Original Paper

Effect of anti-HIV activity of novel compounds 8-phenyl-4-quinolone containing different substituents at position 3

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Abstract

Background and Objective: HIV treatment influences the global health and finding new compounds against HIV virus is increased. This study was done to evaluate anti-HIV activity of 8-phenyl-4-quinolone derivatives containing different substituents at position 3.

Methods: In this descriptive study, single cycle replicable (SCR) HIV Virions were produced by co-transfecting HEK 293T cells with pmzNL4-3, pSPAX.2, pMD2.G plasmids. HeLa cells were infected with the SCR virions and then inhibit of virus replication by compounds were measured by p24 Antigen with ELISA kit. The cytotoxicity of these compounds on HeLa cells were measured by XTT method.

Results: All compounds including NPZ-4F, NPZ-2F, NPZ-4CL and NPZ-2CL had the best inhibitory effect at a concentration of 100µM with the inhibition rate of respectively 51%, 48%, 33%, and 25%, respectively. The compounds of NPZ-4F and NPZ-2CL had negligible cellular toxicity and have inhibited HIV replication at the highest concentration. This issue can make them a valuable compound since they are better compounds in therapeutic terms, which at a suitable concentration, they have the lowest rate of cellular toxicity and highest power to inhibit HIV replication.

Conclusion: Novel compounds derived from 8-phenyl-4-quinolone containing different substituents at position 3 can prevent HIV replication which is capable of high anti-viral and low cellular toxicity and suitable candidates for further investigation in antiviral studies.

Keywords: Human immunodeficiency virus, Replication inhibitors, Cytotoxicity

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