

## **A prostate tumor neo-antigen polyionic virus-like particle vaccine shows immunogenicity and efficacy in a mouse model of advanced prostate cancer**

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Background & Methods: Vaccine-based strategies for prostate cancer immunotherapy to date have shown modest efficacy. Modified polyionic virus-like particle (VLP) vaccines can rapidly be generated by decorating the particles with peptides or full length proteins. VLP-based vaccines have significant advantages over conventional peptide or DNA-based vaccines. The goal of this project was to generate VLP vaccines using modified bovine papilloma virus decorated with prostate specific antigens and neo-antigens and test immunogenicity and efficacy of these vaccines in TRAMP mice.

Results: VLP vaccines with peptide fragments of mouse PAP, PSCA, and the neo-antigen SPAS-1 generated strong and durable CD8+ T cell responses in wild type and TRAMP mice. Treatment of 20-week-old TRAMP mice with advanced prostate cancer by vaccination alone or by vaccination plus PD-1 immunotherapy induced a significant anti-tumor response with smaller tumor sizes than either therapy alone at 26 weeks of age.

Conclusions: These results indicate combination therapy with VLP vaccine and checkpoint inhibitors could improve clinical efficacy of prostate cancer immunotherapy.

Conflicts of Interest: None

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