

Immune Modulation With Microdose Combination Products

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The importance of the mucosal immune system has been addressed by several authors in this journal. The complexity of this immune system and its effects on the systemic immune system make it an attractive target for addressing local immune problems, such as inflammatory bowel disease and allergy. These properties can also be used for systemic immune dysregulation, such as adjuvant therapy for autoimmune diseases, in which case the corresponding tissue extract is used in an oral form.

Three properties seem to make microdose bioregulatory products ideal for modulation of the mucosal immune system.

1. Multitarget regulation

Plants¹ and organ preparations have a combination chemistry that can be efficiently used to address multiple targets. This fits the complexity of the immune system in the mucosa.

Figure. Deployment of the T-cell response in the mucosa. The arrows indicate secretion; the blunt lines, inhibition; and the dotted arrows, differentiation; red relates to regular activation or inhibition, whereas orange indicates processes that are predominantly found in allergy.

Abbreviations: DC, dendritic cell; Ig, immunoglobulin; IFN, interferon; IL, interleukin; TGF, transforming growth factor; Th, T-helper cell; Treg, T-regulatory cell.

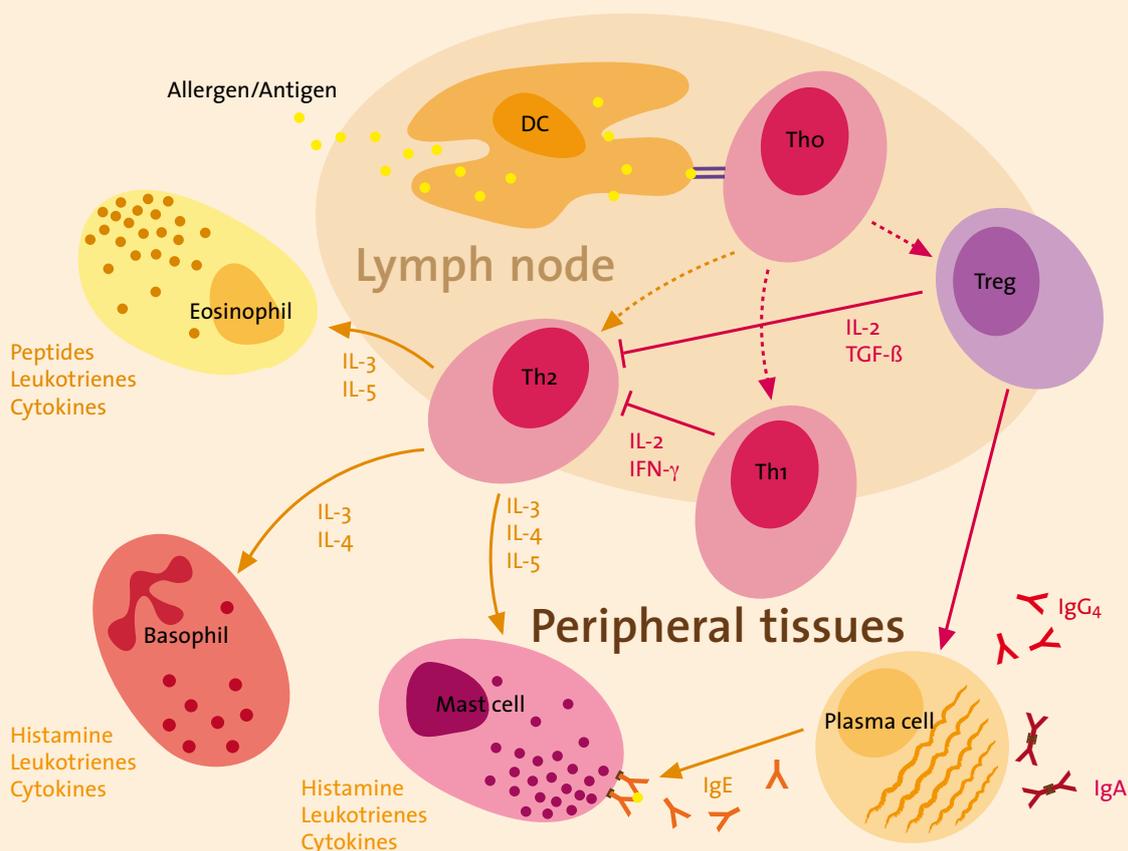


Table 1. Medications Used to Induce Local Tolerance

Medication	Target Tissue (Local)
Mucosa compositum	Universal for mucosae
Euphorbium compositum	Nasal mucosa
Podophyllum compositum	Gut mucosa
Solidago compositum	Urogenital tract
Gynäcoheel	Female reproductive tract

Table 2. Medications Used to Induce Systemic Tolerance

Medication	Target Tissue (Systemic)
Traumeel	General
Tonsilla compositum	Reticuloendothelial tissue (including bone marrow)
Cerebrum compositum	Brain
Hepar compositum	Liver
Ovarium compositum	Ovarium
Thyreoidea compositum	Thyroid

2. The microdose

It also seems that microdose preparations will have an effect on the immune system, which tends toward regulation rather than stimulation or suppression. The mucosal immune system is especially geared towards tolerance, especially in the face of microdoses of food.² The main carriers of the antigen are in the first instance dendritic cells.³ These cells will carry the antigen to the mesenteric lymph node,⁴ where this response takes place. The mechanism is depicted in the Figure. The main cell involved in the tolerance reaction is the T-regulatory cell, which plays a pivotal role in the down-regulation of both T-helper cell type 1 (Th1) and Th2. The induction of Th3 and transforming growth factor β by microdose preparations was shown on blood culture results.⁵

Furthermore, Traumeel was shown in vitro to down-regulate proinflammatory cytokines from T cells and colon epithelial cells.⁶

3. Possibility of sublingual administration

It seems that the oral mucosa has special features that make it ideal for oral tolerance. Sublingual immunotherapy used in allergy is more efficient if it is given sublingually or nasally, but not intraintraintestinally.⁷ Furthermore, the oral mucosal interface, also called the “gateway to the gut,”⁸ seems to have a special relationship to tolerance because of the number of bacterial species living there.⁹ The medications listed in Table 1 and Table 2 are examples used to induce local and systemic tolerance, respectively. ■

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