

Technology Offer

Modified Vaccinia Ankara Virus for Immunotherapy of Her-2/neu positive Cancers

Reference Number
TO 01-00277

The Challenge

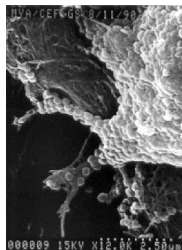
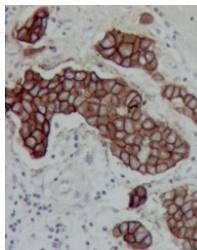
Her-2/neu over-expressing mamma carcinomas are susceptible for therapy with the therapeutic antibody trastuzumab ('Herceptin') targeting the Her-2/neu receptor. Besides flu-like symptoms (in 40% of patients), Herceptin may have severe side effects such as low white or red blood cell counts, diarrhea, and infections when administered in combination with chemotherapy. Less commonly, Herceptin alone causes mild heart failure, stroke or life-threatening congestive heart failure (5%).

The cost of such treatment is very high; for therapy of a single patient as much as 3000 EURO must be spent per month. Combination with chemotherapy (e.g. Paclitaxel) doubles the costs.

Therefore, a safer and inexpensive application of the Her-2/neu strategy would be of high value.

The Technology

The invention discloses a tumour vaccine for immunotherapy of Her-2/neu over-expressing tumours. The Her-2/neu gene was inserted in the Modified Vaccinia Ankara strain F6 (MVA F6). MVA F6 is a plaque purified derivative of Anton Mayr's small pox vaccine MVA 572. The Her-2/neu sequence was inserted in the deletion III of MVA. As shown in mice models, immunisation with



MVA expressing Her-2/neu induces a strong humoral (antibody), as well as a strong cellular (T killer cell) response to Her-2/neu. Such response targets both, intra-cellular and extra-cellular parts of the Her-2/neu protein. So far, clinical data in human patients have not been collected

Left: Immunostaining of Her-2/neu antigen in human breast cancer.

Source: Laboratory of Cancer Biology, Tampere University, Finland

Right: MVA F6 budding from chicken embryonic fibroblasts. Source: GSF, Munich

Commercial Opportunity

MVA Her-2/neu has potential as a safe and efficient tumour vaccine for the therapy of Her-2/neu over expressing tumours.

Patent situation

A German patent application and a European patent application have been filed. Additional protection outside the European Patent Convention territory can not be obtained.

Further Reading

EP 1 188 834 A1

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