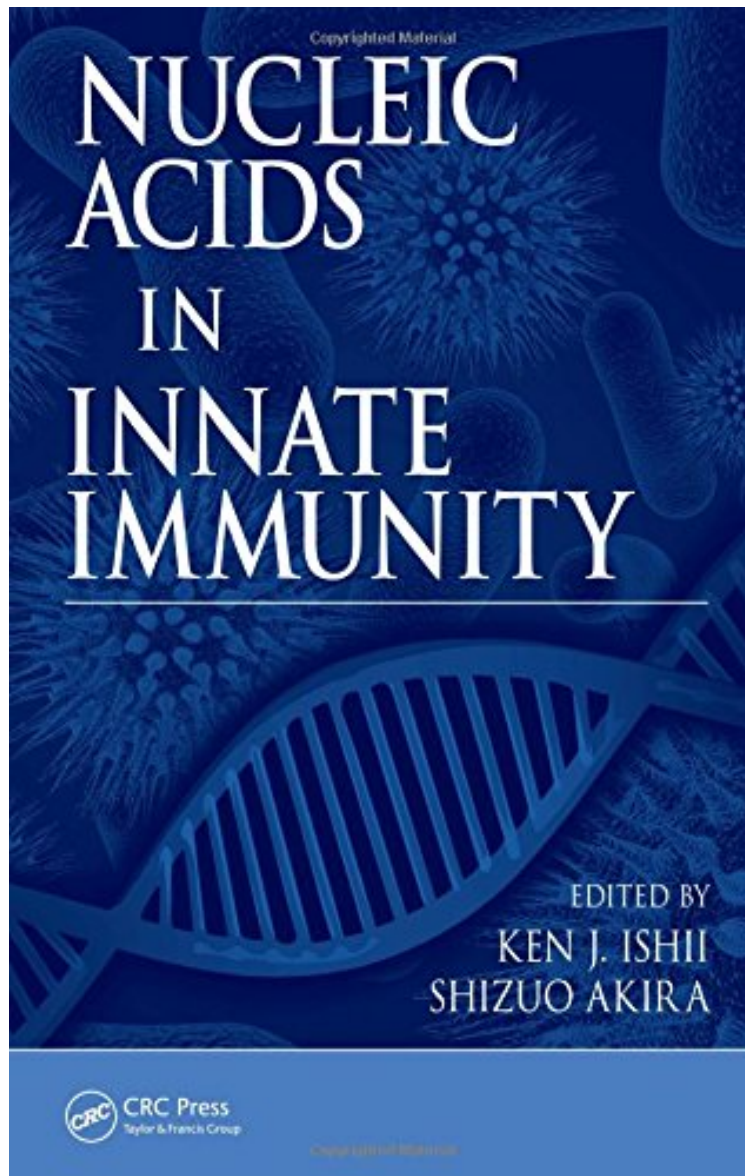


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Nucleic Acids in Innate Immunity

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Until recently, innate immunity was regarded as a relatively nonspecific system designed to engulf and destroy

pathogens. However, new studies show that the innate immune system is highly developed in its ability to discriminate between self and foreign entities. Understanding this mechanism can lead to therapeutic strategies based on manipulation of this previously unexploited branch of the immune system. Drawing on the research of leading experts, *Nucleic Acids in Innate Immunity* provides insight in this new area of immunology. The book begins by explaining the roles of nucleic acids in immunity, describing the mechanism of discrimination based on pattern-recognition receptors (PRRs), including Toll-like receptors (TLRs), Nod-like receptors (NLR), and RIG-I-like receptors (RLR). Chapters discuss how these PRRs recognize and respond to pathogen-associated molecular patterns (PAMPs) by activating specific signaling pathways. The second section focuses on the therapeutic applications of immunomodulatory DNA by manipulating released pathogenic nucleic acids as immune system stimulants. The book introduces novel therapeutics developed to prevent or treat infectious diseases, allergic disorders, and cancer, as well as clearing unnecessary or abnormal host molecules. The final section addresses how the immune system discriminates self and non-self RNA. Recent findings that host (self) nucleic acids are not inert in the immune system beg the question of exactly what elements within DNA or RNA are recognized by the innate immune system. Contributions review recent advances to understand innate immune recognition of nucleic acids and describe the resulting immune modulation. Providing a comprehensive review of nucleic acid recognition and regulation by the innate immune system, this seminal work reveals new directions for future research in immune modulation.