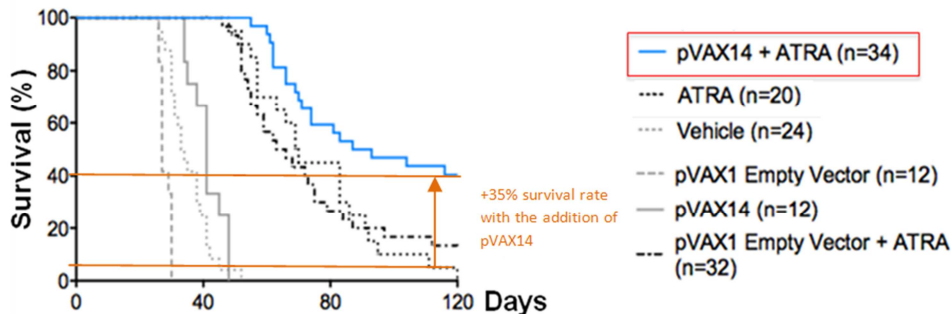


## TECHNOLOGY OFFER

### DNA-based immunotherapy for cancer treatments and prevention of relapse



A non-specific active immunotherapy, pVAX14 in combination with an inducer of tumor cell apoptosis (ATRA all-trans retinoic acid), prolongs survival in the AML3 model (acute myeloid leukemia) © Christine Chomienne, Rose-Ann Padua<sup>1</sup>

**PROBLEM** In some cancers, no treatment provides prolonged complete remission, while in others, where complete remission is achieved, no treatment eliminates the risk of relapse.

**SOLUTION** The development of an active DNA-based immunotherapy to be administered in combination with an immunomodulator inducing tumor cell apoptosis. **This approach is a non-specific immunotherapy, which increases immune response to boost therapy in both hematological cancers and solid tumors (patented).**

The product brings together a novel plasmid DNA encoding a particular DNA adjuvant sequence (pVAX14) and a non-immunosuppressive inducer of tumor cell apoptosis such as ATRA (All-trans Retinoic Acid-Vesanoïd) as an enhancer of immune responses used today in AML and others cancers (breast, lung, skin, kidney). As a delivery system, the plasmid can be injected via intradermal or intramuscular routes with synthetic nanospheres (tested) or electroporation. The product is intended to be used as an add-on therapy to existing therapeutics inducing tumor cell apoptosis (such as azacitidine or ATRA depending on the indications) ensuring a better and longer response to treatment by boosting immune responses. The innovative step is the synergistic effect of the combination of the pVAX14 insert and an immunomodulator. In vivo efficacy has been established in 4 different mouse models: AML3 (acute myelogenous leukemia type M3), MDS as well as breast cancer and colon cancer. It can therefore be assumed that this approach can be investigated in other liquid and solid cancers.

#### Competitive advantages

- Improve treatment for any type of cancer (POC on liquid and solid tumors)
- Intradermal or intramuscular administration
- Where specific antigens are known, these sequences may be cloned into the pVAX14 vector
- Boost antitumor response in cancer patients

#### Applications

- Add-on therapeutic (liquid & solid tumors)
- Preventing relapse and control of minimal residual diseases

#### Development Stage and Intellectual Property

- International patent applications: WO03090778, filed on 26/04/2002, and WO2010109016 filed on 27/03/2009
- Development stage: POC *in vivo* (AML, MDS, colon & breast cancers), some GLP Tox data
- Remaining development: End of GLP tox, GMP batch for clinical development

#### Contact

SATT idfinnov  
Email: [contact@idfinnov.com](mailto:contact@idfinnov.com)  
Tel.: +33 (0)1 44 23 21 50

<sup>1</sup> Relevant publication: Padua *et al.* Nature Med 2003, PMID:14566333