# Bis-isatin hydrazones with novel linkers: Synthesis and biological evaluation as cytotoxic agents,

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**Abstract**

Many bis-isatins and isatins with hydrazide extension were reported to have a potential anti-proliferative
effects against different cancer cell lines and cancer targets. In this study, four series of bis-isatins with
hydrazide linkers were synthesized. These compounds were investigated for their antitumor activity by
assessing their cytotoxic potency against HepG2, MCF-7 and HCT-116 cancer cell lines. Compound 21c
possessed significant cytotoxic activity against MCF-7 (IC50 ¼ 1.84 mM) and HCT-116 (IC50 ¼ 3.31 mM) that
surpasses the activity of doxorubicin against both cell lines (MCF-7; IC50 ¼ 2.57 mM and HCT-116;
IC50 ¼ 3.70 mM). Cell cycle analysis and annexin V-FITC staining of MCF-7 cells treated with 21c suggested
that the cytotoxic effect of the compound could be attributed to its pro-apoptotic activity.

*Eur. J. Med. Chem. - 2015, November*