

Attenuation of Virulence as antimicrobial strategy

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Vaccination for viral diseases has markedly reduced mortality worldwide for more than 200 years. The greatest public health success can be attributed to vaccination. Nevertheless, the future is abound with challenges as there remains many diseases that do not yet have effective vaccines against diseases such as HIV/AIDS, myocarditis caused by Coxsackievirus B3, Type I diabetes associated with Coxsackievirus B4 and the Hand, Foot, Mouth (HFMD) disease caused by Enterovirus 71. Although there are more vaccines undergoing clinical trials, it is worrying to note that humans remain vulnerable to the existing 180 or so viruses that have no effective vaccines. Therefore, further research is required in the development of new and better vaccines. Of increasing interest in recent years would be the design of novel live attenuated vaccines (LAV). This type of vaccine does not require cold-chain, is cheaper to produce, induces excellent immunogenicity, does not need boosters and confers live-long immunity. With a growing understanding of the molecular basis of virulence in diseases, safe and effective LAVs can be developed through optimization of immunogenicity and genetic stability. In this paper, attenuation of virulence for viruses causing diseases such as poliomyelitis, HFMD, myocarditis and diabetes type I are examined.

Keywords poliovirus; Enterovirus 71; Coxsackievirus B3; Coxsackievirus B4; attenuation of virulence

References

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