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**Every disease is linked to changes in the interstitial substance (extracellular substance) as the cytoplasm of each cell acts as a molecular filter. It therefore has an influence on all the information entering or leaving the cell. Interstitial substance can be found in the microcirculation and the terminal expansion of the vegetative nerve fibres and, therefore, in the lymphatic glands and the Central Nervous System. Cell regulation of the extracellular substance occurs via the fibroblasts and immunocytes. As a result of its drainage effects, Homotoxicology intervenes in both the regulation of the extracellular substance and real cell regulation, by triggering a specific bystander reaction that can regulate the inflammatory Cytokines and T Lymphocytes via Growth Factor Beta (TGF-ß).**

**SUMMARY**

**THE BASIC REGULATION SYSTEM**

In order to survive, each cell needs a favourable environment that is determined by the surrounding extra-cellular space. Cells or cell groups, therefore, can only be studied within the scope of the close bond that regulates functional exchange relations.

Extra-cellular space is activated by the interstitial substance and acts as a molecular filter between the terminal alveolus, the lymphatic vessels, receptor cells and expulsion cells. (FIGURE 1)

The interstitial substance essentially comprises highly polymeric sugars that are partly linked to proteins (proteoglycans and glycosaminoglycans) (PG/GAGs) (FIGURE 1). The structural glycoproteins and reticulated glycoproteins (collagen, elastin, fibronectin etc.) have a essential role in this glycidic network. For that reason, in addition to acting as a molecular filter, the interstitial substance also acquires high stability and elasticity.

As the PG/GAGs produce a negative electric charge, they are capable of producing water and exchanging ions; they therefore affect the overall activity of the extra-cellular space. As the vegetative nerve fibres end in the interstitial substance, the latter is directly linked to the Central Nervous System (CNS). It is also capable of penetrating the terminal alveolus and is linked to the endocrine system (such as the Hypophysis, thyroid gland, adrenal glands).

The CNS and the endocrine system are linked in the cerebral trunk. For that reason, they interact and together they influence the interstitial substance. The active metabolic centre of the interstitial substance is the fibroblast (connective cell) that reacts to the incoming information (hormones, neurotransmitters, metabolites, catabolites, pH value etc.) with a synthesis of components from the

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interstitial substance adapting to various situations.

The fibroblast is not capable of distinguishing positive information from negative. If “false” information (such as stress) is repeatedly received in the interstitial substance, processes of adaptation to abnormal information take place (passive homeostasis).

We should not forget that there are immune cells, or “guardians” in the interstitial substance – these can quickly and aspecifically neutralise the heterologous substances (antigens and homotoxins) by means of the macrophages/monocytes and the neutrophil granulocytes.

The specific defence system, that can “acquire” new information (T and B Lymphocytes) is always on the alert; it has a long-term memory and immediately activates an antigen that it already recognises (homotoxin) as soon as it reappears.

**TABLE OF “RECKEWEG” PHASES**

In the interstitial substance, it is “decided” whether a disease should develop, moving to a degenerative phase (cell phase) by means of progressive vicariation or whether it can be blocked by firstly regressing the inflammation phase and then the excretion phase (humoral phase) by means of regressive vicariation.

The interstitial substance phase (with the deposit and impregnation of homotoxins) therefore marks the biological division between regressive and progressive vicariation. The aim of homotoxicology is to bring the diseases back to the humoral phases by inducing a regressive vicariation.

**HOMOTOXICOLOGICAL THERAPY AND BYSTANDER REACTION THERAPY**

During the deposit and impregnation phases, a large number of inflammation mediators are produced at local and systemic level, as a result of the incoming flow of antigens (homotoxins). If the body’s auto-recovery forces do not manage to withstand the pathological situation, then a Bystander Reaction is initiated by means of the use of homotoxicological drugs (FIGURE 2).

Homotoxicological drugs are particularly suited to this purpose because, as a result of them containing animal and/or vegetable proteins in dilutions of between D1 and D14, they can produce a Bystander Reaction. The other potentized substances contained in homotoxicological drugs are useful for maintaining basic regulation.

Regulatory lymphocyte clones (Th3 cells) can only develop in dilutions between the levels indicated above, as a result of the protein components (patterns) contained in homotoxicological drugs via...
the “low doses/antigens” effect.

The formation of a pattern is induced by the macrophages (1, 2). If a homotoxicological drug containing proteins of animal and/or vegetable origin in medium to low dilutions (e.g. compounds, pig organ derivatives, nosodes, Homaccord) is introduced into the body, one part of it is absorbed by the macrophages (phagocytized) and completely digested by the lysosomes (FIGURE 2).

Then, in the form of short amino acid chains (around 5-15 aa), they are taken back towards the surface of the macrophages and linked as patterns to the membrane’s MHC complexes (antigens of tissutal tolerability). As a result of this link, the patterns of circulating T Lymphocytes are recognised, removed from the macrophages and connected to their own receptors. This is the signal for transformation of the regulatory Lymphocytes (Th3 cells) (2). The Th3 cells go into the regional lymph nodes, via the shortest route, multiplying themselves by means of cell division and thus creating cell clones with patterns (FIGURE 2) – left across the haematic route, the lymph nodes reach all the organs and tissues via microcirculation. (2, 3).

If substances similar to organs and tissues (such as nosodes or collagen from a pig’s organ preparation) replace the homotoxicological drug or are added to it, the movement of Th3 cells into the area affected is facilitated by pre-determined patterns.

Organotrophy and Isotrophy are supported by chemotactic factors activated by Phlogosis (Lymphotactic chemokines) (4).

The recognition of regulatory and inflammation Lymphocytes occurs according to the principle of biological and molecular simile, i.e. according to the similarity between the patterns and antigens bound to the membrane or epitope (2, 3).

If this similarity is established between the aforementioned cell types (where close proximity is sufficient for the va-
rious cell types), the Th3 cells immediately begin the synthesis of the highly inflammatory Cytokine, TGF-β (Transforming Growth Factor-beta) (FIGURE 2) (3, 4).

At the same time Interleukin 4 and Interleukin 10, which give further support to the effect of TGF-β, are released by the Th2 cells. This means that homotoxicological therapy is capable of restoring balance to fibrogenesis and fibrolysis in an exuberant inflammatory fibrolytic tissue.

As a result, the inflammatory processes can be blocked and in non-inflammatory pathologies (such as vertigo, some stages of arthrosis), the Th3 Lymphocytes can be characterised by patterns via Bystander Reaction, making it possible to re-establish the regulation of an altered balance between fibrogenesis and fibrolysis in conjunction with the Th1 and Th2 Lymphocytes.

We would like to point out that the principle of Bystander Reaction is exclusive to Homotoxicology – it is this that sets it apart from any other type of therapy.

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