Gender differences in the development and prevalence of human diseases have long been recognized. Immense interest grows in the understanding of the role of sex hormones in the homeostasis of immunity. Asthma predominates in boys before puberty and this gender preference reverses after puberty and in adulthood, when adult women tend to have a more severe disease, often recalcitrant to treatment. Atopic eczema in preschool children shows insignificant gender difference or male preponderance in different studies, with more adult females suffering from atopic eczema. The limited data on the prevalence of immediate hypersensitivity to hymenoptera venom show controversial results. Discrepancy exists regarding the gender difference in food allergy, with females reporting significantly more allergic reactions in questionnaire studies. In general, adverse reactions to nonionic iodinated radioccontrast media are more commonly observed in females. The course of allergic diseases varies unpredictably during pregnancy, whereas hormone replacement therapy in postmenopausal women usually has a favorable influence on the course of asthma. Experiments in rodents confirm an effect of estrogens on mast cell activation and allergic sensitization, while progesterone is shown to suppress histamine release but potentiate IgE induction. Dehydroepiandrosterone may antagonize the production of Th2
cytokines but the effect of testosterone and the other androgens remains less defined. Actual data from human studies are lacking.