The Immune System

“To explain this with regard to the immune system is the most important thing that actually every human being should know.”

Ptaah

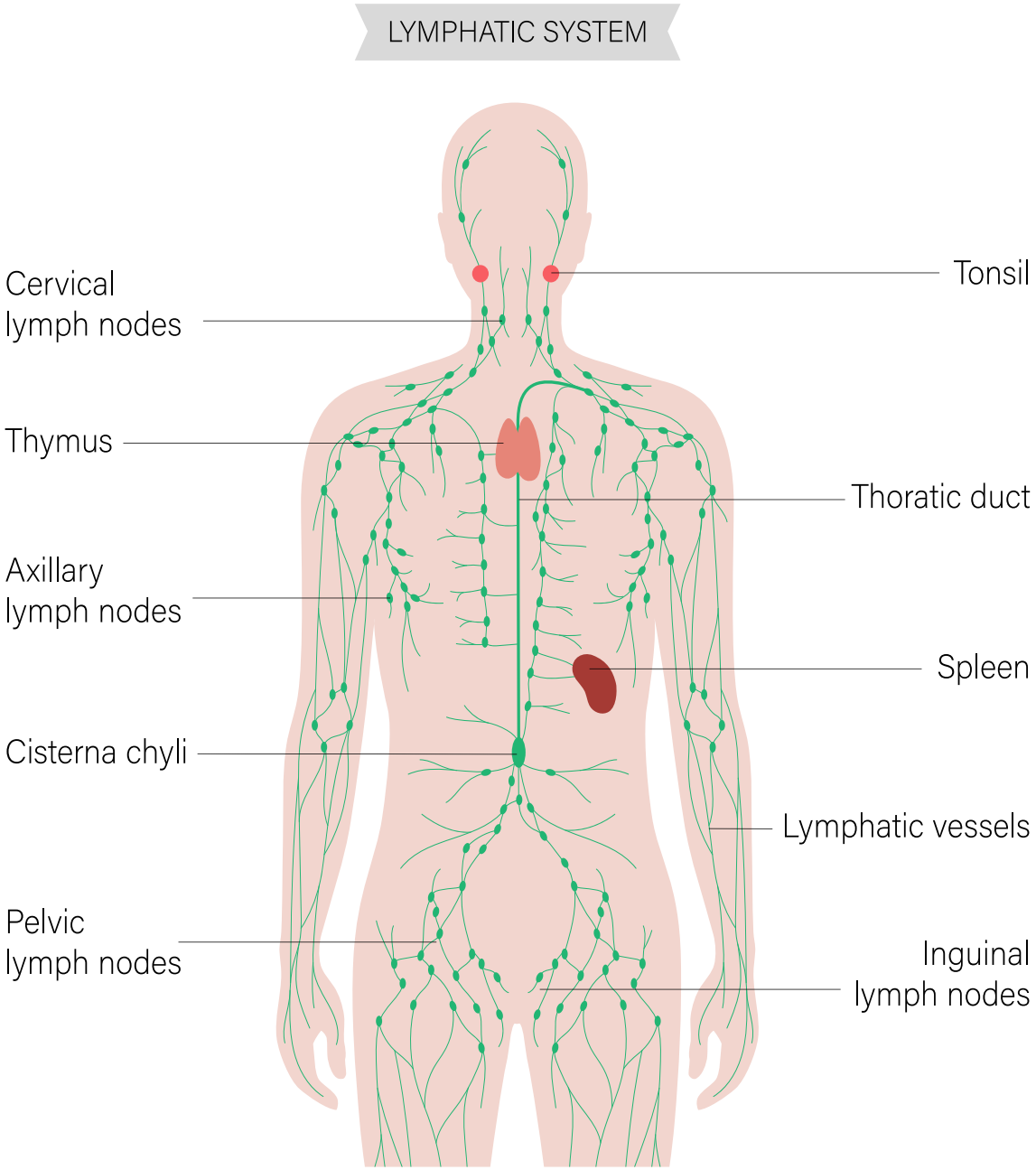
…the immune system of the human being and all those living beings that have it is the factor that largely determines the health of the whole body…

Billy:
As I know, it is also still the case today that the immune system is largely, not solely, the factor that determines whether the human being falls ill or dies from the epidemic. If you, as a doctor, can say something about the immune system for once, I am sure it would be instructive for all those who read our talk reports?

Ptaah:
I can gladly do that and say that the immune system of the human being and all those living beings that have it is the factor that largely determines the health of the whole body, but is not absolutely responsible for providing a complete defence against every infection in full effectiveness. This is because other decisive factors besides the immune system are important for a pathogen to penetrate and cause an infection.

Cells and organs of the Immune System

Ptaah:
The body of the human being as well as of all life-forms is constantly exposed to attacks from environmental influences, parasites, bacteria, viruses, fungi, microbes and toxins, etc., which lurk everywhere. Without the body's own defence system, the majority of all life-forms would be defenceless against the attacks of these disease influencers. The immune system acts defensively against the attackers and prevents infections, normally rejecting the pathogens that could enter the body from the outside and make it sick. The body's immune system is mainly distributed among the cells and organs, each of which has specific tasks in the complex system and the defence against pathogens. The following can be mentioned:



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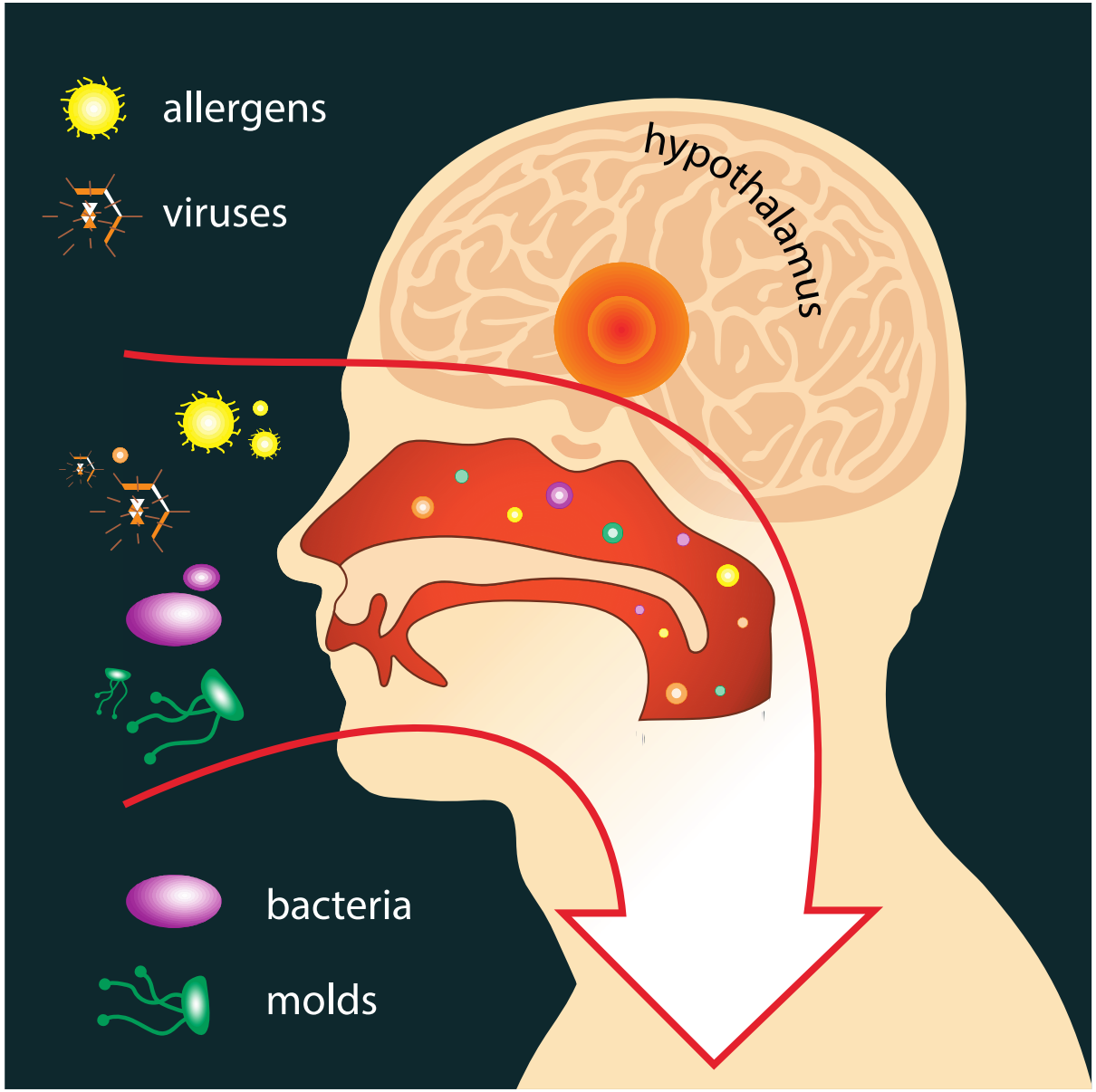
They are, the 1. ***mucous membranes****, 2. the* ***spleen,*** *3. the* ***bone marrow,*** *4. the* ***tonsils, 5.*** *the* ***lymph nodes*** *and the* ***lymph node pathways,*** *and the 6.* ***thymus gland.***

*1. The **mucous membranes** are mainly endangered by the penetration of pathogens, i.e. the causes of infections, but also the throat, the nose and the intestines, and ultimately also the skin.*



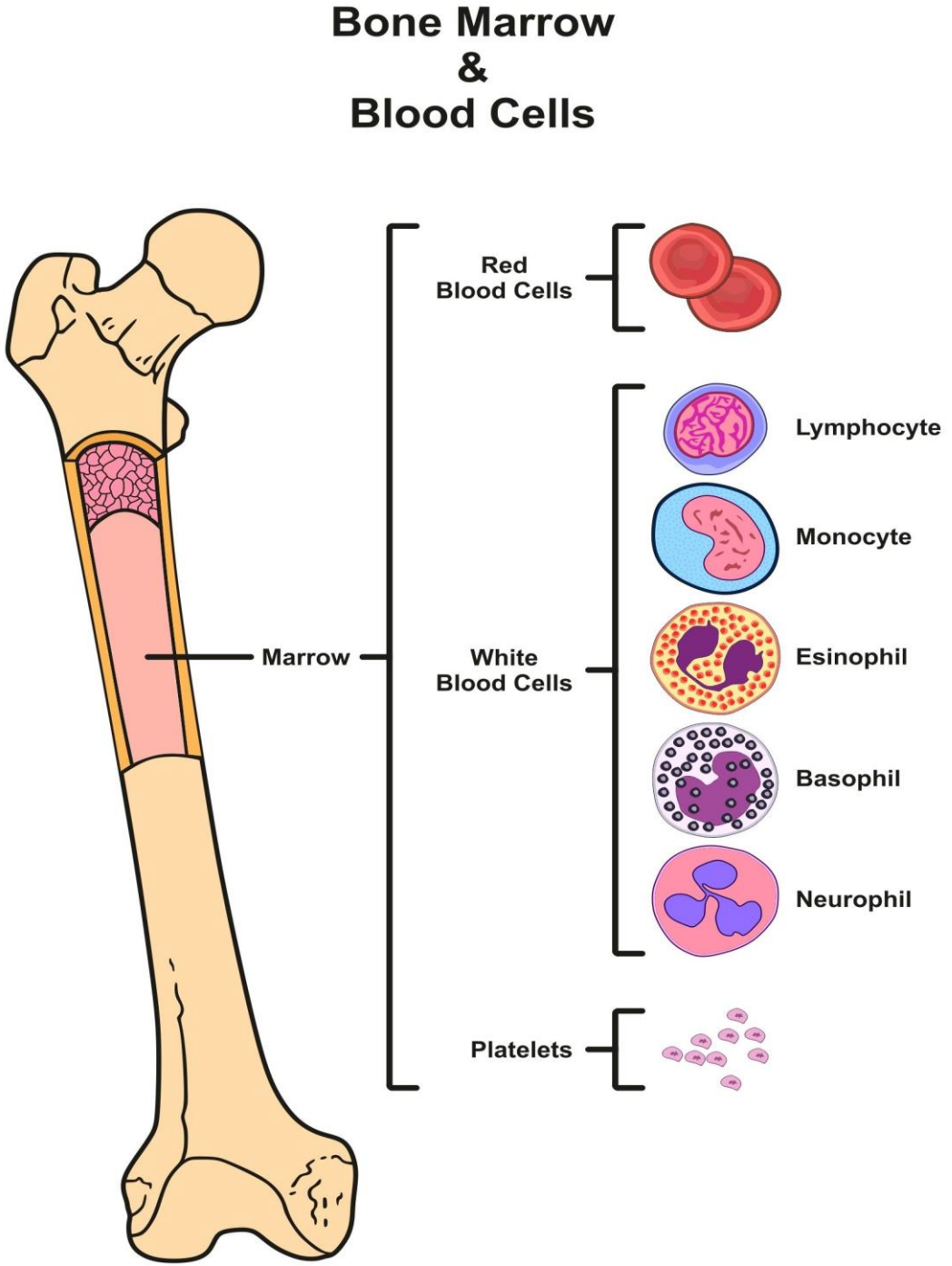
2. The organ spleen has to fulfil functions of immune defense, namely with regard to the multiplication of white blood cells, the so-called lymphocytes, whereby overaged red blood cells are also secreted via the spleen. But it also stores defense cells, which are then supplied to the body when an immune defense is necessary.

3. A few defense cells are also produced as precursors in the

bone marrow.

The white blood cells are the lymphocytes, monocytes, eosinophil, basophil, neurophil.

The red blood cells and the platelets are also produced in the bone marrow.



5. Then the tonsils also have an initial defense function against externally invading pathogens.

6. Above the heart is the primary lymphatic organ, the thymus, or glandular tissue, which, as part of the lymphatic system, stores the mature defense cells or T-cells.

Primary and secondary immune systems

The immune system has 2 different types of lines of defence against pathogens, firstly the body's own immune system, which is based on 2 lines of defence, namely the **natural immune system** and secondly the **immune system learned and acquired by the body**.

1. The **natural immune system** resp. adaptive resp. non-specific immune system, which is inherent and innate to the human being, as to every other life-form carrying an immune system.
2. The 2nd specific immune system has to be learned and trained by the human body, but this requires an initial contact with any pathogens, whereby the body then uses its ability to form antibodies.

Early warning system— skin & mucous membranes

The early warning system usually identifies all foreign bodies and pathogens on first contact. This is called your adaptive immune system with mechanical and chemical barriers. It is the first to come on the scene as soon as pathogens make themselves felt and seek to find their way into the body. This system, however, is divided into external and internal perceptions:

- The external protective function is formed by the skin and the mucous membranes, which in their function and existence are also called mechanical barriers, which protect the human body purely mechanically.

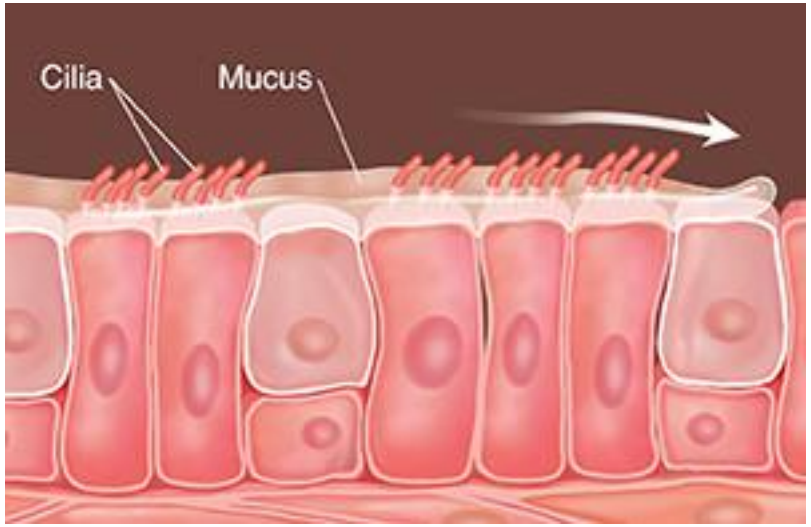
Inner protective function

The inner protective function, is created by the chemical barrier.

This external barrier consists of body fluids as well as the body's own chemical substances that prevent the deposition of invading pathogens such as bacteria and viruses by immediately directing or flushing them away from the body. The main substances of this chemical barrier are:

The **cilia of the bronchial tubes**, but also the intestinal musculature, which, due to their constant movement, are responsible for ensuring that no bacteria or other pathogenic germs can be deposited in the bronchial tubes or in the intestines, **saliva, eye fluid** or tears, **vaginal fluid**, **urine**, **gastric juice**.

Cilia in the bronchial tubes



Keeping the lungs clean…

The cells in the lining of the airways produce a sticky secretion called **mucus**. The mucus traps dust, smoke, and other particles in the air you breathe. The cells have tiny hairs called **cilia**. They sweep mucus up the airways to the throat, where it's coughed out or exhaled.

Tears and saliva…

SALIVA contains the same chemical that is found in TEARS, Lysozyme. If something enters our mouth or eyes, the Lysozyme chemicals get to work destroying the pathogen.