

Allergy & Asthma

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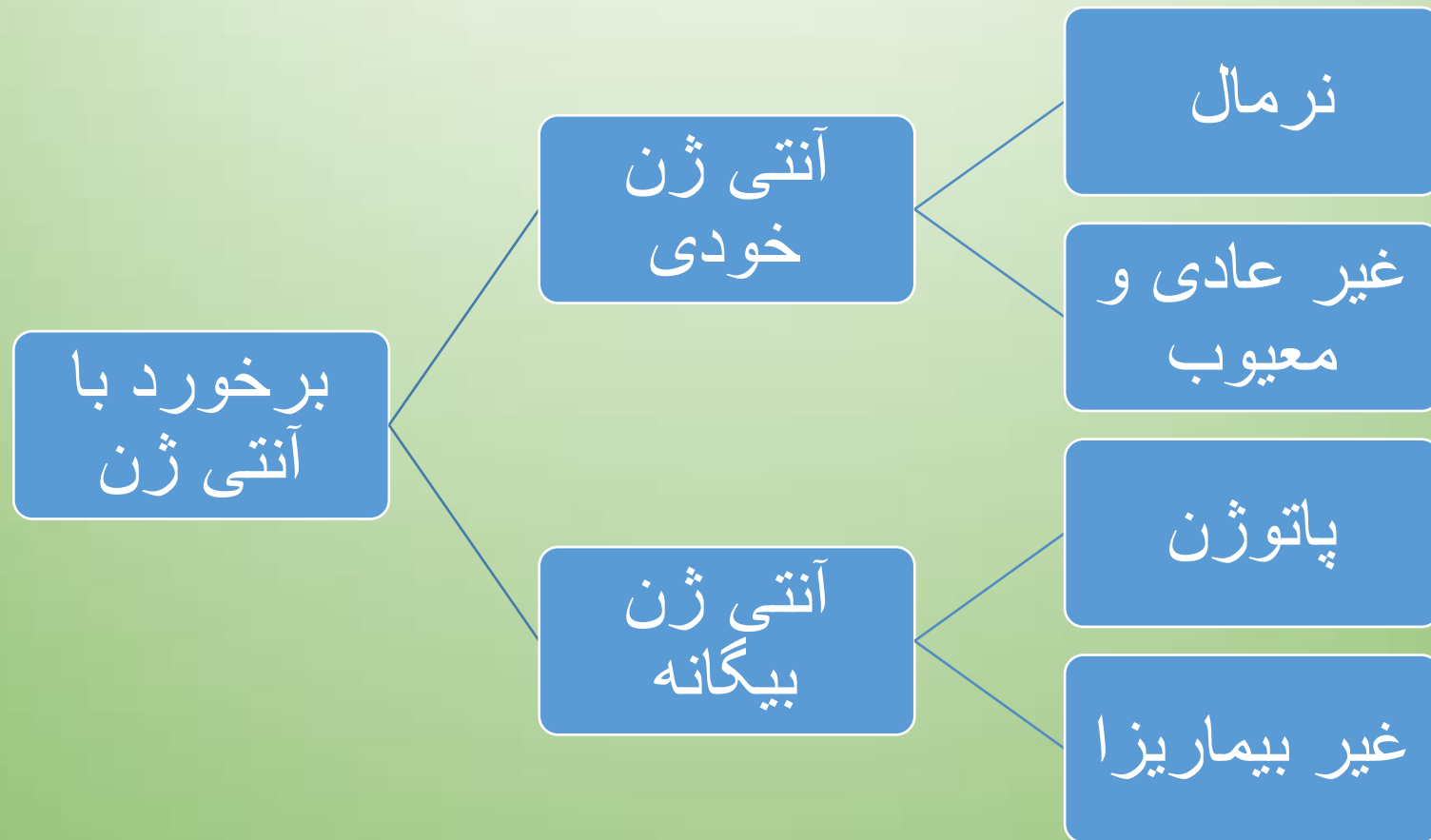
دکتر رسول ملاطفی , فوق تخصص آسم – آلرژی و بیماریهای نقص ایمنی

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What is Allergy



عملکرد سیستم ایمنی در مواجهه با یک آنتی ژن

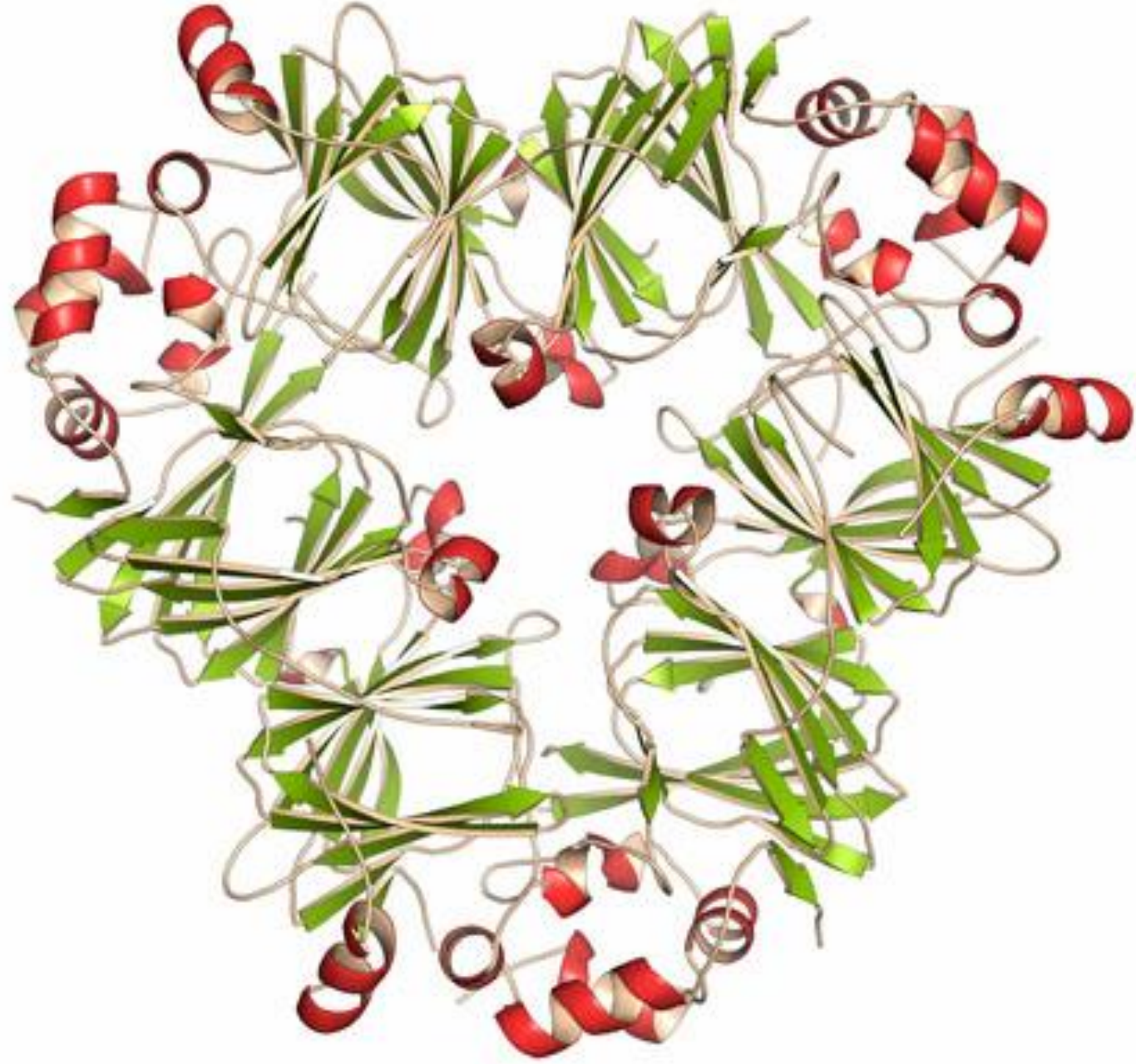


Immunopathology: types

- 1 : mast cell mediated (with or without igE): Anaphylaxis/ urticaria
- 2: IgG, IgM & IgA mediated: Neutropenia/ Thrombocytopenia/Anemia
- 3: Immune complex mediated: Serum Sickness/
Vasculitis/Hypersensitivity Pneumonitis
- 4: T Cell mediated: Dermatitis /SJS/ TEN

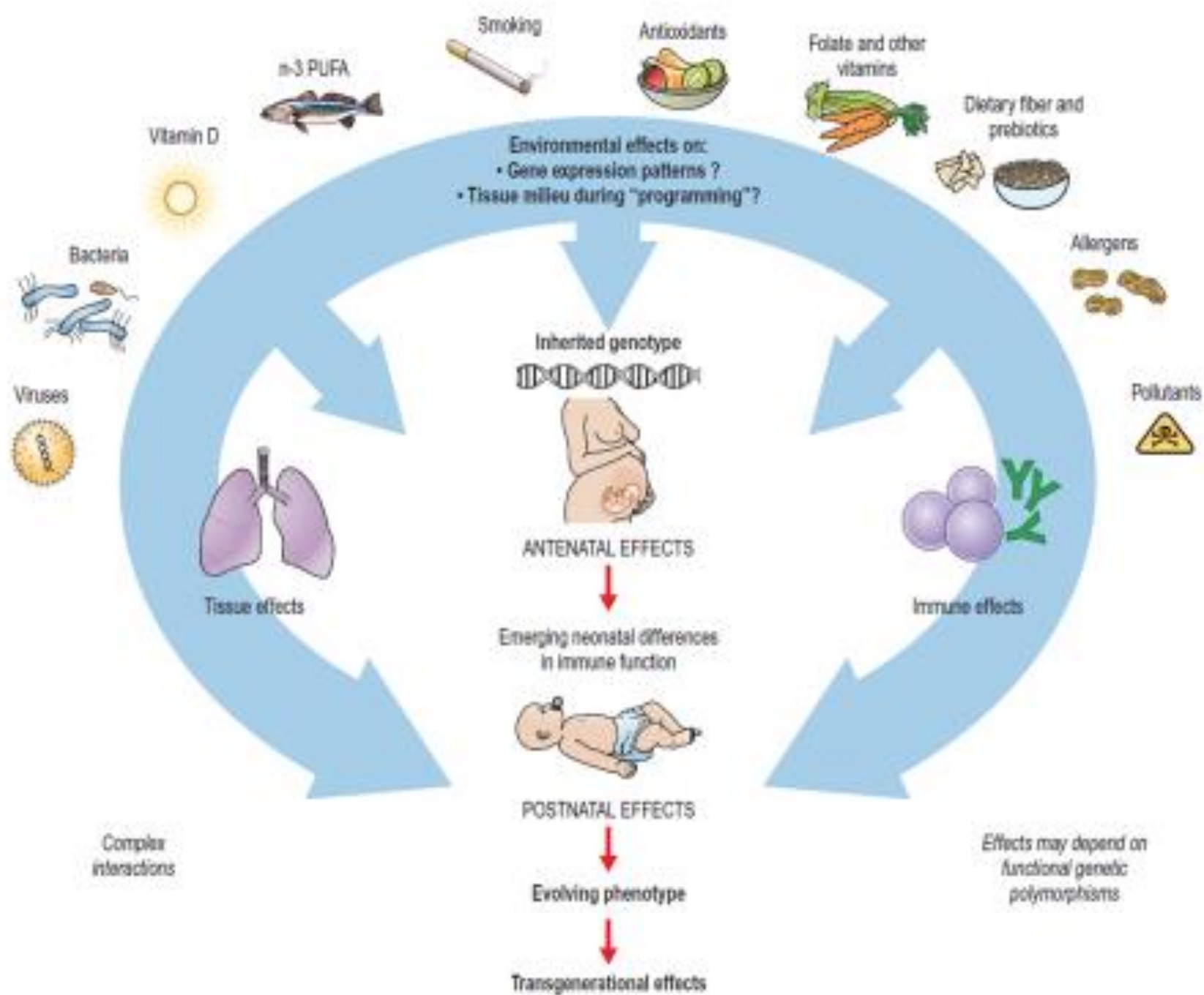
مشخصات آلژن

- جنس : پروتئین / گاهی گلیکو پروتئین/ بندرت کربوهیدرات
- سائز: 10 تا 70 کیلو دالتون
- هاپتینزاسیون



تفاوت‌های آلرژی با عدم تحمل مواد

- علت ایجاد آلرژی چیست؟
- چه کسانی آلرژی می شوند؟
- چرا شیوع آلرژی رو به افزایش است؟



Urticaria : typical / atypical

angioedema









Source: K. Wolff, B.A. Johnson, A.P. Saavedra, E.K. Reil
Fitzpatrick's Color Atlas and Synopsis of Clinical
Dermatology, Eighth Edition: www.econsulting.com
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Vasculitic urticaria



درماتیت آتوپیک



درماتیت آتوپیک





A.C.D.



Photo allergic contact dermatitis



Common Food Allergens



Immune System-Mediated Adverse Food Reaction

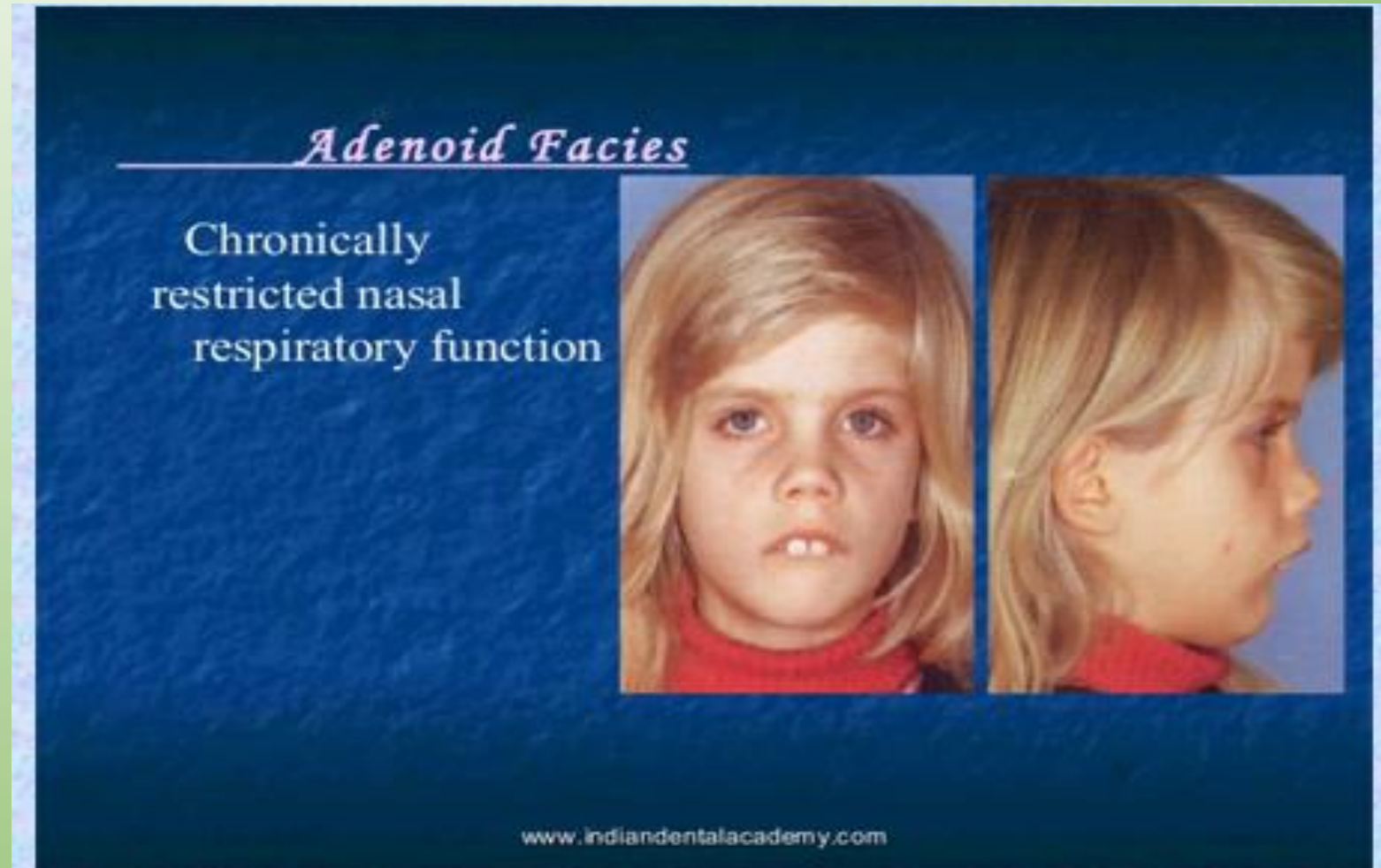
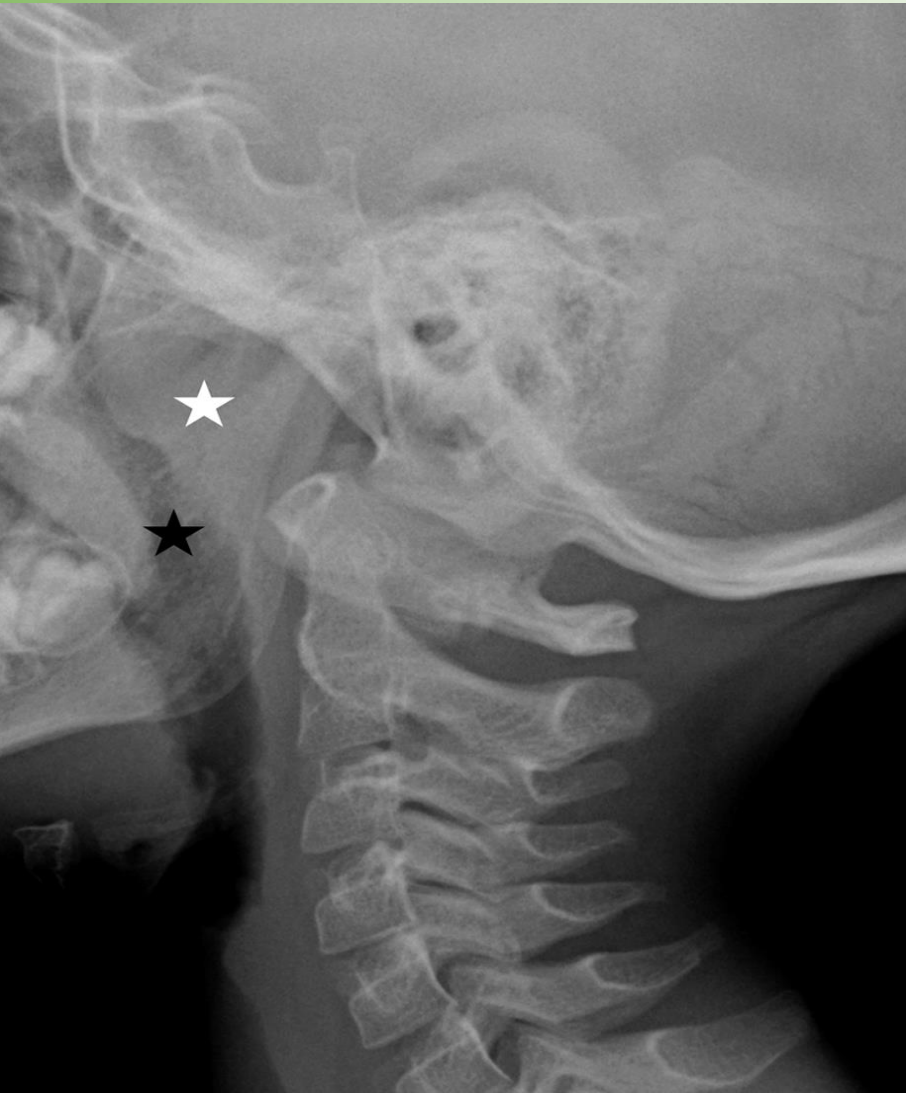
	IgE-Mediated	Mixed	Non-IgE-Mediated
Systemic	<ul style="list-style-type: none"> Anaphylaxis Food-associated, exercise-induced anaphylaxis 		
Skin	Urticaria/angioedema	Atopic dermatitis	Dermatitis herpetiformis
Gastrointestinal	<ul style="list-style-type: none"> Immediate GI symptoms Pollen-food allergy syndrome 	Eosinophilic esophagitis/gastroenteritis	<ul style="list-style-type: none"> Celiac disease; enteropathy Food-induced enterocolitis syndrome Allergic proctocolitis
Respiratory	Bronchospasm	Asthma	Heiner's syndrome

Drug allergy !!

Allergic Rhinitis



Adenoid Hypertrophy



Allergic Conjunctivitis



Asthma



Emerging Asthma Phenotypes

T2-Type Asthma

Childhood-Onset Asthma

- Allergic asthma
- Exercise-induced asthma

Adult-Onset Asthma

- Late-onset eosinophilic asthma
- Aspirin-exacerbated respiratory disease
- Very late-onset asthma (women)

Non-T2-Type Asthma

Adult-Onset Asthma

- Obesity-associated asthma
- Smoking-related neutrophilic asthma
- Smooth-muscle-mediated paucigranulocytic asthma
- Very late-onset asthma (women)

SEVERE ASTHMA PHENOTYPES

SEVERE ASTHMA
PROGRESS IN CARE

Phenotype	Characteristics
Allergic asthma	<ul style="list-style-type: none">• Early-onset with allergies• Seasonal variation in symptoms, exacerbations• Strong family history
Eosinophilic asthma	<ul style="list-style-type: none">• Early-onset with allergies, high IgE• Late-onset with eosinophils• Late-onset with comorbidities: obesity, sinus disease, nasal polyps, asa sensitivity; females• Frequent exacerbations, high health care utilization• May need oral steroids for maintenance therapy
Neutrophilic asthma	<ul style="list-style-type: none">• Late-onset• Triggers: infections, sinusitis, smoke, pollutants, occupation• Lower lung function• Less responsive to ICS compared to allergic and eosinophilic asthma, more mucus, bronchiectasis

Israel E et al. Severe and Difficult to treat asthma in Adults. NEJM 2017;377:10
Opina et al. Phenotype – driven therapeutics and severe asthma. Curr Allergy Asthma Rep 2017;17

SEVERE ASTHMA PHENOTYPES

SEVERE ASTHMA
PROGRESS IN CARE

Phenotype	Characteristics
Mixed eos and neutrophilic	<ul style="list-style-type: none">• Not common• Mix of eos and neutrophilic inflammation• Clinical features of both
Paucigranulocytic (non-inflammatory asthma)	<ul style="list-style-type: none">• Smooth muscle hypertrophy, airway remodeling & hyperplasia, neurohormonal factors• Fixed or variable obstruction
Fixed obstruction	<ul style="list-style-type: none">• Minimal PFT reversibility• Speculative causes: smoking, severe asthma in childhood, mucus hypersecretion, bronchiectasis, possibly long-standing untreated asthma
Hyperresponsive and variable obstruction	<ul style="list-style-type: none">• Increased bronchoprovocation• Post viral, occupational sensitizers, can have Type 2 inflammation but can be seen with any type of inflammation

eczema

**The
Atopic
Triad**

**nasal
allergy**

asthma



سایر بیماریهای آلرژیک:

- Insect bite
- Hypersensitivity pneumonitis
- Allergic bronchopulmonary aspergillosis
- Eosinophilic pneumonitis

راه ورود آلرژن:

- خوراکی: علایم پوستی و گوارشی و گاهی سیستمیک
- تنفسی (ایروآلرژن ها): کانژکتیویت , رینوسینوزیت , ریوی (بسیار بندرت علایم سیستمیک)
- تزریقی: پوستی یا سیستمیک
- تماسی: معمولاً در موضع تماس
- نکته : آسم و بیماریهای آلرژیک تنفسی فوقانی در اثر آلرژن های تنفسی ایجاد میشوند و بندرت در اثر آلرژن های خوراکی ایجاد می شوند

آلرژن های تنفسی:

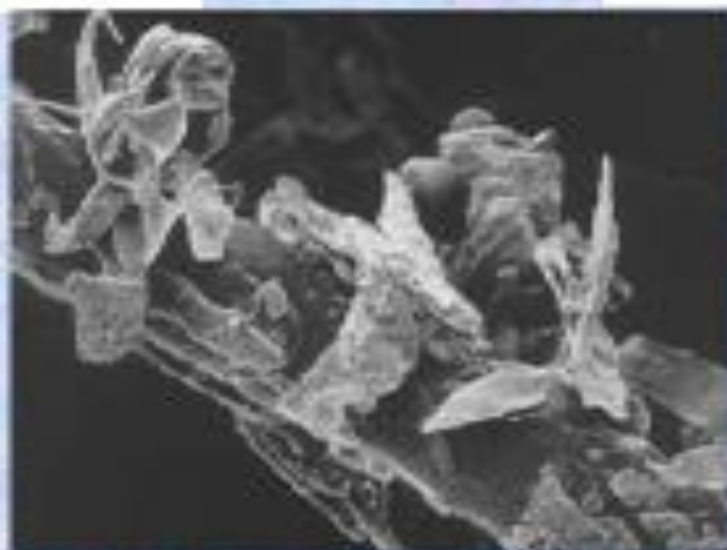
Mite



Mold:



Animal dander:



Insects:



Pollen triggers immune reaction

Pollen is a dry, lightweight, fine powder released from trees, grass, and weeds. It's carried by the wind and can enter in a person's eyes, nose, lungs and skin.



The immune system treats the pollen as an invader and reacts by producing large amounts of antibodies to defend the small invaders.



Histamines are inflammatory chemicals the body releases when pollen and antibodies collide. This allergic reaction can cause symptoms such as itchy watery eyes, runny nose, itchy throat, hives, fatigue and irritability.



Diagnosis of the allergen

- In vivo: prick , patch , intradermal , challenge test
- In vitro: specific IgE , Basophil activation test, T cell activation test,...



Histamine

Feather

Cat

Dog

Horse

Sheep Wool

Negative
Control

Plane
Pollen

Birch
Pollen

Grass
Pollen

Daisy
Pollen

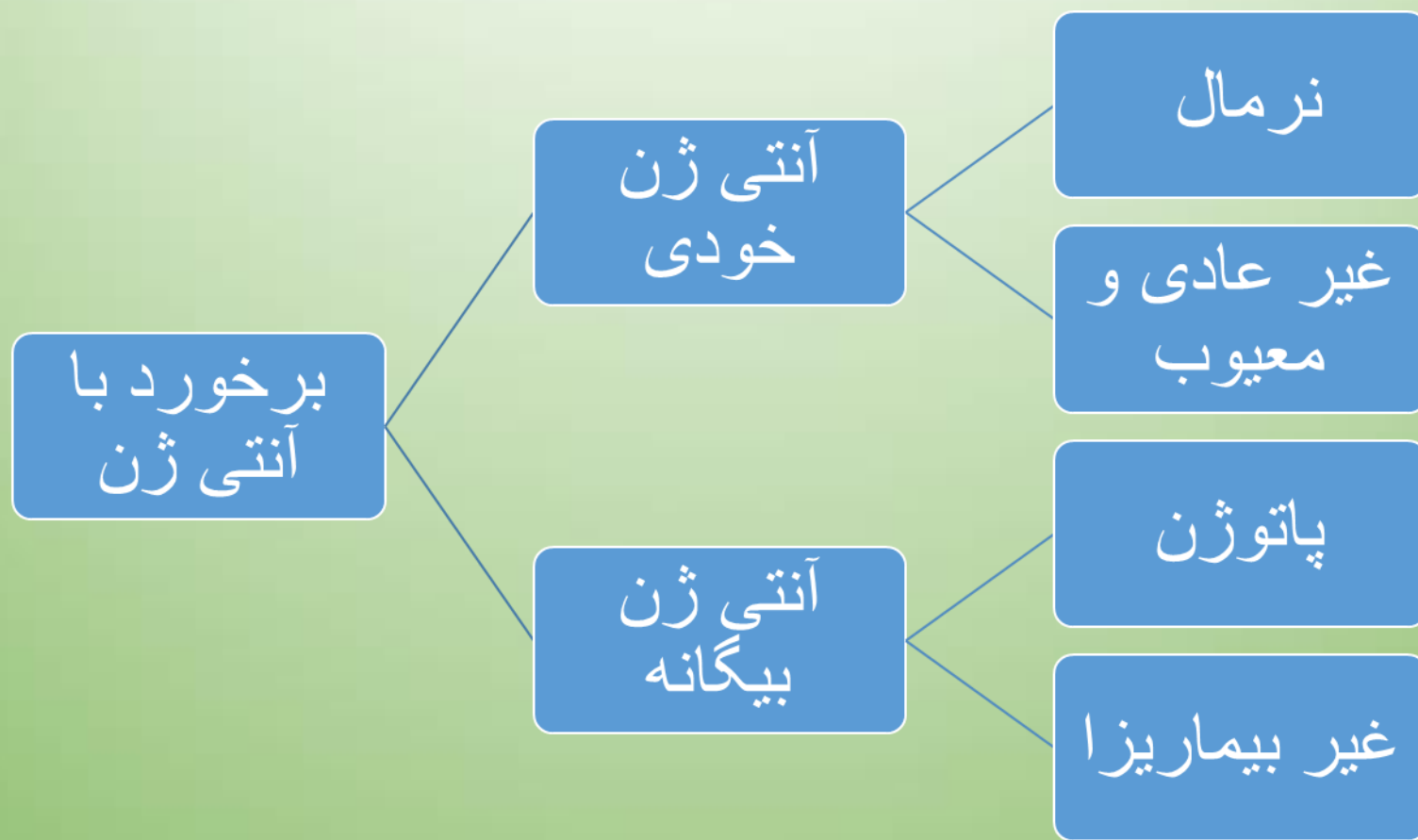
Alternaria
(mould)



Treatment:

- Avoidance
- Immunotherapy
- Desensitization

ایمونوتراپی چیست؟



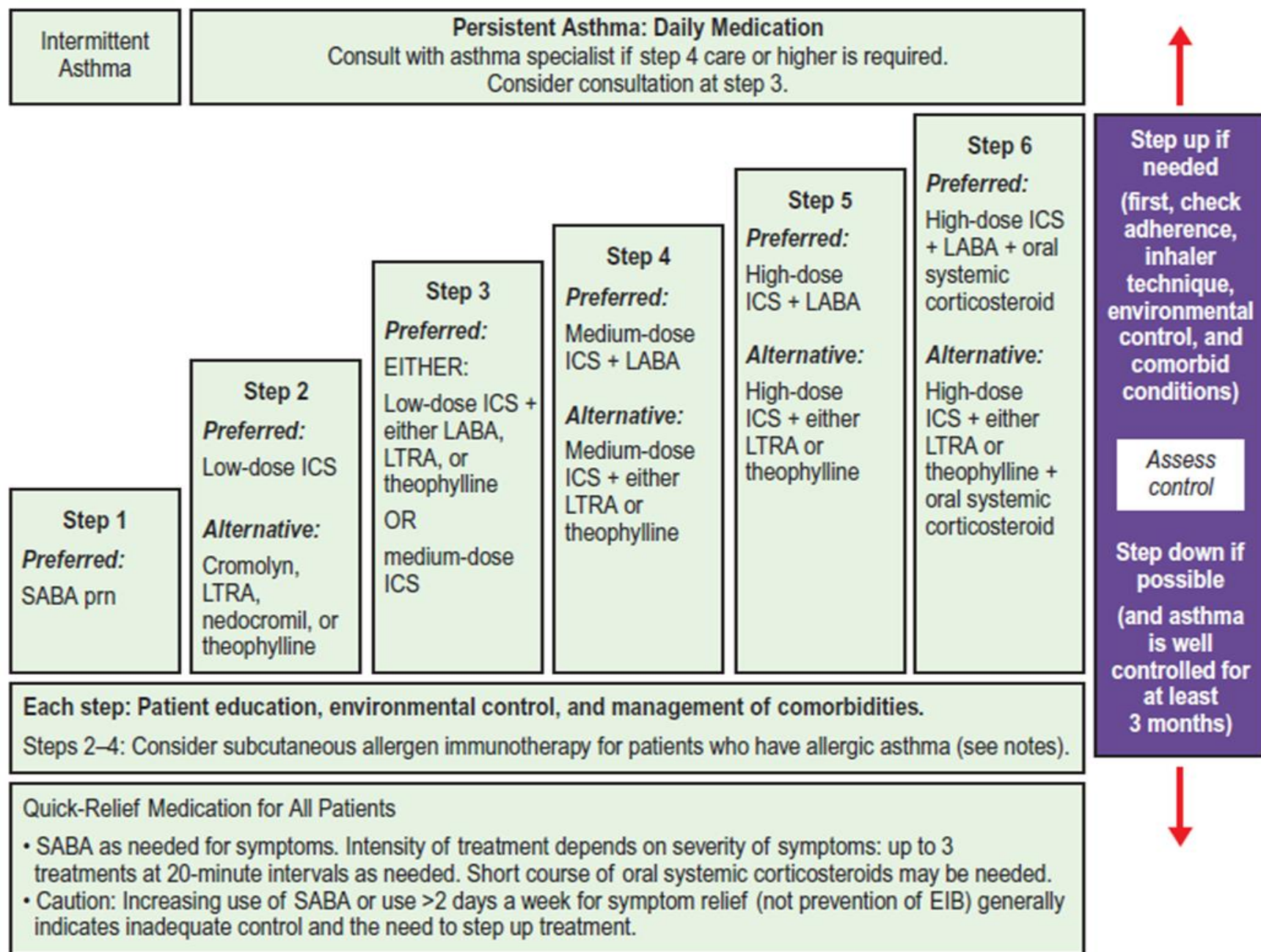


Figure 53-2 Stepwise approach to therapy in children 5 to 11 years of age, as presented in the Expert Panel Report 3 (EPR-3). *EIB*, Exercise-

فواید ایمونوتراپی

فواید:

1. رفع آلرژی به ماده مورد نظر
2. پیشگیری از ایجاد آلرژیهای جدید به سایر موثد
3. پیشگیری از ایجاد بیماریهای آلرژیک جدید
4. بهبود کیفیت زندگی
5. کاهش شدت علایم
6. گاهی قطع درمان

عوارض ایمونوتراپی

بروز واکنشهای حاد ناشی از واکسن
بروز واکنشهای تاخیری ناشی از واکسن

رژیم های غذایی برای بیماریهای آلرژیک

پیشگیری از بروز آلرژی:

