

## THERAPEUTIC ANTITUMOR COMBINATION CONTAINING TLR4 AGONIST HMGN1 SUMMARY (1024-CHARACTER LIMIT)

Researchers at the National Cancer Institute (NCI) have developed a combination of immunoadjuvants and immune checkpoint inhibitors to stimulate an immune response against cancer. The combination therapy has been tested in xenograft models and shown successful for both treatment of an existing tumor and resistance to re-challenge. Researchers at the NCI seek licensing and/or co-development research collaborations for this invention.

### NIH REFERENCE NUMBER

E-069-2016

### PRODUCT TYPE

- Therapeutics

### KEYWORDS

- TLR4, TLR7/8, Alarmin, HMGN1, Checkpoint Inhibitor, CTLA-4, Immunooncology, Oppenheim

### COLLABORATION OPPORTUNITY

This invention is available for licensing and co-development.

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### STATUS

Active

### DESCRIPTION OF TECHNOLOGY

Immune checkpoint inhibitors (e.g. CTLA-4, PD-L1) have recently shown significant promise in the treatment of cancer. However, when used alone, these checkpoint inhibitors are limited by the absence or repression of immune cells within the targeted cancer. For those cancers associated with these limited immune systems, there remains a need for effective therapies. Agents capable of recruiting and activating immune cells to these types of cancers could extend the overall and complete response rates of combination therapies within the immunooncology domain.

Researchers at the National Cancer Institute (NCI) have developed a combination therapy capable of

recruiting and activating immune cells for the treatment of cancer. This therapy incorporates, HMGN1, an alarmin, which recruits immune cells using its chemotactic-induction capabilities, and activates dendritic cell maturation via its TLR4 agonism. The combination of HMGN1 with TLR7/8 agonism and immune-checkpoint inhibition has been tested in xenograft models. In those models, mice bearing ~1cm tumors were successfully treated and resistant to re-challenge. Development of this combination continues and is available for in-licensing and co-development.

## POTENTIAL COMMERCIAL APPLICATIONS

- Treatment of solid tumors

## COMPETITIVE ADVANTAGES

- Superior to TLR7/8 agonism and/or checkpoint inhibitors alone
- No need for the exogenous inclusion of tumor-associated antigen

## INVENTOR(S)

[Joost Oppenheim M.D. \(NCI\)](#), [De Yang M.D., Ph.D. \(NCI\)](#)

## DEVELOPMENT STAGE

- Pre-clinical (in vivo)

## PUBLICATIONS

Nie Y, et al. Development of a Curative Therapeutic Vaccine (TheraVac) for the Treatment of Large Established Tumors. [[PMID 29079801](#)]

Han Z, et al. Therapeutic vaccine to cure large mouse hepatocellular carcinomas. [[PMID 28881713](#)]

## PATENT STATUS

- **U.S. Patent Filed:** U.S. Patent Application Number 62/355,134 , Filed 27 Jun 2016

## RELATED TECHNOLOGIES

- [E-185-2008 - Polypeptides for Stimulation of Immune Response \(Adjuvants\)](#)
- [E-269-2016](#)

## THERAPEUTIC AREA

- Cancer/Neoplasm