

Nucleic Acid Toolkit

Potential Diagnosis and Treatment of Major Infectious Diseases Endemic in Developing Countries

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ABSTRACT

HIV/AIDS and TB are among the major infectious diseases and defining public health problems in developing countries. This book aims to give an overview of the epidemiology and also provide an understanding of the pathology of these diseases. It also provides insights into their current diagnostics and treatments and the future prospects. In particular, the book highlights the use of nucleic acid therapies and focuses on the use of aptamers as potential treatment and diagnostic tools for these diseases. Aptamers are synthetic nucleic acid or amino acid ligands that can be isolated to bind specific targets such as HIV and TB molecules with high affinity. Examples of the successes and failures of aptamers are drawn upon to provide a full understanding of the technology. The advantages over existing technologies are also discussed so as to illustrate the potential of aptamers in a number of applications. Finally, the shortfalls and future prospects of aptamer research are presented.