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MEDICINAL CHEMISTRY RESEARCH

ORIGINAL RESEARCH

Ferrocenylchalcone–uracil conjugates: synthesis and cytotoxic evaluation

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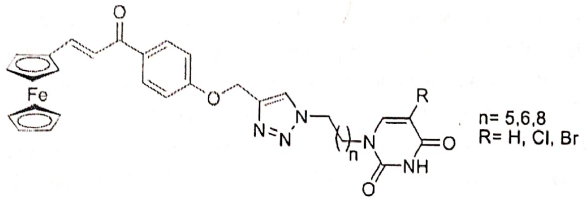
Abstract

Huisgen's azide–alkyne cycloaddition reaction was employed to synthesize a series of 1*H*-1,2,3-triazole-tethered uracil–ferrocenyl chalcone conjugates with the aim of evaluating their in vitro anti-proliferative efficacy on human leukemia (CCRF-CEM) and human breast adenocarcinoma (MDA-MB-468) cell lines. Cytotoxic evaluation studies identified a number of synthesized conjugates that inhibited the proliferation of leukemia cancer cells by ~70% after 72 h. The selected synthesized conjugates were found to be significantly less cytotoxic against normal kidney cell line (LLC-PK1) when compared with CCRF-CEM cancer cells.

Graphical Abstract

Synthesis and in vitro anti-proliferative efficacy of 1*H*-1,2,3-triazole-tethered uracil–ferrocenylchalcone conjugates on human leukemia (CCRF-CEM) and human breast adenocarcinoma (MDA-MB-468) cell lines.



Keywords Click chemistry · Cytotoxic evaluation · Ferrocenylchalcone · Uracil

Abbreviations

CCRF-CEM	ATCC No. CCL-119, human leukemia cell line
MDA-MB-468	ATCC, No. HTB-132, human breast adenocarcinoma
LLC-PK1	ATCCCL-101, normal kidney cell line

Introduction

Cancer, an uncontrolled growth and rapid proliferation of abnormal cells, is one of the most formidable challenges in the world (Fadeyi et al. 2008). Most cancers are recognized by the uninhibited growth of cells without demarcation due

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