secretion by Th1 lymphocytes because of Engystol. Other research has shown that Engystol reduces the proliferation of various viruses, as Fig. 1.14 illustrates, probably because of its effect of increasing IFN-γ secretion.42

Both examples of immunomodulating medications used in bioregulatory medicine, Traumeel and Engystol contain only minute concentrations of active components, resulting in strong immunomodulating effects, as studies have shown.42 Minute concentrations of active components have been shown to have physiological effects, in strong contrast to what conventional pharmaceutical thinking might suggest or even proclaim. Minute dosages of the right protein-containing substance, presented to the immune system, may have a strong immunomodulating effect.

The Greater Defense System

The greater defense system43 consists of six subsystems working together to eliminate toxins from the body and to restore tissue damage. Detoxification and drainage as well as immunomodulation are the main pillars in bioregulatory treatment and certainly in antihomotoxic treatment.

The Six Subsystems of the Greater Defense System
1. The reticuloendothelial system
2. The hypothalamus–hypophysis–suprarenal axis
3. The neural reflex system
4. Detoxification by the liver
5. Detoxification of the matrix
6. The mucous membranes.

These systems all merge into each other and have a synergetic effect, working together to defend the body and maintain homeostasis.

The Reticuloendothelial System (RES), or the Mononuclear Phagocyte System

The RES is a part of the immune system, consisting of phagocytosing cells, mainly macrophages, located in reticular connective tissue; monocytes, located in the bloodstream; and dendritic cells, mainly located in the epithelial surfaces. These cells are stored and accumulated in lymph nodes and the spleen; they are ready to act if there is any invasion of antigens. Variations of these cells, such as histiocytes in tissues and Kupffer cells in the liver, are also part of the RES.

The terms lymphoreticular system and mononuclear phagocyte system are both synonyms for the RES. Some authors have proposed that the term mononuclear phagocyte system should be...
adopted rather than the almost universally used term RES.

The RES is divided into primary and secondary lymphoid organs. The primary organs refer to the location of origin of RES cells: the bone marrow and the thymus. The secondary lymphoid organs refer to the location where the RES cells really act. This includes the encapsulated lymph tissue (lymph nodes), the spleen, and the mucosal-associated lymphatic tissue (MALT), mainly divided into a gastrointestinal part (gut-associated lymphatic tissue: GALT) and a respiratory part (BALT: bronchial-associated lymphoid tissue). Figure 1.15 provides an overview of the RES tissues.

The activity of the RES is directly related to the presence of antigens and denatured tissue in the ECM and mucous membranes. Deficiency of the RES will result in accumulation or storage of toxins and burden in the ECM structure, endangering cell function first and survival of the cell later. Part of RES activity is also the formation of immunoglobulins, initiated by the activity of dendritic cells and other APCs.

Dendritic Cells and Motif Formation

Dendritic cells were discovered by Steinman and his team in 1973. Today, they are known to be a small population of immune cells occurring in the body surfaces, where the organism is in direct contact with the environment (the skin’s Langerhans cells and the mucosal layers). They are continuously seeking antigens of which they will present characteristic proteins to other immune-competent cells; this is why they belong to the group of APCs.

Once activated by antigen contact, dendritic cells migrate to the nearest lymph nodes, where they transmit the characteristic antigen information to T- and B-lymphocytes. Through this, a specific immune response against the antigen is induced.

tic proteins leading, via APC motif presentation, to the creation of antigen-specific proinflammatory T\(_{\text{H}1}\) and T\(_{\text{H}2}\) lymphocytes. Well-selected organ extracts, containing similar proteins to the inflammation-causing antigen, may induce T\(_{\text{reg}}\) cell generation if given in minute dosages. TGF-\(\beta\) secreted by the T\(_{\text{reg}}\) cells will inhibit the proinflammatory T-helper lymphocytes with a similar motif. This was postulated by Heine in 1998\(^1\) and was confirmed in other research in 2002\(^2\).

**Catalyst Preparation Groups (CPGs)**

Essential catalysts of biochemical processes in the body, as found in the citric acid cycle, are often used in cell- and organ-supporting antihomotoxic medications.

Since Nobel Prize winner Sir Hans Adolf Krebs described the citric acid cycle as an essential and continuous metabolic process for providing the living cell with energy (cell oxygenation)\(^3\), the understanding of its importance in fighting chronic degenerative diseases has gained momentum in antihomotoxic treatment. Catalysts, enzymes, coenzymes, and many other factors play an essential role in this complex mitochondrial process. The functioning of the cell is directly related to the efficient turnover of the Krebs cycle. The supply of factors to complete the chain depends on many variables. Nutrition is essential here, as is the transport of factors from the bloodstream to the cell and of waste products of the cycle back to the bloodstream.

The catalysts and coenzymes may be needed in minute dosages to enhance the mitochondrial process and ameliorate cell functioning. This is further discussed in Chapter 4, under Cell Support (p. 78).


**Architecture of an Antihomotoxic Medication**

The way an antihomotoxic formula is composed, its “architecture”, is quite different from the simple architecture of a conventional medication (for which, in most cases, there is one active component) or the complex architecture of other compounded complementary medications found in bioregulatory medicine.

Antihomotoxic medications often conform to the Bürgi principle (see below). In addition to this principle, the components are chosen to be complementary and synergetic in their action against the indication.

**The Bürgi Principle**

The Bürgi principle is a basic but often forgotten principle in pharmacology that says:

| The effect of two substances that lead to the same change in function or remove the same symptoms adds up when they have the same, and amplify when they have different, pharmacological target points. |

In 1910, Emil Bürgi, lecturer on pharmacology at the University of Berne in Switzerland, had shown that the combination of two different therapeutic substances or medications with equal or similar activities can, when their points of action are different, produce total effects that are greater than the simple additive sum of their individual effects.

In addition to the a very selective choice of the components in antihomotoxic medications, the Bürgi principle will add a supplementary effect to the composition. Pharmacological publications describe the therapeutic effect of individual substances. However, if these substances have the same physiological objective but different sites of action, their combined effect will be a physiological change that is much greater than anticipated from the linear summation of the effects of the isolated individual substances.

The Bürgi principle should not be confused with the well-known synergetic effect of com-
pounds. In the Bürgi principle, the target of the compounds is the same but the site of action or interaction is different. In the synergetic effect, the global target is the same but the subtargets of each component are different.

**Complementarity**

The physiological effects of compounds are well described in reference books. Each compound has one or more sites of action and also has a therapeutic physiological effect. This effect can be a sub-effect of a global effect that the formula is seeking when complementarity comes into the architecture of an antihomotoxic drug.

Compounds in antihomotoxic medications often have this complementary effect (i.e., different components may cover different aspects or subsymptoms of the same disease or clinical indication). Thus, many different components that treat redness, swelling, and sensation of heat and pain, when brought together in one formula, treat inflammation as a global indication because inflammation as a process is characterized by these various subsymptoms.

The complementary and synergetic effects of the different components of a formula often go together. The synergetic effect is induced by the complementarity of the components used against a well-defined indication.

**The Synergy of Components**

The synergetic effects of the components in antihomotoxic medications refer to the fact that the combined effect of the drug exceeds the individual effects of each component in the organism\(^4\).

The synergetic effect of the different components in one formula can be compared with synergies we encounter in other complex cybernetic systems. Stimuli that trigger cybernetic systems often amplify each other so that the end result is greater than the summation of the effects of each isolated component (Fig. 3.1).

This synergetic effect is seen not only in the combination of different components in one formula in practice, but also in the combination of different formulas in one therapy scheme, as is often applied in biopuncture\(^5\).

---


**Cell and Organ Support**

The third pillar within treatment according to the homotoxicological concept in bioregulatory medicine is cell and organ support. Both the cell as a living entity and the organ need our attention.

**Cell Support**

*Krebs Cycle Intermediate Products*

Here we analyze the various Krebs cycle intermediate products in detail in order to discover their specific therapeutic role and to learn about their use in ponderal form and in small homotoxicological doses.

From the therapeutic point of view, Krebs cycle intermediates can be used in three different forms with three different groups of often overlapping indications.

*Krebs Cycle Intermediates in Ponderal Form*

This type of administration is substantially supplementary. It is based purely on biochemical and clinical studies with these substances, and laboratory determinations are used.

In practice, if there is an abnormal accumulation of an intermediate in the patient’s urine, it is supposed that the enzyme system responsible for its subsequent transformation is blocked. The subsequent metabolite is deficient and is administered in ponderal form.

*Krebs Cycle Intermediates in Homotoxicological Form*

This type of substitution is substantially regulatory. It is based purely on clinical studies and on doctors’ experience throughout the world for more than 50 years. Our own clinical experience and that of Reckeweg have contributed to the clinical indications of catalysts in homotoxicological form. In addition, the studies and experience of various naturopaths, particularly Raymund Kastner, must be mentioned. All of these experiments are listed and summarized in Ivo Bianchi’s *Homopathic-Homotoxicological Repertory Materia Medica*.

*Krebs Cycle Intermediates in Homeopathic Dilution*

Krebs cycle catalysts are not distinguished from other homeopathic remedies when used in homeopathic dilution. They are indicated according to experimental symptoms derived from the data of the American homoeopath Dr. David Riley. There is, thus, a true and appropriate *Homopathic Materia Medica* for many intermediate Krebs cycle catalysts that will not be considered herein, given the strict homotoxicological status of this text.

**Hans Adolf Krebs and Hans Heinrich Reckeweg**

Krebs was born in Hildesheim, Germany, in 1900. His father was a surgeon specializing in otorhinolaryngology. Krebs first studied medicine at the universities in Göttingen and Freiburg, then in Hamburg, where he graduated in 1925. He then studied chemistry in Berlin and was assistant to Otto Warburg at the Kaiser Wilhelm Institute of Biology until 1930. He returned to clinical medicine in Altona, Germany, and subsequently worked in the Medical Clinic of the University of Freiburg, where he performed research and discovered the urea cycle. Being Jewish, he emigrated to the United Kingdom in 1933, where he initially worked at Cambridge with Sir Frederick Gowland Hopkins. Subsequently, he became professor of biochemistry at the University of Sheffield and concentrated his research on intermediate metabolism. In 1937, he discovered the citric acid cycle; and in 1953, he was awarded the Nobel Prize for Physiology for this discovery.

The chronology of Krebs’ life and research clearly shows how contact between this scientist and/or his entourage and Reckeweg was very probable. Surely, the founder of homotoxicology breathed the ambience of the great discoveries in the field of biochemistry that took place precisely during the years when he studied and worked in Berlin. This explains the considerable importance attached by Reckeweg to the Krebs cycle intermediate catalysts, which appear in many of the most important homotoxicological drugs. Reckeweg uses these substances with considerable pharmacological skill, demonstrating that his theory is imbued with Krebs’ biochemical studies. In homotoxicology, he suggests the use of catalysts in at least four forms:
1. Each catalyst is included in a single dilution, which is generally low, in a complex compound drug that acts on specific organs or tissues. The catalyst is selected in relation to the particular metabolic composition of the specific organ.

2. Each catalyst is provided in various dilutions, in combination, in order to have a rebalancing effect on a specific passage in the Krebs cycle that is altered in relation to the patient’s symptoms. There are two possibilities:
   - Blockage of a metabolic reaction, in which case the use of low dilutions of the catalyst itself is mostly, but not solely, helpful; the Injeel forte form of the biochemical substance is indicated.
   - Disturbance, not necessarily in a blocking form, of a metabolic reaction. In this case, a regulatory therapeutic action, which can be obtained with the Injeel form of the catalyst, is useful.

3. The catalysts are proposed all together in combined dilutions or in Injeel form. In this case, the intention is to globally stimulate, reactive, and rebalance this fundamental metabolic pathway, which can be blocked by wide-ranging factors such as aging, a viral pathological condition, a toxin, or a pharmacological attack. There are several practical methods for the administration of all the intermediate catalysts.

4. The catalysts are proposed all together but only in low dilution, even if differentiated on the basis of the most usual cell metabolism problems. In this case, the catalysts are combined with vitamins, mineral salts, and basic homeopathic remedies, all in a low homeopathic dilution, in order to achieve a direct stimulus of the cellular intermediary metabolism in a simple way that is applicable to practically all patients. These combinations will be useful for children, in whom they act as an anabolic stimulus, and for the elderly, in whom they will support the production of cell energy, which will improve many clinical problems related to metabolic deficit.

Krebs Cycle Intermediate Catalysts in Homotoxicology
These intermediate catalysts are a fundamental contribution of homotoxicology to homeopathy. The introduction of these drugs has allowed practical clinical use of relatively recent acquisitions in cell biochemistry by homoeopathic doctors. We have already hinted at possible, at least intellectual, contacts between Reckeweg and Krebs. Only a deep and direct knowledge of these biochemical problems could have allowed the introduction of various catalysts of the citric acid cycle into homoeopathic therapy. Moreover, the excellent function of these catalysts must be considered as striking evidence of the efficacy of the homeopathic preparative method of the drugs.

The Krebs cycle is the common final pathway by which carbohydrates, lipids, and amino acids are oxidized to produce bioavailable energy. A blockage of this complex chain mechanism causes serious cell damage and forces the cell to assume abnormal functioning, such as anaerobic glycolysis, which is typical of a carcinogenic or defective cell and is very extravagant from an energetic viewpoint.

Reckeweg studied complex homotoxicological drugs, such as Coenzyme compositum, with particular care. A true homotoxicological drug for cell regulation should contain all of the various catalysts, coenzymes, vitamins, and trace elements necessary for the proper function of the cell. The dilutions of each substance are selected with considerable care. For example, it is not by chance that Natrium oxalaceticum is present in a lower dilution than other catalysts. In fact, this substance is the critical factor in regulating various points in the cycle. Because the substance is fairly sensitive to metabolic disorders, its mitochondrial concentration is critically low; it therefore needs a larger bioavailable share, which is made possible by the lower dilution in which the substance is present.

Most impregnation phases and, therefore, all degenerative and neoplastic phases are marked by cell aerobic respiration disorders. The administration of citric acid cycle acids or salts stimulates the intermediate functions of the respiratory chain and compensates for current metabolic lesions.

---