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Current state of synthesis and research into anti-HIV activity of the series of 2*H*-1-benzopyran-2-one compounds

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Abstract

Pandemia of Human Immunodeficiency Virus (HIV) / Acquired Immune Deficiency Syndrome (AIDS) is a serious threat to the health and human development, and the search for effective compounds with anti-HIV activity was, is and will be a serious problem. In recent years there has been considerable progress in the development of drugs against HIV. A great number of heterocyclic organic compounds of different classes of natural and synthetic origin were produced, including derivatives of 2*H*-1-benzopyran (coumarin) with different structures, which showed anti-HIV activity. This survey demonstrates the diversity of structures and activity, namely, coumarin synthetic and natural origin with unique mechanisms of action, referring to the various stages of HIV replication. Recent studies using a variety of coumarins have shown that some of them are strong non-nucleoside reverse transcriptase inhibitors, and others – inhibitors of HIV-integrase or HIV-protease. Therefore, in a number of research centers abroad actively conducting research on the development of new drugs and their combined forms for the treatment of HIV-infection that would be useful for first-line therapy, and in relation to resistant mutants. Research conducted on compounds possessing anti-HIV activity give hope and optimism in this regard. This review, we describe recent advances in the discovery, study and structural modifications of the dependence structure-activity in relation to some of coumarin derivatives, showing pronounced anti-HIV activity.