Metal Allergy

General:

The lymphocyte transformation test, which is also described as lymphcyte stimulation or lymphocyte proliferation test represents an activity test for the cellular immune answer. It is used in the recognition of abnormalities in immune responses due to infectious disorders, metal exposure, tumors, stress, operations, burnings, autoimmune disorders and immune suppression therapy (for chemotherapy, radiotherapy, transplants).

The following tests are available:

Stimulation index (SI):

Cell mitogen	Normal range	Unit*
T Cell mitogen		
Phytohemagglutinin (PHA)	500 -1000	SI
Concanavalin A (ConA)	300 -700	SI
Anti-CD3 (MAK IgG 2°)	200 -500	SI
Anti-CD3 (MAK IgG 1) **	200 -500	SI
T cell dependent B-Cell mitogen		
Pokeweed-Mitogen (PWM)	100 -300	SI

*SI = stimulation index

**Stimulation with anti-CD3 (MAK IgG 1): not found in all patients

- **LTT in immunodeficiencies**

Indication: Suspicion of immunodeficiency, monitoring of immunomodulation therapy

Material: see below

Preanalyrtics: 2 x 10 ml CPDA blood for activity test, you can request the CPDA tubes in the laboratory.

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1 x 3 ml EDTA blood for absolute cell number count of leukocytes and lymphocyte differentiation (EDTA-blood)

TAT: 5-7 days*

Method: Proliferation measurement of lymphocytes by incorporation of 3H thymidine into the cellular DNA after stimulation with T and B-cell mitogens.

Ref.- range: Stimulation index (SI)

- **LTT in the diagnosis of metal allergy (type IV)**

General:

Numerous metals are used in medical and dentistry industries and can induce allergies of type IV, (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 specific allergic 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

Preanalyrtics: 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 Wednesday and Thursday and therefore all samples must arrive on these days. Test duration is 1 week! You can request the CPDA tubes in the laboratory.

TAT: 7-10 days*

Method: After stimulation the proliferation with metal allergens, proliferation measurement of the lymphocytes through incorporation of 3H thymidine into cellular DNA.

Unit: 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 of the treatment of the patients with steroids or antiphlogistics.

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