

## Selected Summaries from the Greek Edition

### The Polycystic Ovary Syndrome as a Case of Enzymic Abnormality The Role of Cytochrome P450c17a

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In females with disorders of the continuity in the spectrum *hyperadrogenaemia-polycystic ovary syndrome* more than half of cases shows autonomous ovarian and/or adrenocortical androgen hypersecretion, because of regulatory abnormality of the androgen forming cytochrome P450c17a (increased activity). The androgen excess is independent of the LH blood levels in the case of the ovary and unrelated to the primary androgenic disorders of the cortex in the case of the adrenals. The abnormal regulation of the cytochrome P450c17a in adrenal cortex has been approved to be responsible for a percentage of hyperadrogenaemic women, of which hyperadrogenaemia is ascribed to 3 $\beta$ -HSD deficiency. In the rest of the females of the spectrum *hyperadrogenaemia-polycystic ovary syndrome*, as pathophysiological mechanism is considered an idiopathic hypersecretion of the LH and an increase in the ratio LH/FSH. In this case, increased androgen production in a critical period of the sexual development of the female, arising from dysregulation of the cytochrome P450c17a, seems to play a fundamental role. A part of

these, androgens are changed to estrogens by conversion in the brain (and fat) tissues. The hyperestrogenaemia then alters the synaptology type and postsynaptology membrane function of the arcuate nucleus of the hypothalamus, which results in disturbed LH pulsatility, expressed by tonic gonadotropin releasing (male pattern), instead of cycling releasing (female pattern).



### Calcium and Mechanisms of Smooth Muscle Contraction: Biochemical Parameters

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The role of intracellular Ca<sup>2+</sup> is essential in the whole biochemical reactions that are connected with the smooth muscle contraction. Binding of intracellular Ca<sup>2+</sup> with calmodulin is the first step that activates a cascade of biochemical events that trigger the contraction of the smooth muscle cells by provoking the reaction between myosin and actin. These mechanisms are described in the text as well as the role of special proteins like leitonin, caldesmon and calponin. It is believed that the whole knowledge of these mechanisms

helps in clinical practice the choice of the proper drugs that influence the vascular tone. This knowledge also is essential for the laboratory research that concerns the development of new drugs that act too on the vascular tone.



### Leptin: The Role of a new Hormone in the Etiology and Treatment of Obesity

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The biggest news in obesity research over the past years has been the discovery and characterisation of the fat gene *ob* and leptin. Leptin, the product of the *ob* gene, is an hormone secreted exclusively by adipocytes. Therefore, the concept of adipose tissue as an endocrine organ and that of adipocytes as secretory cells has emerged in the recent years. Leptin can be detected in serum at concentrations that correlate with body weight. There is a receptor through which leptin exerts its effects. The choroid plexus in the brain is the part of the body that binds the most leptin. Administration of leptin decreases food intake and increases the resting metabolic rate and thermogenesis providing evidence that leptin plays a key role in a feedback loop maintaining energy balance. The accurate mechanisms through which leptin exerts its effects are still unknown. However, the discovery of leptin may lead scientists to understand the pathophysiology of obesity and might mimic or enhance leptin's effects and prove useful as anti-obesity drugs.



### Drugs Used in the Vascular Surgery

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Drugs that are used in the vascular surgery may be divided in two groups. The first group includes the drugs that are used during the clinical period of treatment, while the second one contains these substances that are administered during the operation time. First group includes drugs that intent to control the vascular tone, to improve the cardiac function, to decrease the edema and to protect the patient from thrombotic incidents. Drugs of the second group aim to maintain the arterial pressure in a proper level, to keep a satisfactory cardiac and renal blood supply, to protect the patient from thromboembolic incidents and to keep also a stable blood pH.



### Drugs and the Breast

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This review based on international references tries to give informations concerning the influence of pharmaceutical substances on breast function. The action of drugs that influence lactation as well as drugs that provoke galactorrhoea to the women and gynecomastia to the men is also described. Substances that are suspected to provoke breast cancer are also referred. Finally this article presents the drugs that are excreted in the breast milk and suggests which of them must be avoided during lactation.

