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Innovation and Trends in the Development and Approval of Antiviral Medicines: 1987-2017 and Beyond

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ABSTRACT

2017 marked the 30th anniversary of the approval of zidovudine (AZT) as the first HIV/AIDS therapy. Since then, more than eighty antiviral drugs have received FDA approval, half of which treat HIV infection. Here, we provide a retrospective analysis of approved antiviral drugs, including therapeutics against other major chronic infections such as hepatitis B and C, and herpes viruses, over the last thirty years. During this time, only a few drugs were approved to treat acute viral infections, mainly influenza. Analysis of these approved antiviral drugs based on molecular class and mode of action shows that a large majority are small molecules and direct-acting agents as opposed to proteins, peptides, or oligonucleotides and host-targeting therapies. In addition, approvals of combination therapies accelerated over the last five years. We also provide a prospective study of future potential antiviral therapies, based on current clinical research pipelines across the pharmaceutical industry. Comparing past drug approvals with current clinical candidates hints at the future evolution in antiviral therapies and

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