

Highly diluted natural complex M-1 inhibits melanoma growth *in vivo*

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Malignant melanoma is a lethal skin melanocytic neoplasm that forms metastasis to distant organs [1]. Inhibition of tumor-related angiogenesis results in decreased nutrient transport subsequently promoting tumor hypoxia [2]. Thus anti-angiogenic strategies offer real potential for future therapeutics. Pre-clinical and clinical studies have described new targets and approaches for identifying significant parameters involved in angiogenesis inhibition [3].

The aim of this study was to assess the *in vivo* antitumor potential of a highly diluted natural complex named M-1. M-1 composition is based on the following natural matrixes in Hahnemann decimal dilutions (dH) [4]: *Aconitum napellus* (20dH), *Arsenicum album* (18dH), *Asa foetida* (20dH), *Calcarea carbonica* (16dH), *Chelidonium majus* (20dH), *Cinnamon* (20dH), *Conium maculatum* (17dH), *Echinacea purpurea* (20dH), *Gelsemium sempervirens* (20dH), *Ipecacuanha* (13dH), *Phosphorus* (20dH), *Rhus toxicodendron* (17dH), *Silicea* (20dH), *Sulphur* (24dH), and *Thuja occidentalis* (19dH).

B16-F10 cells were subcutaneously injected on dorsal flank of C57BL/6 mice. After 24 hours of B16-F10 injection, M-1 treatment was administered for a period of 10 minutes with a modified inhalation chamber [5]. Subsequent treatments occurred twice a day for 14 days. After this treatment period, mice were weighed and euthanized, then solid tumors were removed, weighed and measured (all animals developed melanoma tumors). The tumors were imaged and processed for histopathology by Fontana-Masson staining. Slides were analyzed using an automated slide scanner, Mirax Scan (Carl Zeiss™). Final images were analyzed using Mirax Viewer Software (3DHISTECH™).

Visual inspection of tumors showed an obvious decrease in tumor size (Fig. 1a-b), which was confirmed by wet weight measurement indicating tumor size to be reduced by 38%, whereas mice body weight was unaffected (Fig. 1c). When analyzed by histology, tumor area from M-1 treated mice was decreased, albeit with low significance (Fig. 1d).

In summary, treatment with the highly diluted natural complex M-1 resulted in decrease in tumor size and weight. It is important to notice M-1 *in vivo* anticancer action, but more interesting is the first demonstration of a non-invasive route of therapy for cancer: the inhalation. Despite the promise of these series of experiments, further investigation on M-1 mechanism of action and its biochemical properties is necessary to develop more efficient therapies.

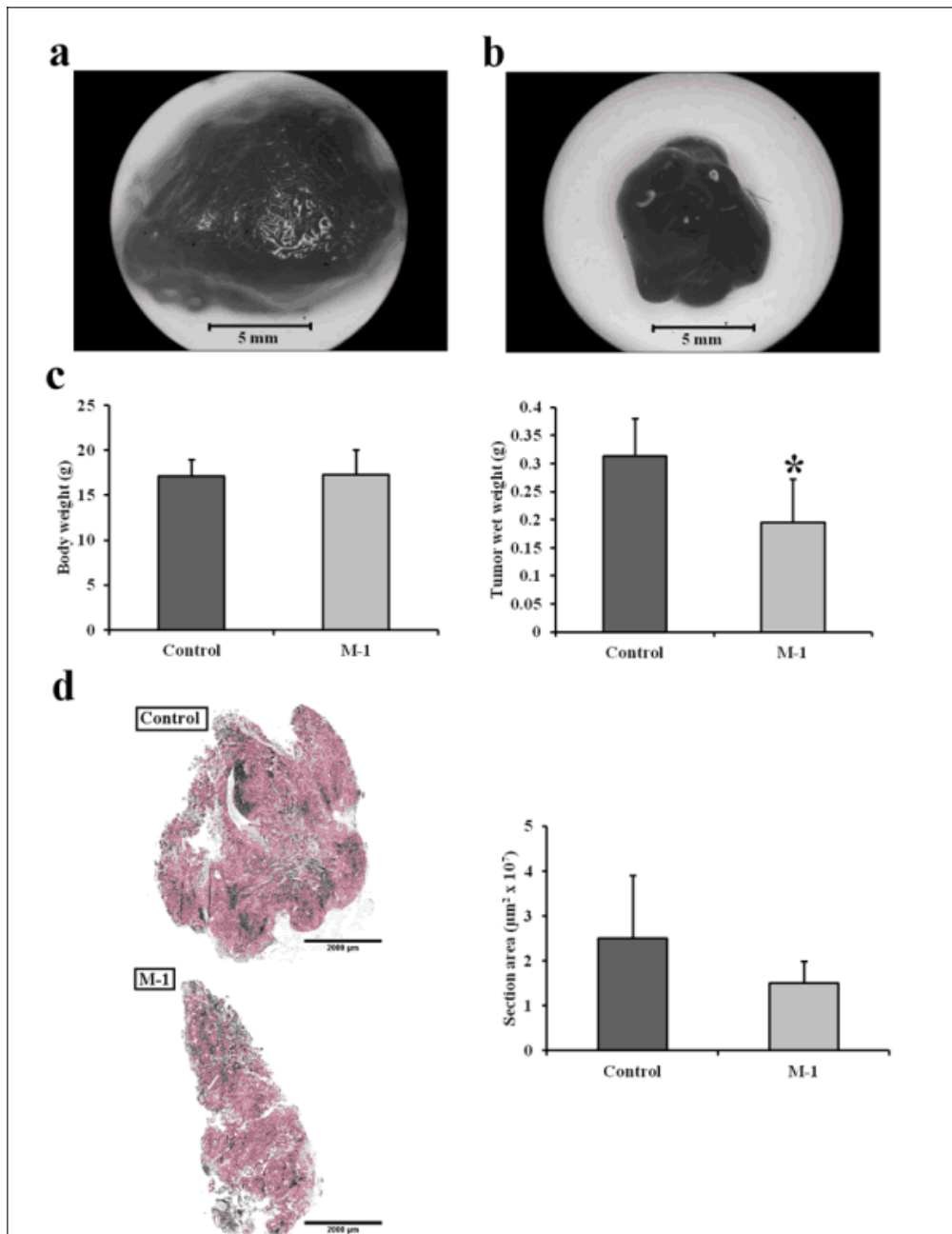


Figure 1. Tumor macro-environment parameters decrease following M-1 treatment. Representative digital imaging of surgically excised melanoma tumors from control (a) and M-1 treated mice (b). (c) Body weight of mice immediately prior to tumor dissection and quantification of tumor wet weight after excision. (d) Representative imaging of tumor area following automated Fontana-Masson staining. Results are expressed as mean \pm S.E.

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