

AmVac boosts its vaccine technologies

Germany is a strong exporter, and the fruits of its research work are no exception: the Swiss vaccine company AmVac has just acquired a couple of licences to technologies developed in two of the country's renowned research institutes.

A prototype vaccine and adjuvants. The first agreement (signed with Max Planck Innovation GmbH, the Max Planck Institutes' technology transfer company) will enable AmVac to use a new vaccination technology based on a modified Sendai virus (an RNA virus from the paramyxovirus family and which is not infectious in humans). The prototype vaccine (developed by the Max Planck Institute of Biochemistry in Martinsried/Munich) is capable of activating the full spectrum of immune responses. It can be adapted to induce the expression of a variety of antigens and thus be used in the development of vaccines against many different diseases. The initial prototype follow-on work will focus on an inhaled respiratory syncytial virus vaccine. In addition, AmVac is due to set up an R&D subsidiary in Munich, which will be responsible for validating and developing the prototype-derived technology platform.

The second agreement is on vaccine adjuvants and covers the use of the synthetic lipopeptide MALP-2 (*Macrophage Activating Lipopeptide 2 kDa*) and its derivatives. MALP-2 has been developed by the Helmholtz Centre for Infection Research (*Helmholtz-Zentrum für Infektionsforschung*, HZI) from *Mycoplasma fermentans* and has demonstrated its ability to boost the immune response when administered with both subcutaneous and inhaled vaccines. Work at the HZI has notably shown that MALP-2 helps trigger and activate the maturation of one type of antigen presenting cell - dendritic cells. This adjuvant could be used in a broad range of vaccine indications (from respiratory infections to Chagas' disease and AIDS). The licensing agreement grants AmVac exclusive rights for use of MALP-2 as a vaccine adjuvant for all infectious diseases and a number of gynaecological and urological indications (the Swiss company's core therapeutic area). Integration of these new technologies into AmVac's platform will be managed by the new COO Wolfgang Schmidt, formerly a research contract manager at Sanofi-Aventis in Frankfurt.

Research exploitation and equity investment. In addition to reinforcement of AmVac's technological potential, these two agreements highlight a novel exploitation model. In both cases, the agreement has the usual structure, with upfront payments, milestones and royalties on future sales for the research institutes in exchange for the grant of exclusive

rights to AmVac for development and marketing of the fruits of the collaboration. However, the two German licensors (i.e. Max Planck Innovation GmbH and Ascenion) have also made equity investments in the licensee, AmVac. The Ascenion consultancy and intellectual property management firm works for for a dozen or so German research institutes and already holds shares in as many spin-offs.

Products

MALP-2 – adjuvants and more too...

Whereas the agreement between HZI and AmVac is restricted to the sole use of MALP-2 in the adjuvant field (see above), the lipopeptide's potential applications extend well outside the vaccination area. Work at the HZI has revealed its potential use for wound healing, cancer immunotherapy and septic shock prophylaxis. In a mouse model of obesity and diabetes (two conditions characterized by slow or even no wound healing), the lipopeptide has demonstrated its ability to accelerate this latter process. A phase I clinical trial has just completed; the data are now being analysed and will be published in the near future. Concerning MALP-2's applications in cancer immunotherapy, administration of the lipopeptide increases survival time in a mouse model of pancreatic cancer. In this case, a preliminary phase I/II study involved the administration of a combination of MALP-2 and gemcitabine to ten pancreatic cancer patients; the results published in September showed a significant increase in patient survival time **(1)**. Hence, the mean survival time increased by 9.3 months to a value of 17.1 ± 4.2 months, and two patients survived for 31 months. No new studies have been since launched but Ascenion has stated that it is looking for partners for new trials and that discussions are also underway with a view to outlicensing MALP-2 for application in these various fields.

(1) Br J Cancer. 2007 Sep 3;97(5):598-604.