

## 2. NON-TECHNICAL ABSTRACT

There is no effective treatment for men with metastatic prostate cancer once the tumor stops responding to hormonal therapy. The ability to treat cancer with vaccines depends on the activity of T-cells, which can be generated by exposure to poxviruses. The T-cells require two signals to become fully activated. One signal comes from tumor proteins, called antigens, such as the prostate-specific antigen or PSA. The other signal comes from a special activating protein, called a co-stimulatory molecule. There are many co-stimulatory molecules that have been discovered and can be used to help activate T-cells. Vaccinia virus is the virus that was used to prevent smallpox and has been engineered to express PSA and three co-stimulatory molecules (called B7.1, ICAM-1, and LFA-3). In addition, fowlpox virus, which is related to vaccinia but does not cause disease in humans, was engineered to express PSA and the same three co-stimulatory molecules. Early animal studies and some human clinical trials have suggested that the use of two different vaccines are better than using a single vaccine. The goal of this study is to determine if using these two vaccines is safe and if this combination can stimulate T-cells to fight PSA and prostate tumor cells.