

## The determination of immunocompetence with the LTT Immunofunction

The lymphocyte transformation test (LTT) has been used for more than 40 years to examine lymphocyte immune function (immunocompetence). Functional deficits of the T lymphocytes can be congenital and manifest very early or very late (e.g. 20 to 35 years). However, they frequently arise in the context of existing underlying systemic diseases (tumour, autoimmune diseases, chronic inflammations, etc.). On the other hand, they can also be the result of chemo-/radiation therapy in the context of treating a malignancy or lengthy drug therapies (immunosuppressants, antibiotics, etc.). In the differential blood count or in the quantitative immune profile these functional defects are not usually detectable.

### Secondary immune defects are frequent

Clinical cardinal symptoms are the reduced resistance to infection of the mucous membranes of the upper airways (including paranasal sinuses) and intestine, a heavily extended convalescence after acute infections (particularly in old age) and wound healing disorders. The interaction of the endocrine system, the nervous system and the immune system make the immune defence against pathogens and tumour cells so complex that it is difficult to assess. In addition, frequent causes of immune dysfunctions are undernutrition and malnutrition, chronic stress, allergic illnesses and chronically persisting infections (not only HIV). Lengthy medica-

tion intake (e.g. antibiotics, immunosuppressants etc.) also lowers the lymphocyte immunocompetence.

### The immune function is measurable

LTT Immune Function (LTT-FU) is a method capable of providing quantitative measurements of the functioning of immune cells extracted from blood. This is important because objective measurements are essential to justify immunostimulatory therapy and to monitor its effectiveness in particular. The skin tests used previously for immune function testing (e.g. Multi Merieux) were taken off the market due to their limited reproducibility.

LTT immune function is based on the principle of lymphocyte stimulation by components of widespread pathogens or vaccines (memory antigens = recall antigens), against which "immune healthy" people should have a strong immune response.

When the LTT is performed, these antigens are first prepared by monocytes and dendritic cells and then presented to T helper lymphocytes. These are activated depending on the current immune function leading to cell division. The obligatory DNA synthesis is quantitatively recorded.

A strong activation in the LTT is to be expected only if the immune function is intact or an improvement in the immune function is achieved through immunostimulatory therapies (therapy monitoring).

### Indications for requesting the LTT Immune Function (LTT- FU)

- **Increased infection liability (frequent acute or chronic infections)**
- **In cancer patients, to determine the immune status before and after surgery, chemotherapy and radiotherapy as well as over the course of immunostimulatory treatments.**
- **In HIV infection, to determine the current immunological status, before and over the course of antiviral therapy (evidence of restoration of a functional immune system).**
- **Malnutrition (vitamin, zinc, protein and iron deficiency)**
- **Monitoring of immunosuppressive therapy for autoimmune diseases and in patients after allogeneic organ transplantation**

**Do you have questions? Our serviceteam will be happy to support you: +49 (0)30 770 01-220.**

The LTT Immune Function (LTT-FU) provides a comprehensive analysis of the immunocompetence of a patient, particularly

in conjunction with the cellular immune status (quantitative determination of the immunocompetent cells in the blood).

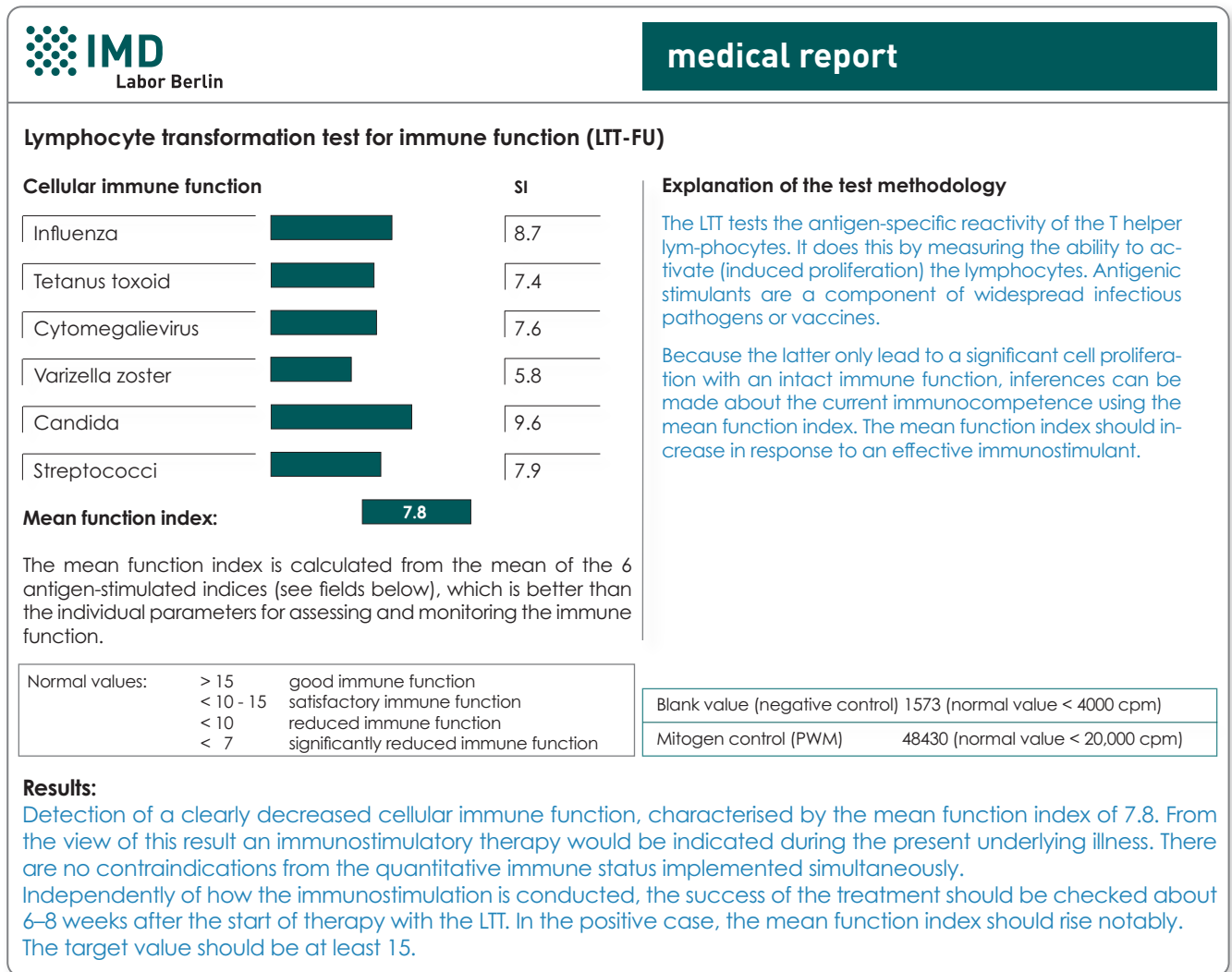


Fig. 1 Sample report of the LTT immune function (LTT-FU)

#### Important note

It is possible to test the reactivity of the T helper cells on applied immunostimulants (LTT immunostimulators) in the LTT.

Please order information material by phone: +49 (0)30 770 01-220.

#### Material

20 ml heparin blood and 5 ml serum

Sample receipt within 24 hrs has to be ensured. The sample should be stored and transported at room temperature. Within the Berlin city area, we offer a courier service (+49 (0)30 7701- 250). For collections beyond Berlin, please contact our complimentary courier service (+49 (0)30 77001-450).

#### Invoicing

Cost for the test are 156.19 €.