Allergy

General:

1.IgE, allergy specific, in type I allergy (early and immediate reaction)

2.IgG, allergen specific subdivision into two main groups: blood pressure increasing angiotensin II, furthermore it

a. in type III allergy (Arthus type), intimal damages by immune complexes of IgG, precipitating antibodies;

b. blocking antibodies, primarily in subclass IgG 4, formed under hyposensibilization therapy of type I allergies, primarily for control in desensitization against bee and wasp poison

Overview of the following pages:

p.2 Specific IgG test panels/allergen screens (food, respiratory)

p.2 House dust (mites)

p.3 Additional tests for specific antigens

p.4 Immunoglobulin E (specific and total)

p.6 Immunoglobulin G (allergen specific)

p.6 Precipitins

p.7 Molds

p.8 Methylhistamine in urine (gastrointestinally mediated allergies)

p.9 Metal allergy LTT test (type IV)

For the specific IgE tests, the following screening panels are available. For additional allergens, please see the list on the next page or inquire directly.

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Food allergen screen		Respiratory allergen screen	
Egg white	Strawberry	Timothy grass	Cockroach
Egg yolk	Banana	Cultivated rye	Cat
Cow milk	Cocoa	Alder	Dog
Chocolate	Tomato	Birch	Horse
Wheat flour	Carrot	Oak	Camel
Soy bean	Onion	Olive tree	Penicillum notatum
Yeast	Chicken meat	C. ragweed	Cladosporium herbarium
Nut mix	Mutton	Mugwort	Aspergillus fumigatus
Peanut	Codfish	Dermatophagoides pter. (mites)	Candida albicans
Orange	Shrimp	Dermatophagoides farinae (mites)	Alternaria alternata

- **Food Allergy**

  Diagnosis: Food allergy screen & IgE level (see Immunoglobulin E, Allergy Screen)
  Material: 2 ml serum
  Stability: 14 days at 2 to 8°C
  TAT: 3 days, FML
  Method: EAST

- **House Dust (Mites)**

General:

Allergies against house dust (mites, Dermatophagoides pteronyssinus) are a substantial problem for atopically predisposed individuals. Already in childhood an exposition can lead to allergic induced inflammations of the upper and lower respiratory system. It represents a serious risk factor in the development of asthma bronchiale. Bed mattresses usually contain a huge reservoir

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of mite allergens. By intensive body contact for 8-10 hours at night, this area is the most important exposition place.

Diagnosis: Inhalant allergy screen & IgE level (see Immunoglobulin E, Allergy Screen)
Material: 2 ml serum
Stability: 14 days at 2 to 8°C
TAT: 3 days, FML
Method: EAST

Tests for specific allergens from the following groups are also available:

- Anaphylaxis surgery/anesthesia
- Pollen
  - o Trees
  - o Grass/grains
- Occupational allergens
- Skin and feathers
- House dust
- Inhalants
- Insects/insect venom
- Child specific allergen screen
- Herbs
- Microorganisms
- Mites
- Food
  - o cereals and cereals and grains
  - o fish, mussles, shellfish
  - o various meats
  - o spices
  - o chicken egg
  - o pulses , nuts
  - o dairy products

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o fruit, vegetables

o recombinant, native

- Parasites
- Plants (recombinant, native)
- Proteins from serum and feces
- Animals

IMMUNOGLOBULIN E

- **Immunoglobulin E, specific**

Indication: Allergy Screening
Material: 2 ml serum
Stability: 7 days at 2 to 8°C
TAT: 2 - 3 days, FML
Method: Blot
Dimension: EAST classes and units
Ref. range: see report
Note: In addition to EAST classes, results are also presented as IgE units (U/ml). Classification of EAST classes are as follows:

Note: Classification of EAST classes are as follows:

EAST class	lower value	upper value	unit
0	0.0	0.34	U/ml
1	0.35	0.69	U/ml
2	0.70	3.49	U/ml
3	3.50	17.49	U/ml
4	17.50	49.99	U/ml
5	50.00	99.00	U/ml
6	>100		U/ml

- **Immunoglobulin E, total, in serum**

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Indication: Suspicion of allergies, atopy
Material: 1 ml serum
Stability: 7 days at 2 to 8°C
TAT: same day, FML
Method: ECL
Units: IU/ml
Ref.- range: see report
Note: Increased in allergies, parasitoses, hyper-IgA syndrome (HIOB-syndrome, combined with staphylococci infections of the skin without inflammation signs and pneumonias), bronchopulmonary aspergillosis, IgE-plasmacytoma (very rare).

IgE levels in parasitosis:

Parasite	Pathogen	IgE level
Amoebiasis	Protozoa	normal
Ascariasis	Nematoda	considerably increased
Bilharziasis	Trematoda	considerably increased
Capillariasis	Nematoda	considerably increased
Echinococcosis	Cestoda	strongly increased
Filariosis	Nematoda	increased
Fasciola hepatica	Trematoda	strongly increased
Giardiasis	Protozoa	normal
Malaria	Protozoa	normal
Onchocerciasis	Nematoda	increased
Oxyuriasis	Nematoda	normal
Toxocariasis	Nematoda	increased
Trichinosis	Nematoda	increased
Trypanosomiasis	Protozoa	normal
Scabies	Acarina	increased

- Immunoglobulin G, Allergen specific

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See also **Food-Intolerance Test**

General:

Also called reagins or blocking IgG antibodies. After hyposensitization, specific blocking IgG antibodies appear. IgG specific precipitating antibodies (precipitins) may provide clarification of exogenous allergic alveolitis in type III-reactions. Clinical pictures are e.g. farmer's lung, thresher's lung, fungus-breeding's lung, etc.

Indication:

Neurodermatitis, eczema in infancy and childhood, hyposensitization.

Precipitating antibody, precipitins

General:

Preciptins are allergy specific IgG antibodies in type III allergy (Artus type), which bind to the antigen and preciptate. These IgG immune complexes can damage vessel walls e.g. in exogenous allergic alveolitis.

Antigens	Syndrome
Aspergillus fumigatus, Micropolyspora faeni, hay	Farmer's lung
Thermoactinomyces candidus, Thermoactinomyces polyspora, Thermoactinomyces vulgaris	Thresher's lung
Thermoactinomyces vulgaris	Bagassosis pneumoconiosis (sugar cane), Suberose (cork), winegrower's lung
Thermoactinomyces vulgaris, Micropolyspora faeni	Mushroom worker's lung
Aureobasidium pullulans, fusarium ssp., mucor, Penicillium caseiculum	Humidifier/airconditioner lung
Bacillus subtilis	Enzyme detergent manufacture and laundry worker's lung
Crytostroma corticale	Maple bark-stripper's lung
Aspergillus clavatus, Aspergillus fumigatus	Malt worker's lung
Penicillium casei	Cheese worker's lung

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Aureobasidium pullulans	Sequiose
Penicillium frequentes	Suberose (cork)
Canary serum, chicken serum, budgerigar excrement, parrot serum	Bird fancier's lung
Pigeon serum, pigeon excrement, aspergilla	Bird breeder's disease
Aspergilla (flavus, fumigatus, nidulans, niger, repens, terreus)	Lung aspergillosis

Material: 2 ml serum
TAT: 7-10 days*
Method: CAP system
Units: see report

- **Molds, Determination in culture**

General:

Molds (syn. hyphomyceta) are classified into approx. 100,000 species. Most species occur worldwide in air and soil. Species dangerous for humans are mucorales, penicillium and aspergillus. Other typical representatives are alternaria, fusarium, cladosporium, curvularia, aureobasidium, helminthosporium, botrytis and trichderma. Health risks by molds, (e.g. damp cellar rooms, wood veneer, bathrooms, "building disorder syndrome", also see Chronic fatigue syndrome, plants, mattresses, stables, silos, food production, biological degradation plants, particularly organic waste, air conditioners, employees in book archives) arise when the person shows an allergy against the specific fungus.

Atopic persons react to mold allergens with a specific production of IgE up to disease symptoms. These cover the complete range of possible allergic reactions and range from general exhaustion to migraine, eye tears, sneezing stimulus, flowing cold, cough, asthma, malfunctions of the gastrointestinal system to eczematic skin diseases.

Diagnostics: patient history, skin tests, provocation tests, fungus determination, EAST-examinations (see Inhalant allergy screen). Determination in culture from asservates (parts of objects contaminated with mold, e.g. wallpaper parts, scraped off material, dust samples of textiles or house dust and others) is recommended.

Method: Cultivation and micro morphological classification

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TAT: 4-6 weeks*

- **Methylhistamine in urine**

General:

The diagnosis of gastrointestinally mediated allergies is difficult. Symptoms are flatulences up to bloody diarrhea, but also extraintestinal symptoms such as skin reactions, asthma, migraine, arthralgia and others might occur. A distinction to other disorders (chronic inflammatory intestinal disease, celiac disease, malabsorption etc.) is difficult or impossible due to the unspecific symptoms. The immunologically mediated inflammatory reaction is often restricted to mucosa and submucosa at clinical manifestation. With approx. 300 m2 of surface the mucosa of the gastrointestinal section (GIT) can bind a considerable quantity of specific IgE without significant rise of serum IgE. Especially in those allergy forms which are limited to mucosa / submucosa of the GIT, the screening diagnostics (Prick- test, complete IgE, allergy special IgE) can fail to provide a clear result. However reaction mediators, like histamine, ECP (eosinoph. cationic protein, see ECP) and mastcell tryptase, are released. Methylhistamine in urine as well as ECP in serum reflect the allergically triggered inflammation activity as a reduction product of histamine. The high sensitivity of these diagnostics is based on the large mucosal surface of the GIT and thus the larger part of the intestinal produced histamine will be biotransformed in the liver to the more stable methylhistamine.

Indication:	Screening on gastrointestinally mediated allergies
Material:	10 ml urine frozen
TAT:	2 weeks*
Preanalytics:	12-h collected urine, acidified, note urine quantity, size and weight of the patient
Method:	LCMS
Units:	µg/mmol crea
Ref.- range:	<6.5
Note:	no food which is rich in histamine (fish, cheese, red wine, beer), antibiotics or antiallergics should be consumed. Histamine enhancing diseases (e.g. myeloic leukemia), chronic inflammatory intestinal diseases (celiac disease, M. Crohn) should be excluded.

- **Metal Allergy LTT test (type IV)^**

synonym: **Lymphocyte transformation test**

General:

Numerous metals are used in medical and dentistry industries and can induce allergies of type IV

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(genetic predisposition). The chronic metal exposure can trigger a wide spectrum of symptoms and has been connected with the etiology of neurological and immunotoxic disorders, among others with allergies, chronic fatigue syndrome (CFS), multiple sclerosis, fibromyalgia and Multiple Chemical Sensitivity (MCS). Lymphocytes of sensitized persons react in vitro with proliferation after contact with metallic allergens. This proliferation can be determined quantitatively. This test is more sensitive and more specific than the skin test and has the advantage that any non intended sensitization of the patient is avoided. The symptoms of metal allergies can be significantly improved by avoiding exposure to specific allergens.

The following profiles are available:

Amalgam profile: inorganic mercury, phenyl mercury, copper, nickel, palladium, silver, tin

Gold profile: gold, lead, cadmium, copper, nickel, palladium, platinum, titanium

Metal profile I: aluminum, lead, cadmium, gold, copper, nickel, palladium, platinum, inorganic mercury, phenyl mercury, silver, titanium.

Metal profile II: lead, cadmium, gold, nickel, palladium, inorganic mercury, phenyl mercury, titanium, tin.

The LTT can also be requested for selected metals.

Material:	6 x 10 ml CPDA blood
TAT:	2 weeks*
Preanalytics:	Six tubes of CPDA blood are used for metal profile I! The blood must be shipped to the laboratory within 48 hours after collection. Please note that the tests are only performed on Wednesdays and Thursdays and therefore all samples must arrive on these days. Test duration is 1 week! You can request the CPDA tubes from the laboratory.
Method:	After stimulation of the proliferation with metal allergens, proliferation measurement of the lymphocytes through incorporation of 3H thymidine into cellular DNA.
Units:	The result is indicated as index (SI), i.e. it is calculated in presence of metal allergens and related to the basal stimulation without allergens.
Ref.- range:	SI > 50: sensitization of the patient by the specific metal SI 20 -50: sensitization possible SI < 20: no sensitization
Note:	False negative results can occur due to prolonged transportation, cool storage of the blood samples or because the patient is being treated with steroids or antiphlogistics.

For complete list of laboratory test offered at Freiburg Medical Laboratory, please visit http://www.fml-dubai.com/parameter-listings/

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