Accepted Manuscript

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PII: S0223-5234(16)30373-7

DOI: 10.1016/j.ejmech.2016.05.007

Reference: EJMECH 8594

To appear in: *European Journal of Medicinal Chemistry*

Received Date: 7 April 2016

Revised Date: 3 May 2016

Accepted Date: 4 May 2016

Please cite this article as: V. Oliveri, G. Vecchio, 8-Hydroxyquinolines in medicinal chemistry: A structural perspective, *European Journal of Medicinal Chemistry* (2016), doi: 10.1016/j.ejmech.2016.05.007.

8-Hydroxyquinolines in medicinal chemistry: a structural perspective

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Abstract

8-hydroxyquinolines are heterocyclic compounds characterized by a moderate metal-binding affinity. The interest in 8-hydroxyquinolines has grown exponentially in the last two decades as they are privileged structures for the design of new drug candidates that exert a host of biological effects on various targets.

The study of biological activities such as neuroprotection, anticancer, antibacterial, antifungal activity has been further promoted by the synthetic versatility of 8-hydroxyquinoline, which allows the generation of a large number of derivatives. This includes numerous multifunctional analogues having the metal-binding motif of 8-hydroxyquinoline. In this review, we have summarized 8-hydroxyquinolines, 8-hydroxyquinoline-like compounds, 8-hydroxyquinoline-loaded nanoparticle systems with respect to their biological activities, interaction with metal ions and mechanisms of action.

Keywords

clioquinol; nanoparticle; PBT2; nitroxoline; metal complexes; Alzheimer; glycoconjugate; anticancer

Graphical Abstract