Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

MIFi

Cancer Therapeutics – Novel inhibitors of macrophage migration inhibitory factor

Overview

The cytokine MIF is a key regulator of innate and adaptive immunity and is a central orchestrator in the immuno-pathogenesis of many diverse diseases. Enhanced MIF is associated with earlier tumour spread and more aggressive cancer. Researchers, led by Prof Seamas Donnelly, at Trinity have developed inhibitors of MIF activity which have the potential to act as unique anti-inflammatory therapeutics.

Clinical need and potential market

- Lung cancer is the leading cause of cancer deaths worldwide. It is estimated that the 5-year survival rate is at most 16%. Therefore, novel therapeutic targets for lung cancer are urgently required.

- The global market for lung cancer grew to $21.9 billion in 2014 from $20.3 billion in 2013. The market is expected to grow from 2014 to 2019, totalling $31.8 billion in 2019.

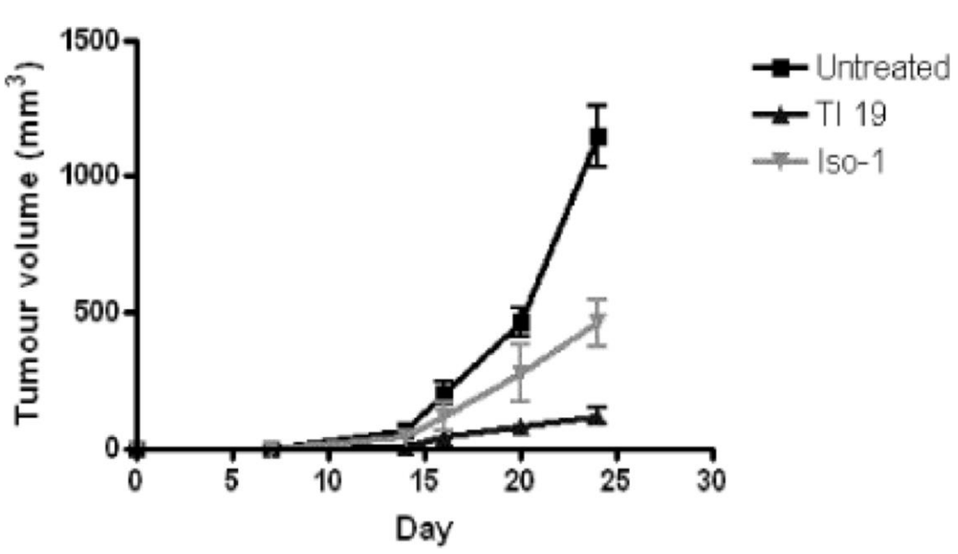

Fig. 1. Inhibition of MIF tautomerase activity attenuates tumour growth Tumours treated with tautomerase inhibitor (TI 19) demonstrated a significant reduction in tumour volume in vivo, compared to the control or untreated group.

The Opportunity

This technology is currently in prototype development and testing. We are seeking private and public funding, as well as academic and industrial collaborations with the view to out-license the technology for co-development and commercialisation.

The Technology

- Trinity researcher have identified a new class of MIF inhibitor, a compound TI 19, which is a potent inhibitor of MIF tautomerase activity.

- The compound TI 19 inhibited MIF activity by 74 % and leads to a significant reduction in lung cancer cell proliferation and reduction in tumour volume when assessed in a murine model for lung cancer.

- A second compound SDG-22 was identified with more potent activity then TI 19, inhibiting MIF activity by 90 %.

- The 7-hydoxyl group of SDG-22 was identified as being essential in its enhanced activity

Possible Applications

- These studies provide persuasive evidence that MIF is a valid therapeutic target in lung cancer.

- The development of specific small-molecular-weight inhibitors targeting the tautomerase enzymatic activity of MIF may be vital as a potential therapeutic strategy in the treatment lung cancer.

- This therapeutic may provide a treatment in a wide range of cancers including; breast cancer, pancreatic cancer, prostate cancer, colorectal cancer and cervical cancer .

Market

Therapeutics

IP Status

Granted EU patent (May 2019)
(Validated GB, FR, DE, ES, IT)

EP3122735A1

Opportunity

Research collaboration

Available to License

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