**Topic:**
Cell Physiology

**Title:**

**Melanoma progression is reduced by the ciliated protozoan toxin climacostol: results from *in vitro* and *in vivo* studies**

**Authorship:**

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**Text:**

Melanoma diagnoses have risen sharply over past decades, and despite new lines of therapy have been introduced the need for additional drugs is urgent. Previous findings from our group demonstrated that climacostol, an alkyl resorcinol produced by the ciliated protozoan *Climacostomum virens*, decreases the viability of five different mammalian cancer cell lines, while it was devoid of effects on endothelial cells. In order to expand these data and due to the availability of the synthetic toxin, we have further analysed different tumoral and non-tumoral cell lines, observing that viability of human and rodent tumoral cells was negatively affected by climacostol with higher potency when compared to non-tumoral cells. We then focused on the B16-F10 mouse melanoma cells, where climacostol caused a concentration-dependent reduction of viability with an EC50 of 6.3 μg/ml, and an Emax of 30 μg/ml. Flow cytometry analyses indicated that cell proliferation was effectively inhibited by climacostol, with a significant increase of apoptotic cells.The data collected prompted us to investigate the effects of climacostol on *in vivo* melanoma progression using a B16-F10 allograft transplantation tumor model. The results indicate that climacostol decreased tumour weight and increased the content of apoptotic cells, suggesting that the toxin may be considered for the design of cytotoxic and pro-apoptotic new drugs for melanoma therapy.