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_Udo R. Markert_ Jena

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Preface

This book presents the discipline of immunology which studies a unique physiological phenomenon contradicting many of the generally established rules in the field: immunology of pregnancy. It provides a wide overview of the current research of this topic. Prominent and leading international groups contributed by reviewing the most significant findings in the field.

Pregnancy is the symbiosis of two allogeneic individuals which live in intimate contact. The maternal immune system reacts towards the foreign tissue, but instead of triggering rejection, it tolerates, supports and regulates its development. It controls efficiently and indispensably the formation of the placenta and thereby the development of the embryo and fetus. Many internal and external factors can provoke imbalances of the system, which may result in pregnancy disorders including infertility and abortions.

Leading scientists in the field present the latest findings on physiological mechanisms required for successful pregnancies and the respective pathologies. The regulation of maternal NK cells, T cells and dendritic cells through hormones, cytokines, complement system and HLA as well as other cell-surface molecules are described in detail.

Knowledge of the immunoregulatory processes of pregnancy is necessary to understand and treat a variety of disorders, which may lead to infertility, premature events, preeclamptic diseases and many other problems. The same knowledge can be used to gain insight into distant fields of immunology, where immunomodulatory mechanisms known from pregnancy are involved in pathologies, such as HLA-G or progesterone-induced blocking factor (PIBF) in tumor development, or in therapeutic approaches, such as in posttransplantation or allergy therapies.
This book presents fascinating facets of immunology, which may surprise those readers who are not yet familiar with the immunology of reproduction and which will update the knowledge of specialists.

The general political and public interest in the field is reflected by the establishment and support of a European Network of Excellence entitled EMBIC (Embryo Implantation Control; www.embic.org; 2004–2008), which is strongly supported by the European Union. Several of the authors of this book are partners of the EMBIC.

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