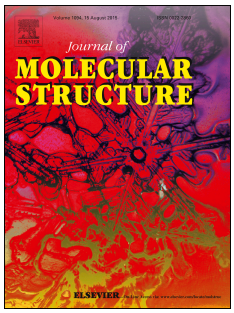
Accepted Manuscript



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PII: S0022-2860(17)30177-1

DOI: 10.1016/j.molstruc.2017.02.031

Reference: MOLSTR 23425

To appear in: *Journal of Molecular Structure*

Received Date: 5 October 2016

Revised Date: 8 February 2017

Accepted Date: 9 February 2017

Please cite this article as: S.K. Sinniah, K.S. Sim, S.W. Ng, K.W. Tan, Structural and cytotoxic studies of cationic thiosemicarbazones, *Journal of Molecular Structure* (2017), doi: 10.1016/j.molstruc.2017.02.031.

Structural and cytotoxic studies of cationic thiosemicarbazones

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Abstract

Schiff bases from the thiosemicarbazones family with variable N4 substituents are known to show enhanced growth inhibitory properties. In view of these facts and as a part of our continuous interest in cationic Schiff bases, we have developed several Schiff base ligands from (3-formyl-4-hydroxyphenyl)methyltriphenylphosphonium **(T)** in present study. The compounds were characterized by various spectroscopic methods (infrared spectra**,** ^{1}H NMR, ^{13}C NMR, HRESIMS and X-ray crystallography). Three of the N4 substituents, namely **P(tsc)T**, **FP(tsc)T** and **EP(tsc)T** exerted strong growth inhibitory properties by inhibiting the highly metastasis prostate cancer growth (PC-3). The thiosemicarbazone with ethylphenyl (EP) moiety displayed most potent activity against all cell lines tested. The MTT data obtained from analysis establishes that phenyl substituent enhances the growth inhibitory properties of the compound. The result affirms that **EP(tsc)T** would serve as a lead scaffold for rational anticancer agent development.

Keywords: Thiosemicarbazone; Schiff base; MTT; growth inhibitory; antitumor.

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1. Introduction

The anticancer drug, 3-aminopyridine-2-caboxaldehyde thiosemicarbazone, known commercially as Triapine, is a Schiff base that can be synthesized by reaction of an aromatic

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