Burkhard Kloesch et al., Med Chem 2014, 4:12
http://dx.doi.org/10.4172/2161-0444.S1.013

OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference on
Medicinal Chemistry & Computer Aided Drug Designing
December 08-10, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

Enhanced anti-proliferative and pro-apoptotic activities of a novel *Curcumin*-related compound in Jurkat T-cells

Burkhard Kloesch[1], **Katrin Goldhahn**[1], **Lukas Gober**[1], **Michael Hintersteininger**[2], **Guenter Steiner**[1,3] and **Thomas Erker**[2]
[1]Ludwig Boltzmann Institute for Rheumatology and Balneology, Austria
[2]University Vienna, Austria
[3]Medical University Vienna, Austria

Background: *Curcumin* is a naturally occurring polyphenol produced in the rhizome of Curcuma longa. The positive health effects of *Curcumin* (anti-inflammatory, anti-carcinogenic and antioxidative properties) have widely been studied. Inhibition of arachidonic acid metabolism by *curcumin* has been suggested to be a key mechanism for its anti-carcinogenic action. Recently, we reported about the synthesis of 7 novel *curcumin* analogues and their evaluation as selective COX-1 inhibitors. Compound 3 (HP102) was selected to evaluate its possible anti-carcinogenic features in Jurkat T-cells.

Materials and Methods: Jurkat T-cells were stimulated with PMA/PHA in the absence or presence of different concentrations of HP102. IL-2 promoter activity and IL-2 release was analyzed by a luciferase reporter assay and ELISA, respectively. The effect of HP102 on cell viability, proliferation and apoptosis were monitored by XTT-assay, Annexin-V/7-AAD staining and Western blot.

Results: Data showed that HP102 effectively blocked IL-2 expression in Jurkat cells in a dose-dependent manner. Compared to *Curcumin*, HP102 was about 10 times more effective in inhibition of IL-2 synthesis. Enhanced effects of HP102 towards *Curcumin* were also observed by monitoring cell viability, proliferation and apoptosis.

Conclusion: The *Curcumin* analogue HP102 strongly improved the anti-proliferative and pro-apoptotic potential of the natural occurring *Curcumin* in Jurkat T-cells and might be a useful tool for the supportive care in T-cell leukemia in the future.

burkhard.kloesch@gmx.at