentare IgE-mediata

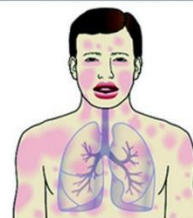
Organ or system	Symptoms and signs
Skin	- Urticaria - Angio-oedema - Pruritus - Flushing - Erythema in the predilection sites of eczema - Ear or palm itching
Gastro-intestinal	- Oral/pharyngeal pruritus - Oral/pharyngeal swelling - Vomiting - Nausea - Abdominal cramps - Diarrhoea - Abdominal pain
Ocular	- Conjunctival erythema - Pruritus - Lacrimation
Respiratory	- Rhinitis (rhinorrhoea, sneezing, nasal obstruction, pruritus) - Hoarseness - Stridor/laryngeal oedema - Cough - Dyspnoea - Chest tightness - Wheezing - Cyanosis
Cardiovascular	- Pallor - Cold sweats - Heart palpitations - Pre-syncope / Syncope - Tachycardia - Hypotension - Shock
Neurological	- Anxiety 'Feeling of impending doom' - Change in behaviour - Irritability - Apathy - Lethargy - Seizures - Syncope/Loss of consciousness
Other	- Uterine contractions resulting in abdominal pain and bleeding - Shivering

Anaphylaxis is highly likely when any one of the following three criteria is fulfilled:

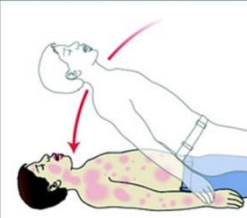
1 Sudden onset of an illness (minutes to several hours), with involvement of the skin, mucosal tissue, or both (e.g. generalized hives, itching or flushing, swollen lips-tongue-uvula)



AND AT LEAST ONE
OF THE FOLLOWING:



Sudden respiratory symptoms and signs
(e.g. shortness of breath, wheeze, cough, stridor, hypoxemia)

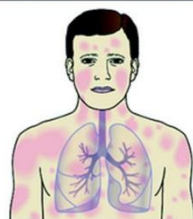


Sudden reduced BP or symptoms of end-organ dysfunction (e.g. hypotonia [collapse], incontinence)

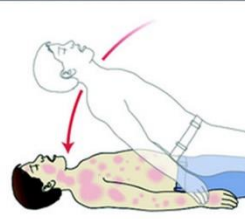
OR 2 Two or more of the following that occur suddenly after exposure to a *likely allergen or other trigger** for that patient (minutes to several hours):



Sudden skin or mucosal symptoms and signs
(e.g. generalized hives, itch-flush, swollen lips-tongue-uvula)



Sudden respiratory symptoms and signs
(e.g. shortness of breath, wheeze, cough, stridor, hypoxemia)



Sudden reduced BP or symptoms of end-organ dysfunction (e.g. hypotonia [collapse], incontinence)



Sudden gastrointestinal symptoms (e.g. crampy abdominal pain, vomiting)

OR 3 Reduced blood pressure (BP) after exposure to a *known allergen*** for that patient (minutes to several hours):



Infants and children: low systolic BP (age-specific) or greater than 30% decrease in systolic BP***

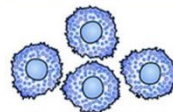
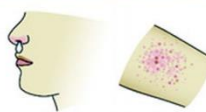
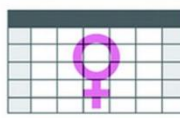


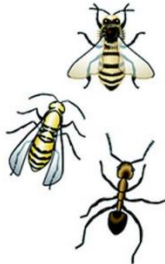
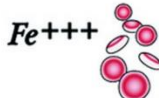
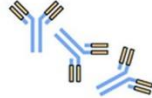
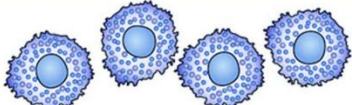
Adults: systolic BP of less than 90 mm Hg or greater than 30% decrease from that person's baseline

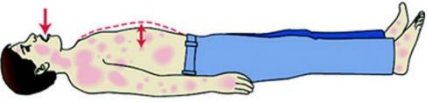
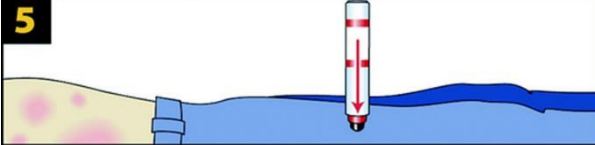
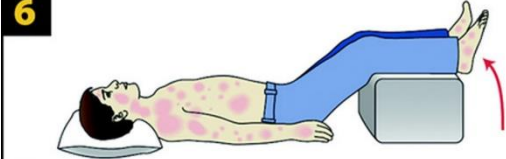
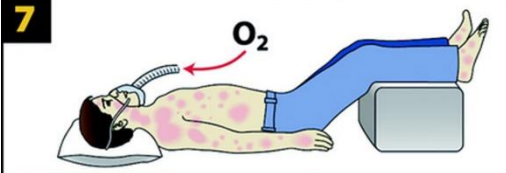
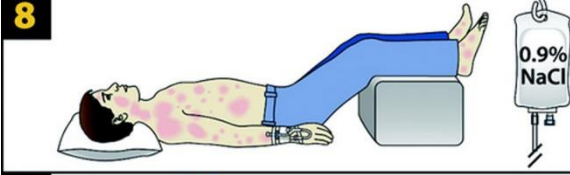
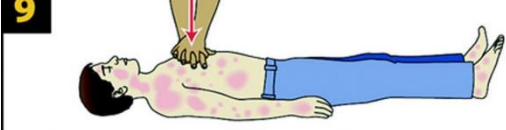
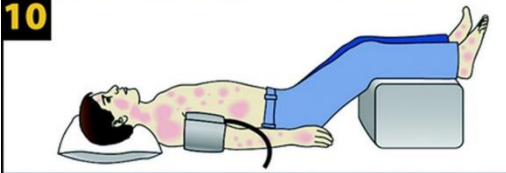
* For example, immunologic but IgE-independent, or non-immunologic (direct mast cell activation)

** For example, after an insect sting, reduced blood pressure might be the only manifestation of anaphylaxis; or, after allergen immunotherapy, generalized hives might be the only initial manifestation of anaphylaxis.

*** Low systolic blood pressure for children is defined as less than 70 mm Hg from 1 month to 1 year, less than (70 mm Hg + [2 x age]) from 1 to 10 years, and less than 90 mm Hg from 11 to 17 years. Normal heart rate ranges from 80-140 beats/minute at age 1-2 years; from 80-120 beats/minute at age 3 years; and from 70-115 beats/minute after age 3 years. In infants and children, respiratory compromise is more likely than hypotension or shock, and shock is more likely to be manifest initially by tachycardia than by hypotension.

AGE-RELATED FACTORS*				
				
Infants Cannot describe their symptoms	Adolescents and young adults Increased risk-taking behaviors	Labor and delivery Risk from medications (e.g. antibiotic to prevent neonatal group B strep infection)	Elderly Increased risk of fatality from medication or venom-triggered anaphylaxis	
CONCOMITANT DISEASES*				
				
Asthma and other respiratory diseases	Cardiovascular diseases	Mastocytosis/clonal mast cell disorders	Allergic rhinitis and eczema**	Psychiatric illness (e.g. depression)
CONCURRENT MEDICATIONS/ETHANOL/RECREATIONAL DRUG USE*				
				
β-adrenergic blockers and ACE inhibitors***		Ethanol/sedatives/hypnotics/antidepressants/recreational drugs (potentially affect recognition of anaphylaxis triggers and symptoms)		
CO-FACTORS THAT AMPLIFY ANAPHYLAXIS*				
				
Exercise	Acute infection (e.g. a cold or fever)	Emotional stress	Disruption of routine (e.g. travel)	Premenstrual status (females)
* Age-related factors, concomitant diseases, and concurrent medications potentially contribute to severe or fatal anaphylaxis. Co-factors potentially amplify anaphylaxis. Multiple factors and co-factors likely contribute to some anaphylactic episodes. ** Atopic diseases are a risk factor for anaphylaxis triggered by food, exercise, and latex, but not for anaphylaxis triggered by insect stings. *** ACE, angiotensin-converting enzyme				

IMMUNOLOGIC MECHANISMS (IgE dependent)					
 peanut		 tree nuts		 shellfish	
 fish		 stinging insects		 β -lactam antibiotics*	
 milk		 egg		 NSAIDs* ** biologic agents*	
 soybean		 peach		 sesame	
Foods		Venoms		Medications*	
 Natural rubber latex		 Occupational allergens		 Seminal fluid	
 Aeroallergens		 Radiocontrast media*			
IMMUNOLOGIC MECHANISMS (IgE independent)					
 Radiocontrast media*		 NSAIDs* **		 Fe^{+++}	
				 Biologic agents* (e.g. some monoclonal antibodies)	
NONIMMUNOLOGIC MECHANISMS (Direct mast cell activation)					
 Physical factors (e.g. exercise, cold, heat, sunlight)		 Ethanol		 Medications* (e.g. opioids)	
IDIOPATHIC ANAPHYLAXIS (No apparent trigger)					
 Previously unrecognized allergen?		 Mastocytosis/clonal mast cell disorder?			
*Trigger anaphylaxis by more than one mechanism **NSAIDs, non-steroidal anti-inflammatory drugs ***HMW, high molecular weight					

1	Have a written emergency protocol for recognition and treatment of anaphylaxis and rehearse it regularly.	
2	Remove exposure to the trigger if possible, eg. discontinue an intravenous diagnostic or therapeutic agent that seems to be triggering symptoms.	
3		Assess the patient's circulation, airway, breathing, mental status, skin, and body weight (mass).
4		Promptly and simultaneously, perform steps 4, 5 and 6.
5		Call for help: resuscitation team (hospital) or emergency medical services (community) if available.
6		Inject epinephrine (adrenaline) intramuscularly in the mid-anterolateral aspect of the thigh, 0.01 mg/kg of a 1:1,000 (1 mg/mL) solution, maximum of 0.5 mg (adult) or 0.3 mg (child); record the time of the dose and repeat it in 5-15 minutes , if needed. Most patients respond to 1 or 2 doses.
7		Place patient on the back or in a position of comfort if there is respiratory distress and/or vomiting; elevate the lower extremities ; fatality can occur within seconds if patient stands or sits suddenly.
8		When indicated, give high-flow supplemental oxygen (6-8 L/minute), by face mask or oropharyngeal airway.
9		Establish intravenous access using needles or catheters with wide-bore cannulae (14 - 16 gauge). When indicated, give 1-2 litres of 0.9% (isotonic) saline rapidly (e.g. 5-10 mL/kg in the first 5-10 minutes to an adult; 10 mL/kg to a child).
10		When indicated at any time, perform cardiopulmonary resuscitation with continuous chest compressions.
		In addition,
		At frequent, regular intervals, monitor patient's blood pressure, cardiac rate and function, respiratory status, and oxygenation (monitor continuously, if possible).

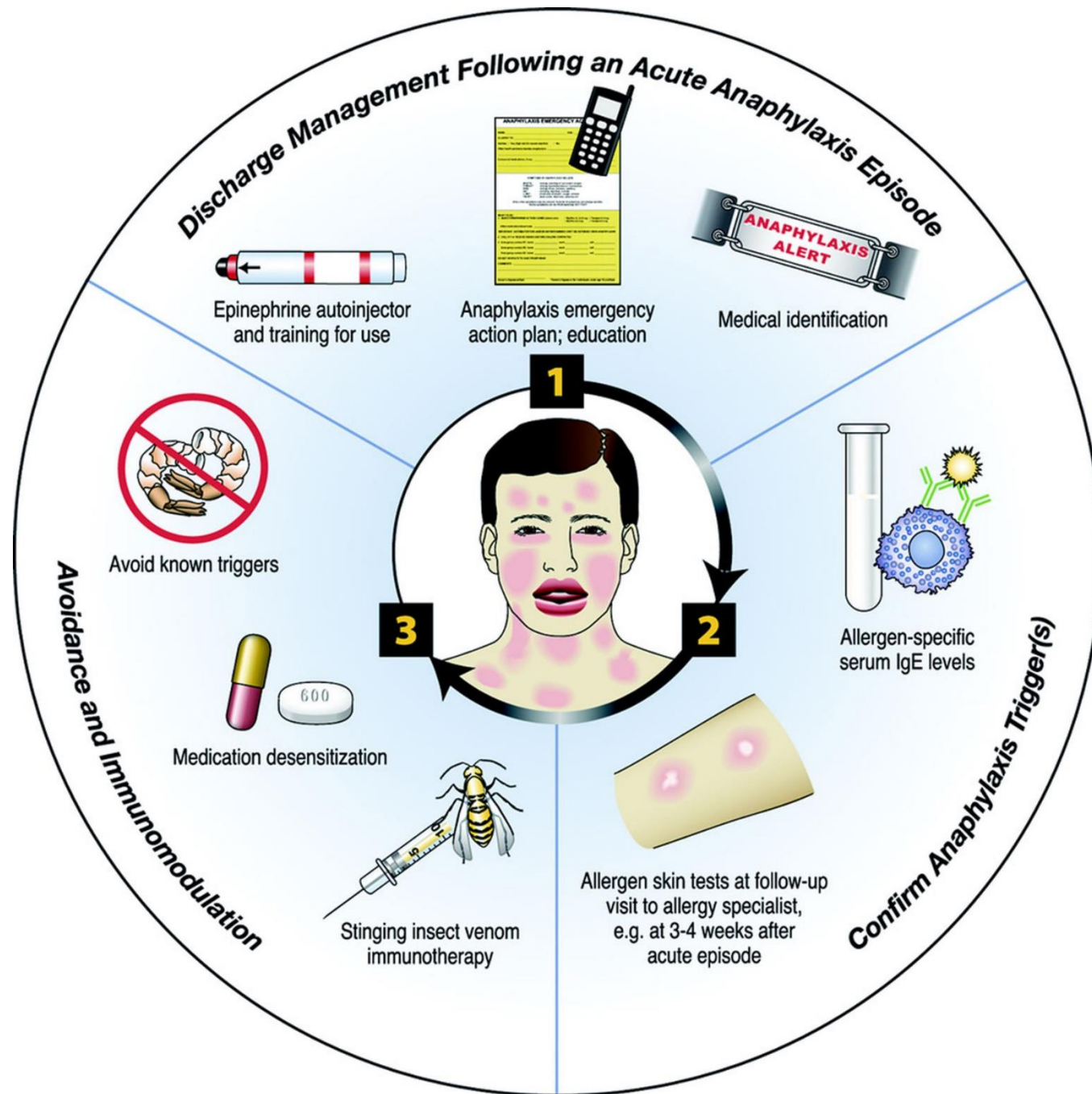
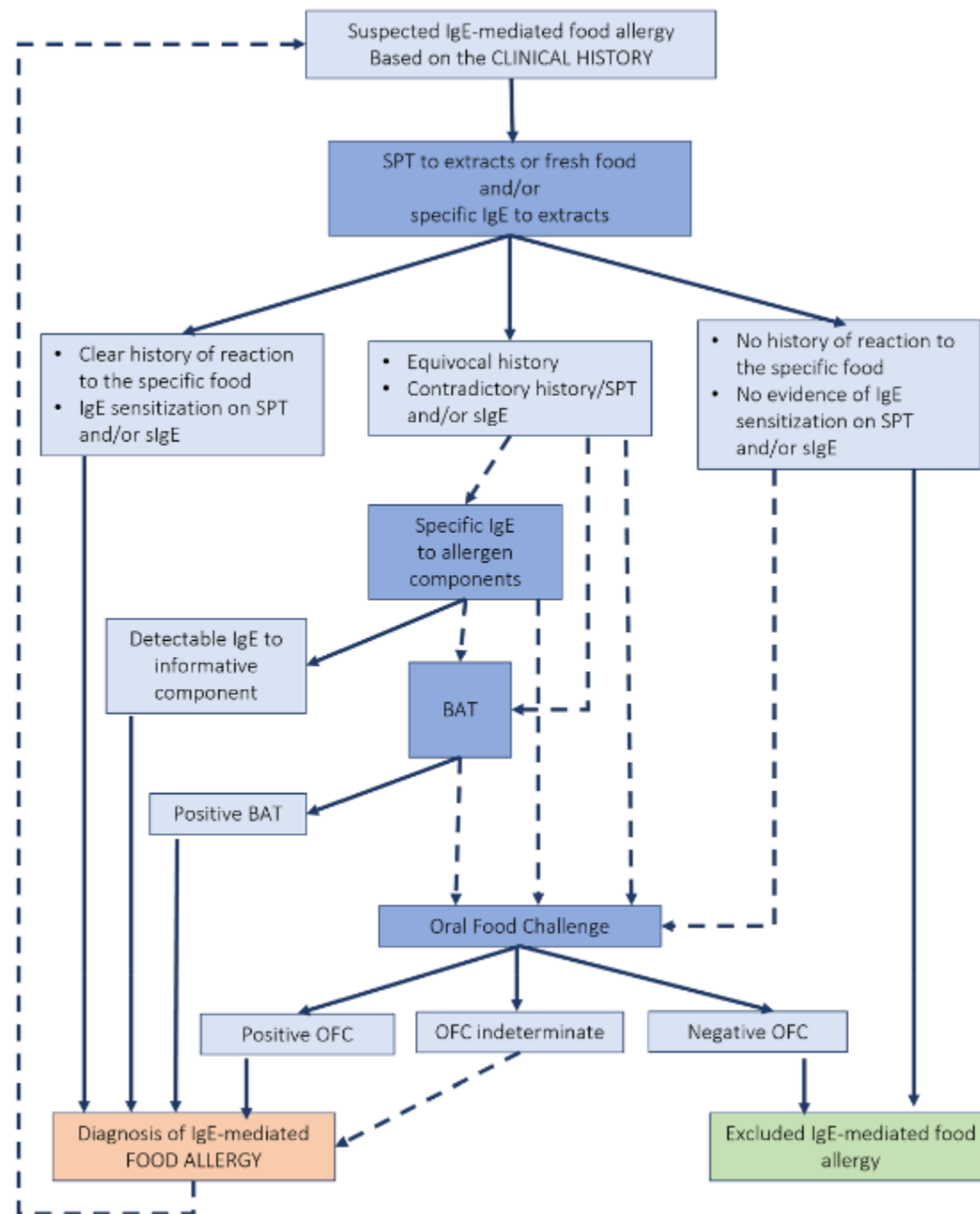


FIGURE 2 Algorithm for the recommended sequence of tests to support the diagnosis of IgE-mediated food allergy. If SPT results are contradictory with the history, specific IgE to allergen extracts can be performed to double-check, and vice-versa. Additional tests may be done, if necessary and if available. The sequence of tests indicates priority for testing and not that all tests need to be performed (thus the dashed lines). The choice of tests depends on the food being tested and the diagnostic performance of specific tests in this context. The long-dashed arrow on the left back to the top represents the periodic reassessment for possible spontaneous resolution of food allergy in children.



Domande chiave

Age at symptom onset	When did the manifestations start? Infancy, childhood, adolescence or adulthood
Presenting symptoms—type and severity	Symptom type and organ involved (skin, gut, upper and lower airway, neurological, cardiovascular), and whether they were mild, moderate or severe
Speed of symptom onset and duration of symptoms	Were the symptoms immediate, usually within a few minutes and up to 2 h after eating (3–6 h for alpha-gal allergy)? Did the symptoms resolve spontaneously?
Treatment for previous reactions	Was an antihistamine given and effective? Were other medications administered including adrenaline?
Food(s) suspected	Which foods were new to the individual's diet? Have they been eaten previously without a problem? Were they eaten in a different form previously? Are hidden allergens a likely trigger? Foods commonly implicated in IgE-mediated food allergy: cow's milk, egg, wheat, soya, sesame, peanut, tree nuts, fish, shellfish, legumes, fruits and vegetables. Common hidden allergens: celery, mustard, cochineal, lupin, soy, fenugreek, other legumes such as pea/bean/lentil protein, insects/mealworm, pink peppercorns)
Quantity of food	How much of the ingested food provoked symptoms—a mouthful, or up to a whole portion?
Reproducibility of reactions	Does the reaction occur every time the food is eaten, or can it be tolerated in a different form, or a different variety (fruits and vegetables)?
Food processing	Was the food raw, cooked or processed and does tolerance depend on the cooking method?
Route of exposure	Was the suspected food ingested, touched or inhaled? Occupational exposure to the food?
Involvement of co-factors	Did the reaction only occur when the food was eaten within 2 h and was it linked to exercise, alcohol, aspirin or non-steroidal anti-inflammatory drugs, acid suppressant medications, sleep deprivation, stress, cannabis use, hormonal factors?
Setting of the reaction	Where did the reaction occur? At home, school, restaurant, on holiday or in the workplace?
Potential for cross-reactivity	Is the patient sensitized to pollens, latex or house dust mite? If so, what is the potential for a cross-reactive food allergy?
Dietary history	What is the type of feeding (breast and/or formula feeds)? What is the complementary food history (if applicable), typical daily intake and foods habitually consumed without consequence?
Previous/current food elimination	Which foods are being avoided? Has a food allergy been diagnosed before or was an elimination diet undertaken previously? and if so, what was the result?
Other foods being avoided	Which foods are avoided for personal, religious or cultural reasons?
Dietary Adequacy	Is the current diet nutritionally adequate or is it already compromised due to the exclusion of foods for other reasons? Consider the effect of dietary restrictions with regard to age, growth, weight loss (body mass index) and current food intake.
History of concomitant atopic and other diseases	Are atopic dermatitis, seasonal or perennial allergic rhinitis, asthma and urticaria present?
Family history of atopic disease	Do any of their parents and/or siblings have atopic disease?

Diagnostic tests	Rationale for using these tests to support the diagnosis of IgE-mediated food allergy
Skin prick test to allergen extracts	Wheal size reflects the amount of mast cell mediators following stimulation with allergen.
Skin prick test to fresh food (prick-to-prick)	Wheal size reflects the amount of mast cell mediators following stimulation with allergen. Use of fresh foods can increase sensitivity of tests as fresh foods contain allergens that may be destroyed or excluded during preparation of allergen extracts (e.g. thermolabile allergens or lipophilic allergens).
Specific IgE to allergen extracts	Concentration of IgE in the serum reflect the amount of circulating IgE antibodies directed to the allergen tested.
Specific IgE to individual allergen components	IgE to specific allergen components shown to be clinically relevant can be more specific than IgE to whole allergen extracts.
Basophil activation test	Proportion of in vitro allergen-activated basophils reflects the amount of mediators released by circulating basophils following stimulation with allergen. This functional test uses patients' own basophils and detects the combined intrinsic cellular response and effect of allergen-IgE binding.

Diagnostica allergologica

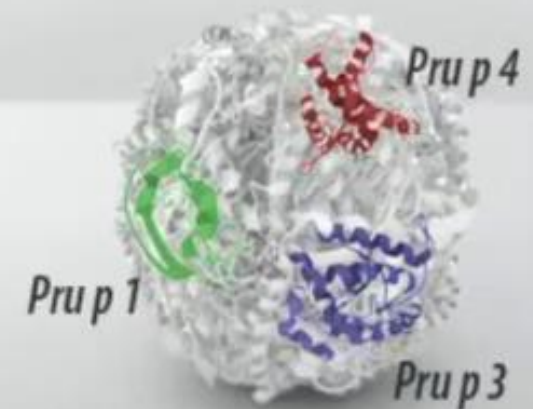
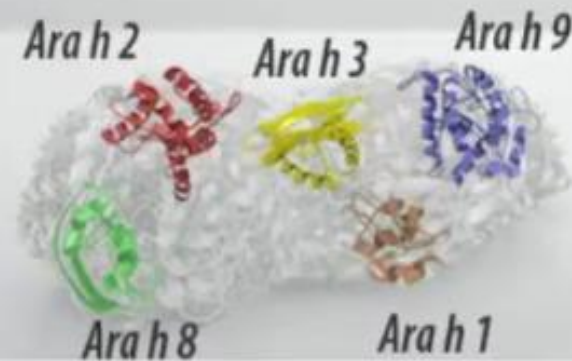


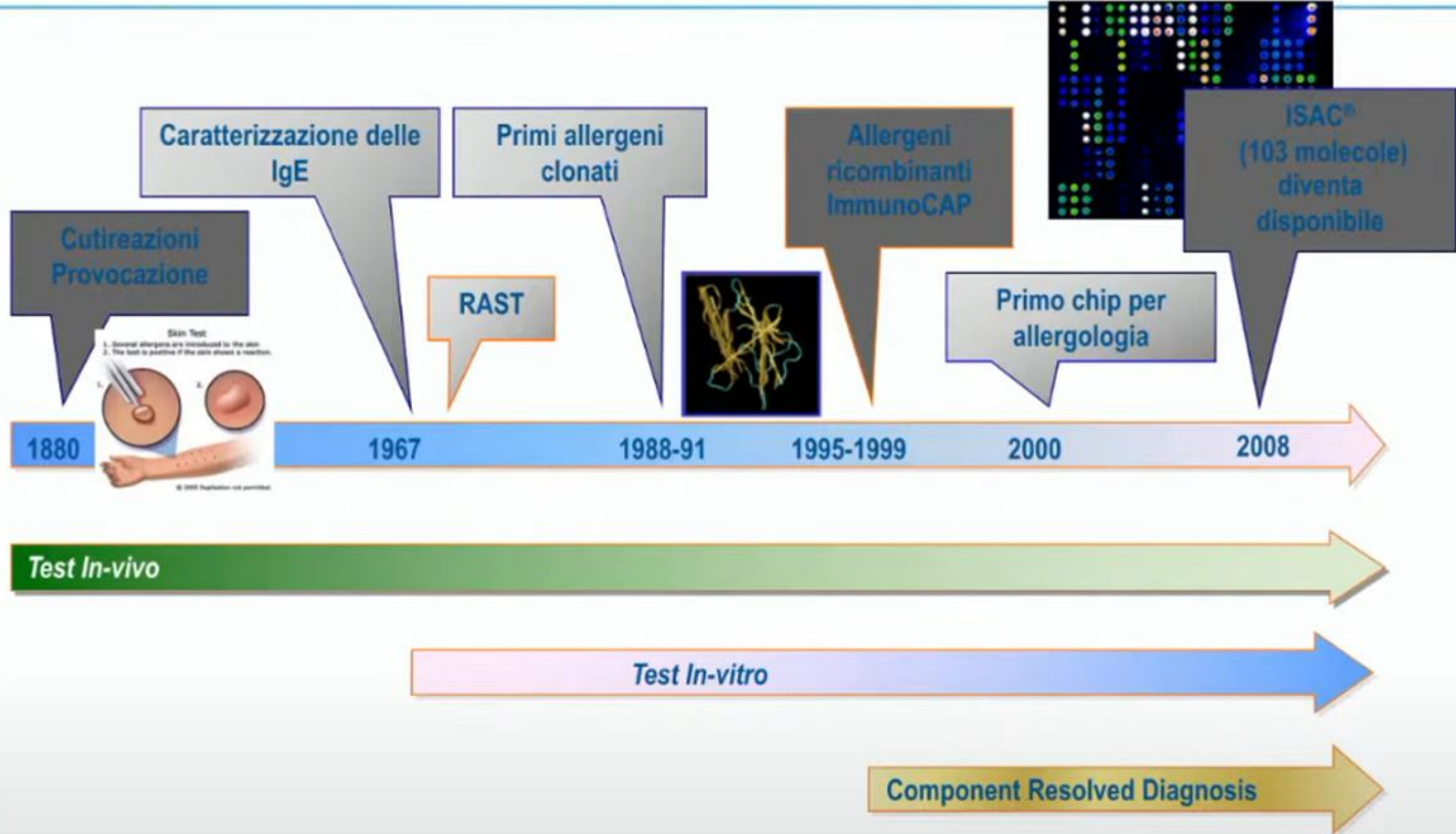
- History
- Clinical symptoms
- Physical examination
- Results of allergy test




~~Molecular Allergology~~

Diagnosed allergy:



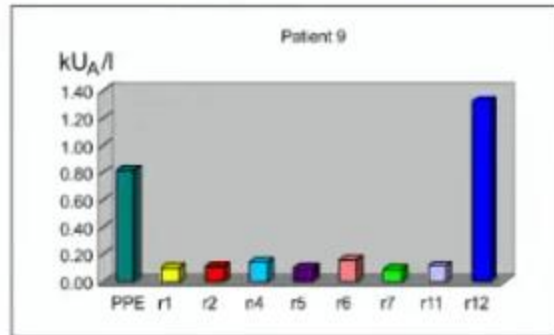


Diagnostica in vitro tradizionale



Figure 1 displays nine bar charts, each representing a patient's kUA/l values across various categories (PPE, r1, r2, n4, r5, r6, r7, r11, r12). The y-axis for each chart is labeled 'kUA/l'.

- Patient 1 (circled in red):** Y-axis scale 0.00 to 12.00. High values for PPE (~11.5) and r12 (~4.5).
- Patient 4:** Y-axis scale 0.00 to 20.00. High values for PPE (~20.5) and r12 (~8.0).
- Patient 7:** Y-axis scale 0.00 to 10.00. High values for PPE (~6.5) and r5 (~9.0).
- Patient 2:** Y-axis scale 0.00 to 120.00. High values for PPE (~110) and r6 (~45).
- Patient 5:** Y-axis scale 0.00 to 50.00. High values for PPE (~15) and n4 (~45).
- Patient 8 (circled in red):** Y-axis scale 0.00 to 50.00. High values for PPE (~50) and r5 (~22).
- Patient 3:** Y-axis scale 0.00 to 30.00. High values for PPE (~29) and r7 (~13).
- Patient 6:** Y-axis scale 0.00 to 15.00. High values for PPE (~14) and r1 (~12).
- Patient 9:** Y-axis scale 0.00 to 1.40. High values for PPE (~0.85) and r12 (~1.35).



Fonte allergenica

contenitore (ad es. pollini, latte, uovo) di allergeni e altro materiale non allergenico

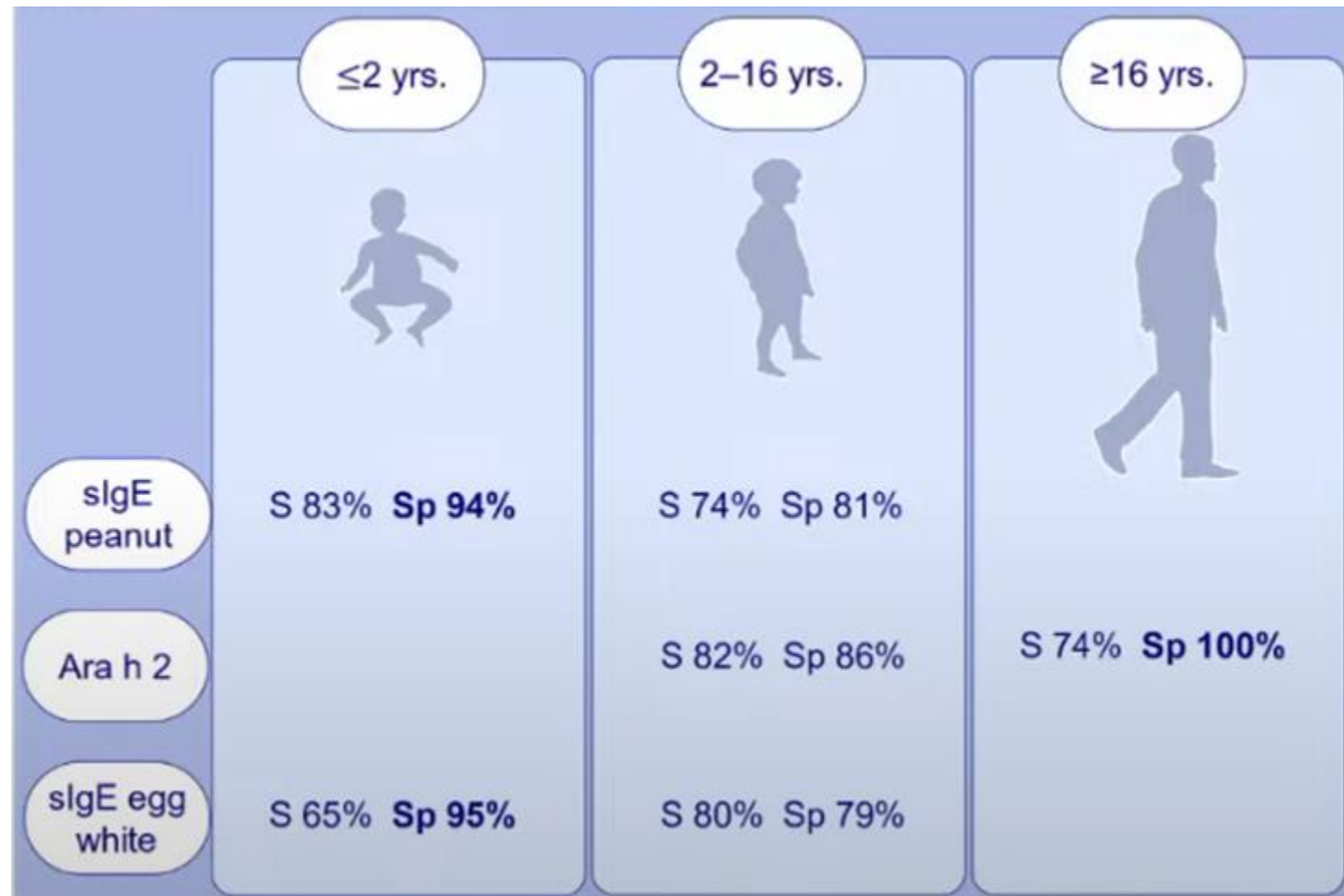
Molecole allergeniche

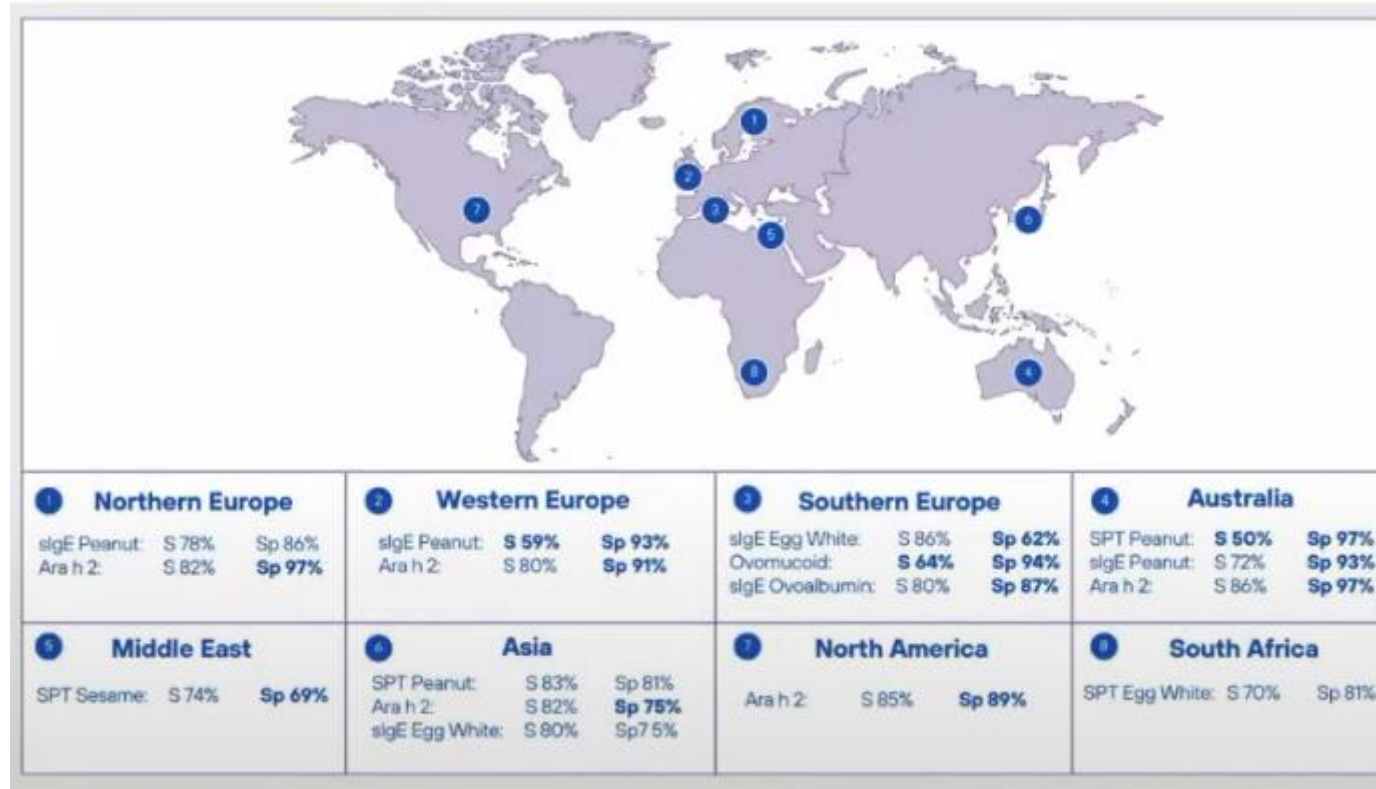
proteine, glicoproteine o apteni coniugati a carrier

Epitopo

porzione di un antigene effettivamente riconosciuta e legata da un anticorpo specifico

Ciascun allergene, proveniente da una fonte, può presentare un numero elevato di epitopi pertanto ad es. esistono IgE specifiche per latte (fonte allergenica) o per caseina (allergene del latte) ma IgE specifiche dirette verso epitopi della caseina.

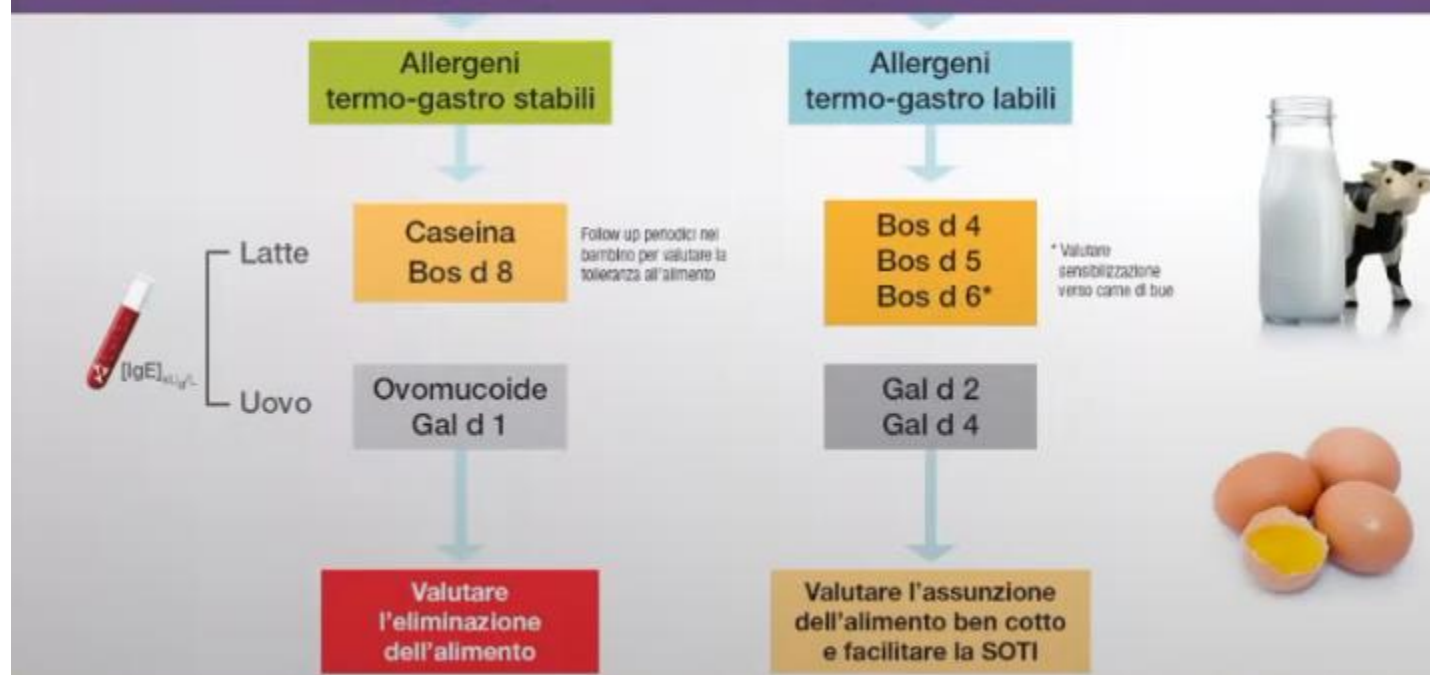




ALLERGIA ALIMENTARE

Latte/Uovo (albume)

Sintomi: vomito, diarrea, orticaria diffusa, angioedema, eczema, anafilassi



ALLERGIA ALIMENTARE

Arachidi

Sintomi: vomito, diarrea, sindrome orale allergica, orticaria, angioedema e anafilassi

Risk Assessment



Arachidi
(Fabaceae)

Allergeni
termo-gastro stabili

Ara h 1
Ara h 2
Ara h 3
Ara h 6

Storage proteins
Cross-reattività con lupino
e lenticchie

Ara h 9

LTP

Rischio di Anafilassi
Valutare l'eliminazione
dell'alimento

Allergeni
termo-gastro labili

Ara h 8

PR-10

Pru p 4

Profilina

MUXF3

CCD

Consigli dietetici e
comportamentali



Nocciola

Sintomi: vomito, diarrea, sindrome orale allergica, orticaria, angioedema e anafilassi

Risk Assessment



Nocciola
(Corylaceae)

Allergeni
termo-gastro stabili

Cor a 9
Cor a 14

Storage proteins

Cor a 8

LTP

Rischio di Anafilassi
Valutare l'eliminazione
dell'alimento

Allergeni
termo-gastro labili

Cor a 1

PR-10

Bet v 2

Profilina

MUXF3

CCD

Consigli dietetici e
comportamentali



Noci e Sesamo

Sintomi: vomito, diarrea, sindrome orale allergica, orticaria, angioedema e anafilassi

Risk Assessment



Noce
(*Juglandaceae*)
Noce brasiliana
(*Lecythidaceae*)
Anacardo
(*Anacardiaceae*)
Sesamo
(*Pedaliaceae*)

Allergeni
termo-gastro stabili

Jug r 1

Cross-reattività con
noce californiana

Ber e 1

Ana o 3

Cross-reattività con
pistacchio, pepe rosa
e mango

Ses i 1

Cross-reattività con chia

Rischio di Anafilassi
Valutare l'eliminazione
dell'alimento

Allergeni
termo-gastro labili

Cor a 1

PR-10

Pru p 4

Profilina

MUXF3

CCD

Consigli dietetici e
comportamentali



ALLERGIA ALIMENTARE

Frutta fresca

Sintomi: vomito, diarrea, sindrome orale allergica, orticaria, angioedema e anafilassi

Risk Assessment



Allergeni
termo-gastro stabili

Allergeni
termo-gastro labili



Pesca

(Rosaceae)

Mela

Pru p 3

LTP

Pru p 7

GRP

Mal d 3

LTP

Pru p 1

PR-10

Pru p 4

Profilina

MUXF3

CCD



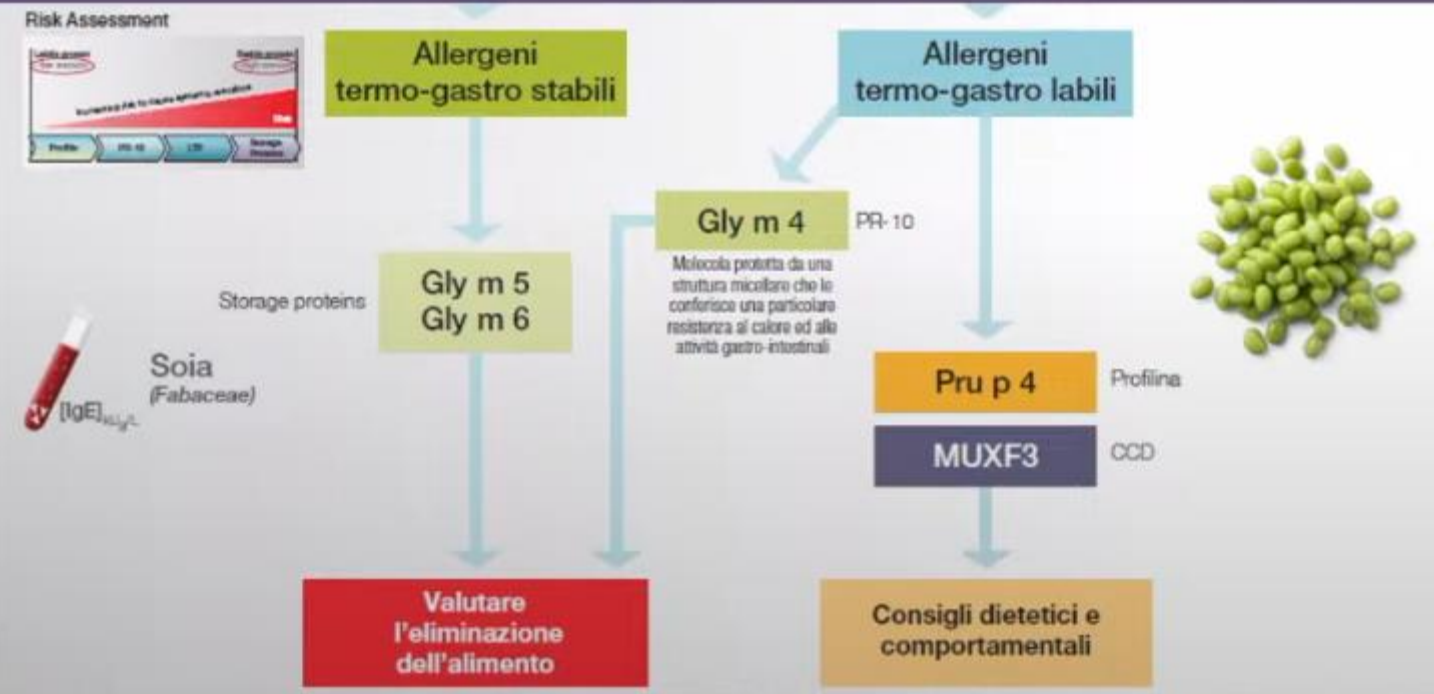
Valutare
con attenzione
l'eliminazione dell'alimento

Valutare l'assunzione
dell'alimento cotto in
quantità limitate
(rischio di reazioni tardive)

ALLERGIA ALIMENTARE

Soia

Sintomi: vomito, diarrea, sindrome orale allergica, orticaria, angioedema e anafilassi



ALLERGIA ALIMENTARE

Grano

Sintomi: anafilassi, vomito, diarrea, orticaria, eczema, WDEIA, gluten sensitivity

Risk Assessment



Allergeni
termo-gastro stabili

Allergeni
termo-gastro labili

Valutare l'esercizio fisico e altri trigger come possibili co-fattori di rischio di anafilassi postprandiale (WDEIA)



Grano

Solo se coesistenti sintomi respiratori o/o conferma buker allergy

Tri a 19
Gliadina

ω 5 gliadina
 α , β , γ , ω

Tri a 14

LTP

Asp o 21

α -amilasi

Phl p 12

Profilina

MUXF3

CCD

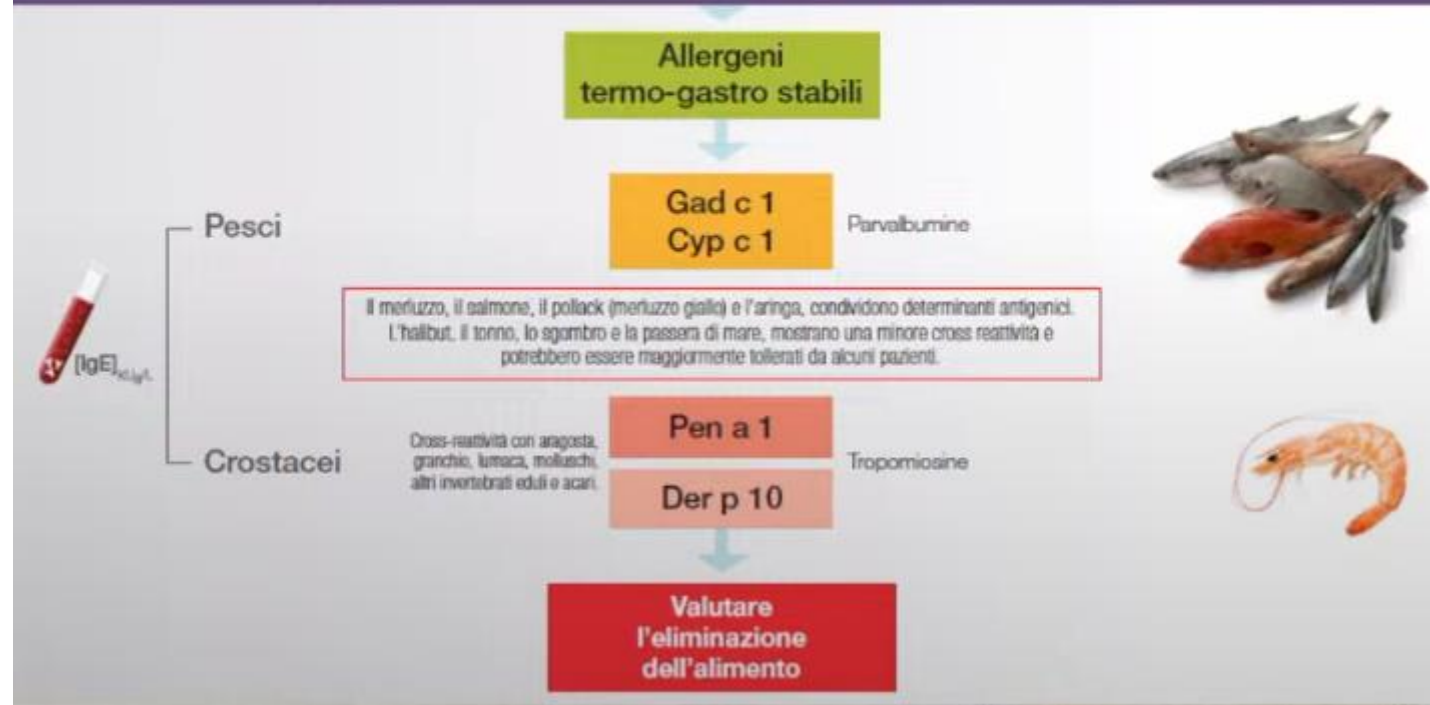


Valutare
l'eliminazione
dell'alimento

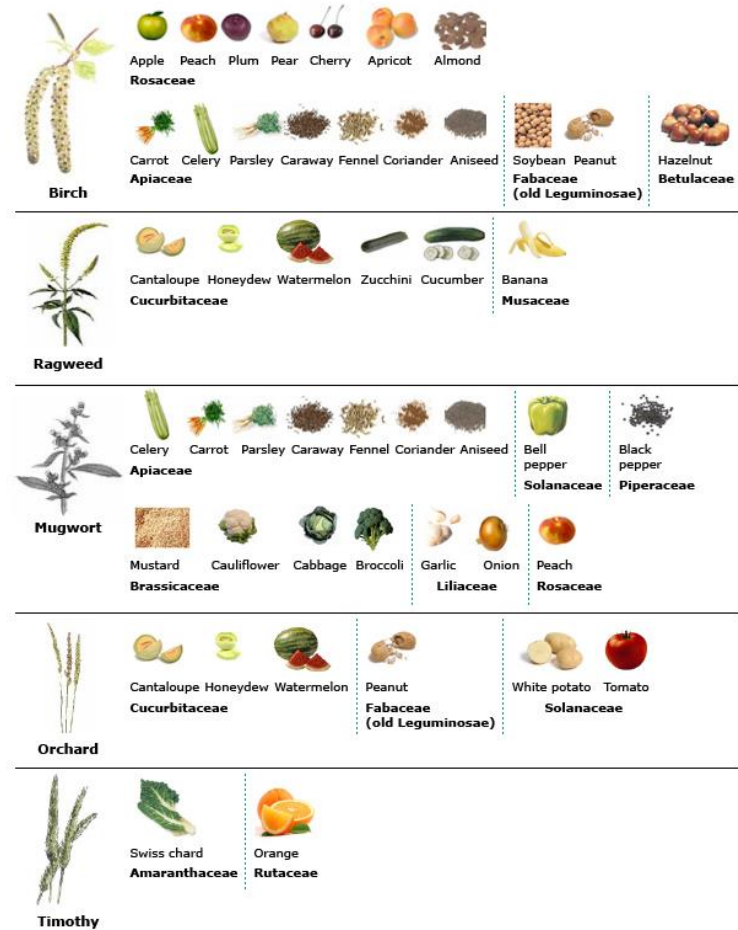
Consigli dietetici e
comportamentali

Pesci/Crostacei

Sintomi: anafilassi, vomito, diarrea, angioedema, orticaria



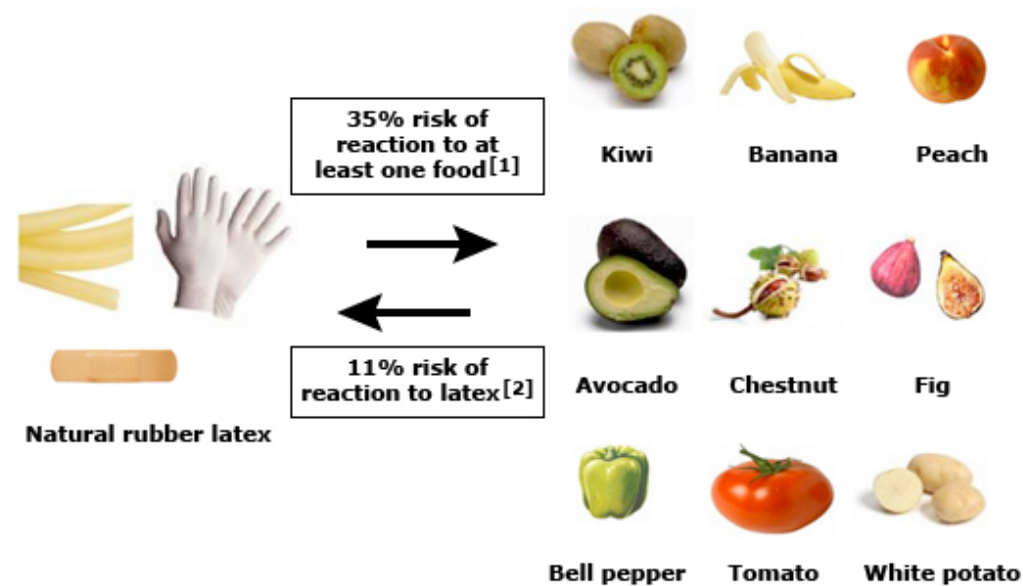
Cross-reactivity patterns in pollen-food allergy syndrome (oral allergy syndrome)



This graphic shows typical patterns of cross-reactivity between pollens and fruits and vegetables. Individual foods are grouped by their taxonomical families.

Importantly, these are **potential** cross-reactivities. Patients should not be advised to avoid foods to which they have no symptoms, and testing for tolerated foods (or foods that have not been ingested previously) is not indicated.

Patterns of allergic crossreactivity between latex and food

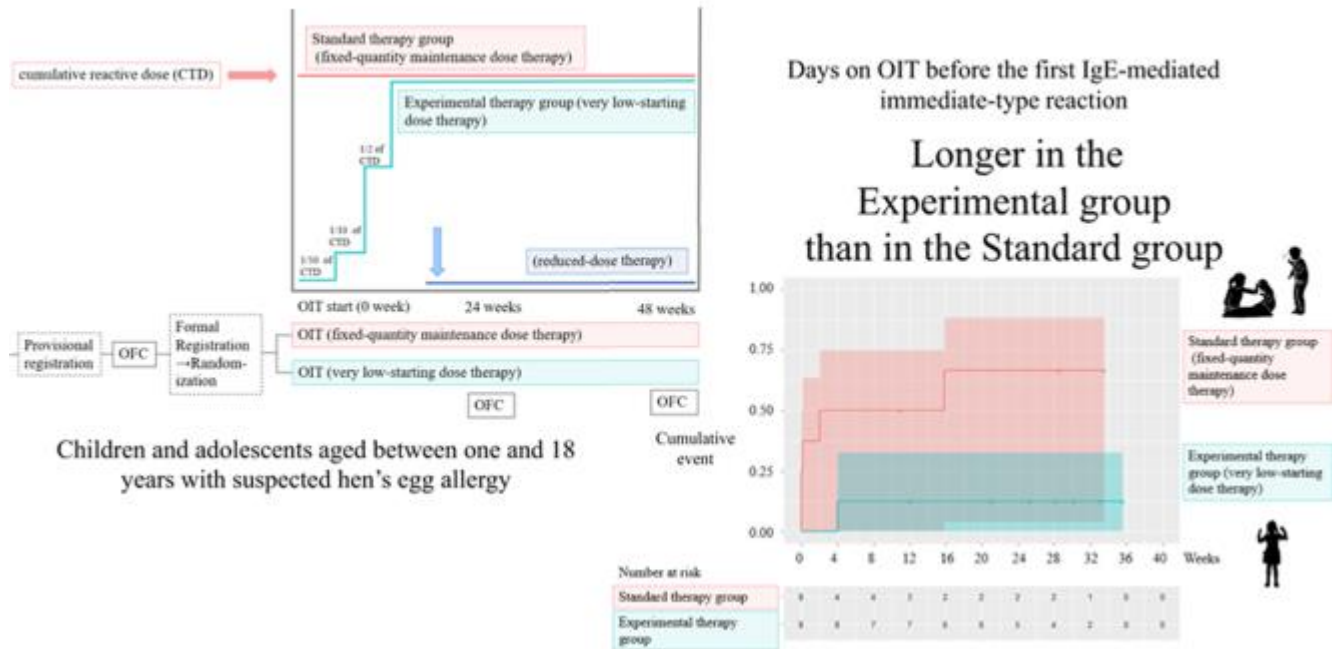


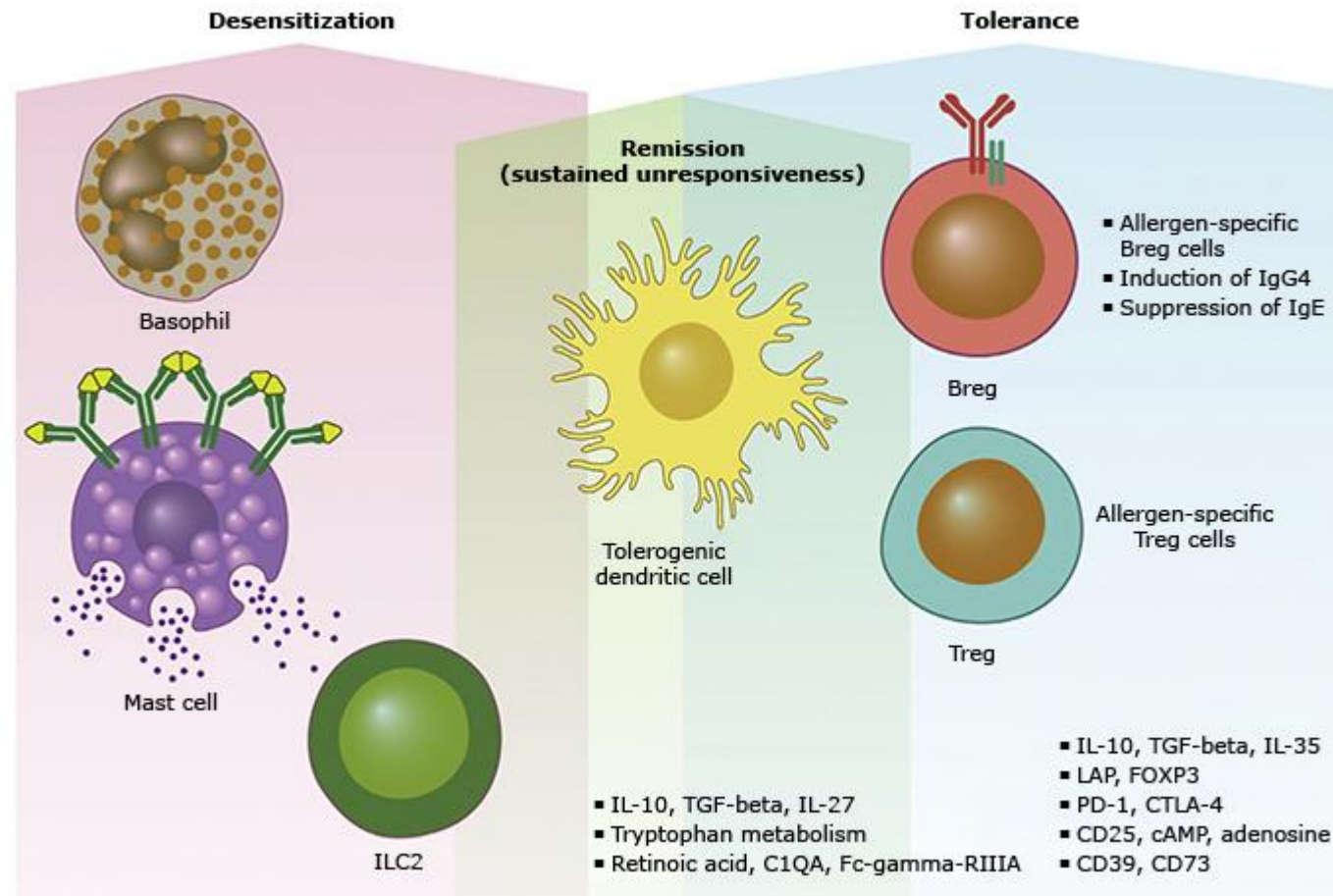
The numeric risks cited here are based upon findings in limited series of patients and may not be generalizable to all populations. Foods that uncommonly cause reactions in latex-allergic patients include carrot, coconut, apricot, strawberry, loquat, spinach, pineapple, cherimoya, passion fruit, papaya, mango, and celery.

References:

1. Rodriguez J, Crespo JF, Lopez-Rubio, et al. Clinical cross-reactivity among foods of the Rosaceae family. *J Allergy Clin Immunol* 2000; 106:183.
2. Garcia Ortiz JC, Moyano JC, Alvarez M, et al. Latex allergy in fruit-allergic patients. *Allergy* 1998; 53:532.

Safer oral immunotherapy with very low-dose introduction for pediatric hen's egg allergy





Recruiting 

Phase I Trial to Evaluate VLP Peanut in Healthy and Peanut Allergic Subjects (PROTECT)

ClinicalTrials.gov ID  NCT05476497

Sponsor  Allergy Therapeutics

Information provided by  Allergy Therapeutics (Responsible Party)

Last Update Posted  2025-08-14

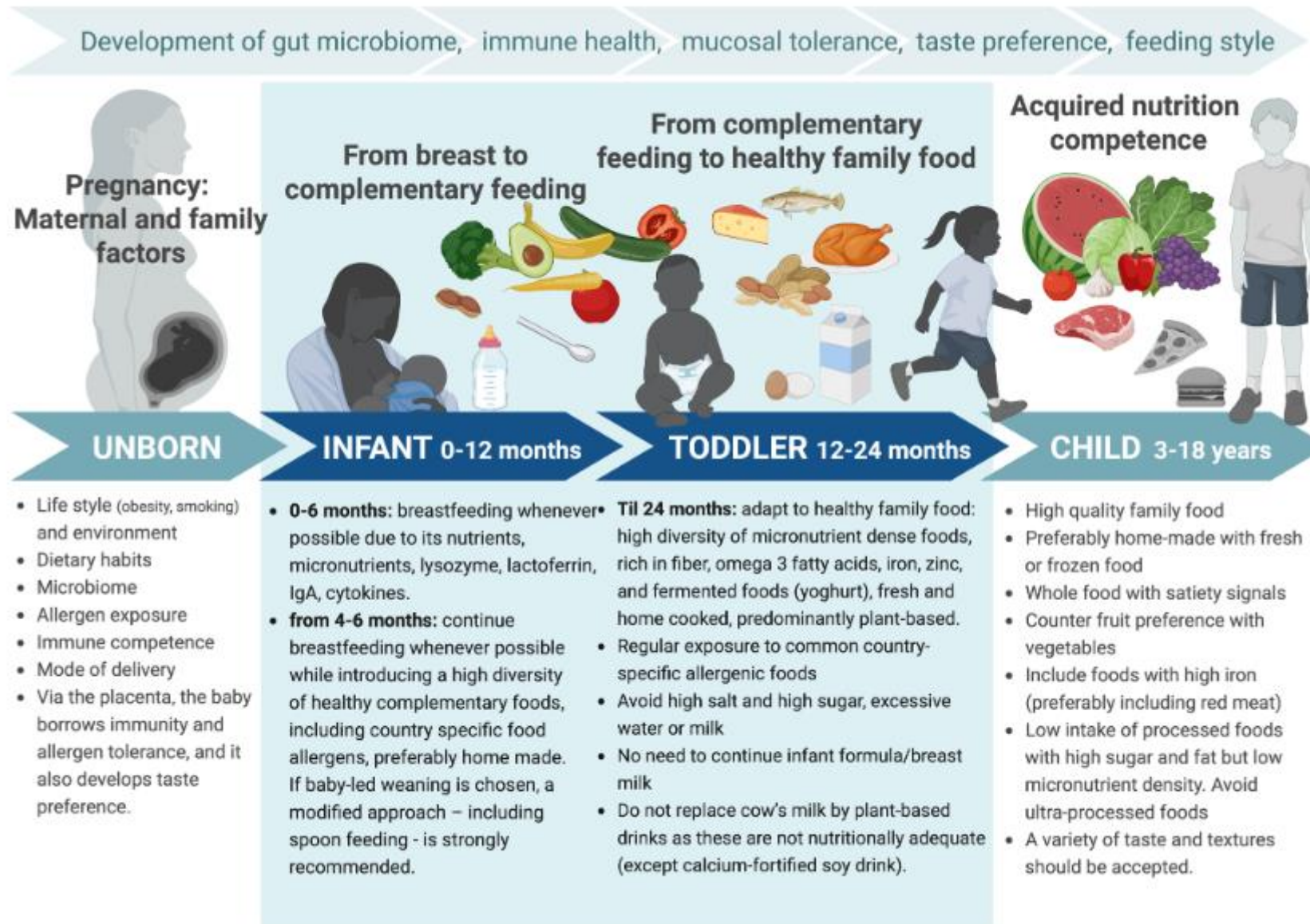
OMEGA Study: A Study of the Safety and Feasibility of Up-titration With INT301 in Adults With Sensitivity to Peanut

ClinicalTrials.gov ID  NCT04603300

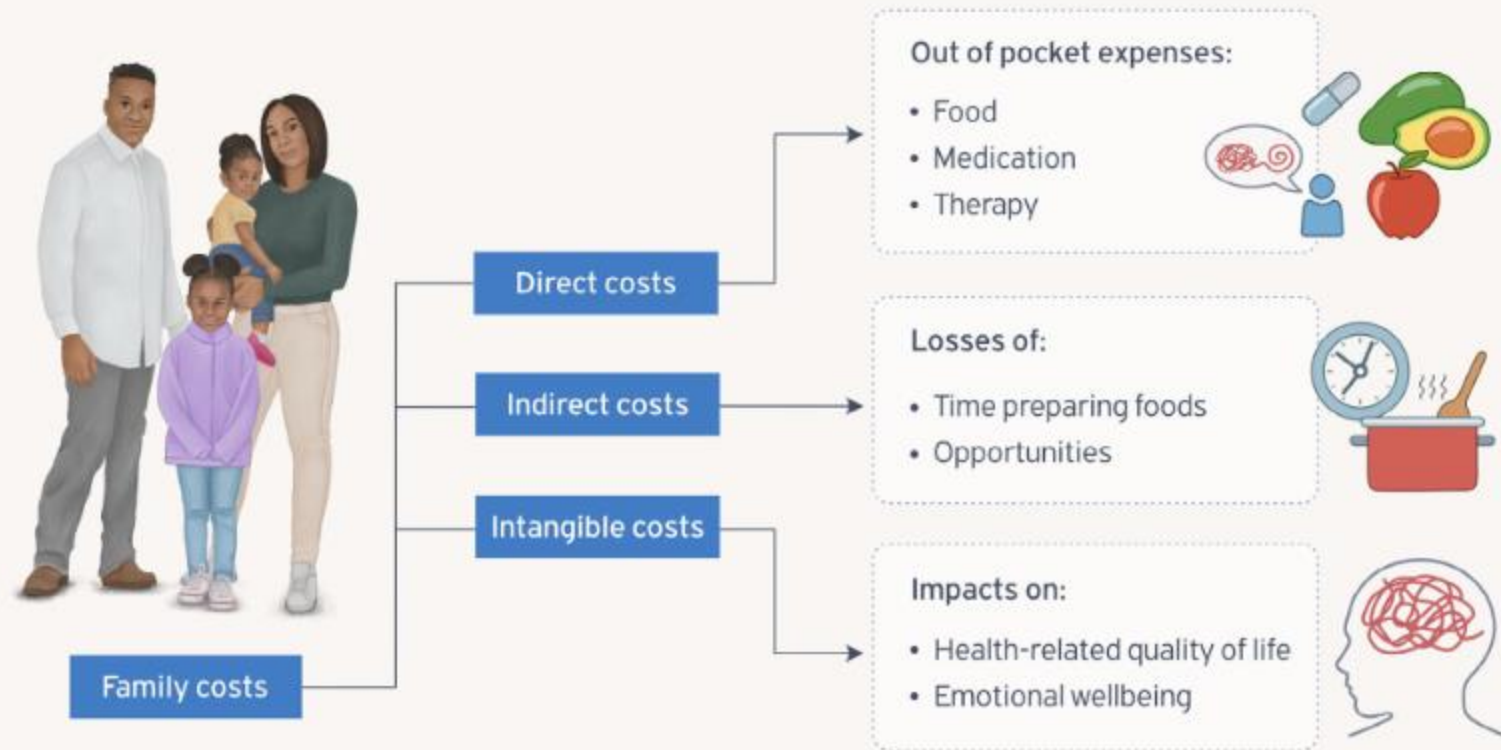
Sponsor  Intrimmune Therapeutics

Information provided by  Intrimmune Therapeutics (Responsible Party)

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The hidden price of food allergy: understanding the social and financial burdens on families



Grazie per l'attenzione

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