Review of: "Anti-metastasis After Bee Venom and Melittin by Upregulation of BRMS1 and DRG1 Genes, With Downregulation of WNT7B in Breast Cancer Cells"

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Potential competing interests: No potential competing interests to declare.

Title: Exploring the Anti-Metastatic Potential of Bee Venom and Melittin in Breast Cancer Cells: A Comparative Study

Review:

The abstract presents a comprehensive investigation into the potential anti-metastatic effects of bee venom and its major component, melittin, on breast cancer cells, particularly MDA-MB-231. The study sheds light on the expression profiles of both anti-metastatic (BRMS1, DRG1, KAI1/CD82) and pro-metastatic (EGFR, WNT7B) genes after treatment, comparing results with those from normal breast epithelial cells (MCF10A) and conventional chemotherapy (cisplatin).

The identification of the selective cytotoxicity of bee venom and melittin against cancer cells, with higher efficacy compared to cisplatin, is a noteworthy finding. The concentration-dependent effects of melittin, specifically at 0.5 µg/ml and 4 µg/ml, are highlighted, emphasizing the significance of dosage in inducing anti-metastatic functions.

The study uncovers distinct expression patterns of anti-metastatic genes induced by bee venom and melittin, revealing melittin's influence on overexpressing BRMS1 and DRG1, while bee venom induces DRG1 and KAI1/CD82. The downregulation of WNT7B in bee venom-treated breast cancer cells further strengthens the potential anti-metastatic mechanisms.

Overall, the findings suggest that both bee venom and melittin may operate through the upregulation of certain anti-metastatic genes and the downregulation of the pro-metastatic gene WNT7B. This research adds valuable insights to the growing body of evidence supporting the potential of apitherapy, specifically bee venom and melittin, as alternative treatments for metastatic breast cancer. Further exploration and validation of these mechanisms in vivo could pave the way for novel therapeutic strategies in the field of cancer research.