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7 MG-2477, a new tubulin inhibitor with potent antitumor activity in vitro and in vivo induce autophagy and delayed apoptosis in A549 cells
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MG-2477 is a novel tubulin inhibitor that has been shown to induce autophagy and delay apoptosis in A549 cells. The mechanism of action involves the inhibition of tubulin polymerization, leading to the formation of microtubule-associated protein 1A (MAP1A) aggregates and subsequent autophagy. This process is associated with the activation of the mTOR pathway and the inhibition of the Bcl-2 family proteins, which are known to regulate apoptosis. The results of this study suggest that MG-2477 may be a promising candidate for the treatment of cancer, particularly in those cases where autophagy and apoptosis are dysregulated.

Figure 1: Western blot analysis of MAP1A and Bcl-2 expression in A549 cells treated with MG-2477. The blot shows a significant increase in MAP1A levels and a decrease in Bcl-2 levels in treated cells compared to control.

Figure 2: Flow cytometry analysis of A549 cells treated with MG-2477. The plot shows a significant increase in the number of cells in the late apoptotic stage (Annexin V+ PI+).

Figure 3: Western blot analysis of p-mTOR and mTOR expression in A549 cells treated with MG-2477. The blot shows a significant increase in p-mTOR levels and a decrease in mTOR levels in treated cells compared to control.

9 Characterization of BCL2L12 - a novel pro-apoptotic member of the BCL-2 family
Martin Brandenburg*, Oliver Gessner*, Martina Winkler*, Katharina Schreiber*, Carina Christen*, Lukas J. von Steiner*, Christian Brune*, and Ulrich Meyer*

BCL2L12 is a novel member of the BCL-2 family that has been shown to induce apoptosis in various cell lines. The protein is highly expressed in certain types of cancer, including breast and lung cancer. BCL2L12 is a pro-apoptotic protein that acts as a transcription factor and is involved in the regulation of the cell cycle and DNA damage response. The results of this study suggest that BCL2L12 may be a promising target for the treatment of cancer, particularly in those cases where the BCL-2 family proteins are overexpressed.

Figure 1: Western blot analysis of BCL2L12 expression in various cell lines. The blot shows high levels of BCL2L12 expression in breast and lung cancer cell lines, and low levels in normal cells.

Figure 2: Flow cytometry analysis of BCL2L12 expression in various cell lines. The plot shows high levels of BCL2L12 expression in breast and lung cancer cell lines, and low levels in normal cells.

Figure 3: Western blot analysis of BCL2L12 expression in breast and lung cancer cell lines. The blot shows high levels of BCL2L12 expression in these cell lines, and low levels in normal cells.

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MG-2477, a new tubulin inhibitor with potent antitumor activity *in vitro* and *in vivo* induce autophagy and delayed apoptosis in A549 cells

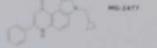
Roberta Bortolozzi¹, Giampietro Viola¹, Maria Grazia Ferlin², Paola Brun¹, Ignazio Castagliuolo¹, Ernest Hamel³, Giuseppe Basso¹.



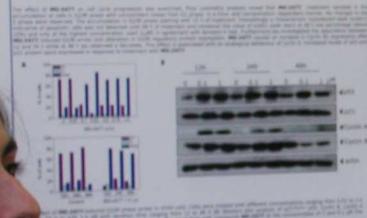
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Introduction

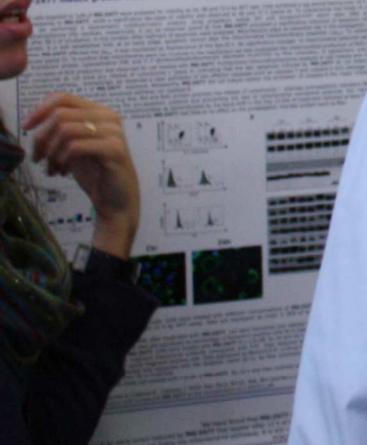
Autophagy is a form of intracellular quality control, which may lead to the degradation of a variety of organelles in a cell. It is a highly conserved pathway involved in the regulation of cell growth and differentiation, and is also involved in the response to various stresses, including nutrient deprivation, hypoxia, and oxidative stress.



MG-2477 induce cell cycle arrest in G2-M phase of the cell cycle



MG-2477 induce growth inhibition and delayed apoptotic response in A549 cells



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Characterization of Bcl2L12 - a novel pro-apoptotic member of the Bcl-2 family

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Abstract

The Bcl-2 family plays a major role in the regulation of the cellular apoptotic response. Bcl2L12 (Bcl-2 like 12) is a novel member of the Bcl-2 family which, like Bcl-2 and Bcl-XL, contains the conserved BH3 and BH2 domains. Its protein sequence is evolutionary conserved but an additional longer form was described in human previously. However, the role of Bcl2L12 in cellular events including apoptosis is unknown. Here we characterize Bcl2L12 as an approximately 34 kDa protein that is induced by cell death generating cells stably expressing shRNA. Interestingly, the reduction of Bcl2L12 protects from caspase dependent cell death. Bcl2L12 knock down cells fail to arrest in M-phase. We observed a phosphorylation of Bcl2L12 in M-phase of the cell cycle.

Domain structure and Bcl2L12 KD cells



Bcl2L12 contains a conserved BH3 and BH2 domain. A longer form of Bcl2L12 was reported previously, however only the short form of Bcl2L12 is conserved in different species.

Bcl2L12 KD protects from caspase dependent and independent cell death.



Bcl2L12 KD cells (2000 cells) were pulse treated with 100 nM of the caspase inhibitor Z-VAD-FMK (10 min) and independent cell death induction was measured.

Bcl2L12 knockdown pattern is similar to Bcl2L12.







47 Lipid rafts and apoptosis of COLO 205 human colorectal adenocarcinoma cells

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