### **MEETING ABSTRACT**



**Open Access** 

# Salermide down-regulates sirtuin proteins to induce human cancer cell apoptosis

Asha Leisser, Michael Wolzt\*, Angela Storka

*From* 17th Scientific Symposium of the Austrian Pharmacological Society (APHAR). Joint meeting with the Hungarian Society of Experimental and Clinical Pharmacology (MFT) Innsbruck, Austria. 29-30 September 2011

#### Background

The NAD<sup>+</sup>-dependent family of sirtuin proteins (SIRT1–7), is involved in cell apoptosis and senescence. Salermide is a potent inhibitor of SIRT1 and SIRT2 and can induce tumor-specific cell death in selected human cell lines. In this study we investigated salermide's apoptotic effect in a wide range of other human cancer cell lines and its antiproliferative potential in combination with cisplatin.

#### Methods

Seven different cancer cell lines (SKOV-3, MKN45, MKN28, N87, FaDu, NuLi1, Jurkat) were treated with salermide (1  $\mu$ M – 0.1 nM) for 24, 48, and 72 hours and assessed for cell viability. Three cell lines (SKOV-3, N87, Jurkat) were selected for combination therapy with salermide and cisplatin (30  $\mu$ M). In order to characterize salermide's proapoptotic pathway SIRT1, SIRT2, pAKt, p53, acetyl-p53 and Nampt (nicotinamide phosphoribosyltransferase) were determined in SKOV-3 and Jurkat cells by Western blotting.

#### Results

Salermide yielded greater dose-dependent apoptotic effects in Jurkat, SKOV-3 and N87 cells than in the other cell lines, with most potent effect after 48 h of incubation. The anti-proliferative activity was associated with a  $G_0$ - $G_1$  cell cycle arrest. SIRT1 and SIRT2 protein were down-regulated after 48 h and 72 h. This was accompanied by a down-regulation of pAKT, p53 and Nampt. Acetyl-p53 levels were not consistent across cell

\* Correspondence: michael.wolzt@meduniwien.ac.at Department of Clinical Pharmacology, Medical University of Vienna, 1090 Vienna. Austria types. Cisplatin exerted synergistic effects with salermide in all cell lines and reduced cell viability up to 50%.

#### Conclusions

Salermide-induced apoptosis is cell line-dependent and more effective in slow-proliferating (SKOV-3) and hematologic (Jurkat) cancer cells. The synergism with cisplatin implies a potentiating effect of this sirtuin inhibitor as add-on in clinical cancer therapy.

Published: 5 September 2011

doi:10.1186/1471-2210-11-S2-A49 Cite this article as: Leisser *et al.*: Salermide down-regulates sirtuin proteins to induce human cancer cell apoptosis. *BMC Pharmacology* 2011 11(Suppl 2):A49.

## Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

) BioMed Central

Submit your manuscript at www.biomedcentral.com/submit



© 2011 Leisser et al; licensee BioMed Central Ltd. This is an open access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/2.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.