

## Artesunate Attenuates Metastasis in TRAMP Mice by Modulating Inflammatory Pathways

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**Introduction.** Prostate cancer incidence continues to rise worldwide, highlighting the need for effective chemopreventive agents. Artesunate (ART), a semi-synthetic artemisinin derivative, exhibits anticancer and anti-inflammatory properties, but its role in prostate cancer prevention remains underexplored.

**Aims.** To evaluate the effects of ART on prostate tumour initiation, progression and metastasis in the TRAMP mouse model as well to investigate associated molecular mechanisms.

**Methods.** TRAMP mice were assigned to three groups based on age and ART treatment duration. Group 1 (4 weeks old) received ART for 8 weeks to assess Prostatic Intraepithelial Neoplasia (PIN) formation. Group 2 (8 weeks old) received ART for 6 weeks to evaluate progression from PIN to adenocarcinoma. Group 3 (24 weeks old) received ART for 12 weeks to examine tumour growth, metastasis, and survival. Histopathology and cytokine analyses were performed, and serum ART levels were quantified.

**Results.** ART delayed PIN development, inhibited progression to adenocarcinoma, reduced tumour burden and metastasis, and improved survival. ART downregulated oncogenic transcription factors and decreased serum TNF- $\alpha$  and IL-6.

**Discussion.** ART demonstrates strong chemopreventive potential in TRAMP prostate cancer through inhibition of oncogenic and inflammatory pathways.

