**Press release**
140602

# Immunicum announces INTUVAX phase I/II data at ASCO 2014

**Immunicum AB (publ), a biopharmaceutical company developing therapeutic cancer vaccines, today announced that phase I/II data has been presented during a general poster session at the American Society of Clinical Oncology (ASCO) 2014 annual meeting on the Company's clinical candidate, INTUVAX, in patients with metastasized renal cell carcinoma (mRCC).**

In addition to demonstrating a favorable safety profile, INTUVAX, as a single agent, has shown clear signs of tumor specific immune activation and encouraging survival data for patients with poor prognosis. Furthermore, preliminary data indicate a synergistic effect between INTUVAX and subsequent treatment with tyrosine kinase inhibitors (TKIs).

- We are very encouraged by the phase I/II results and the highly positive feedback we received at the ASCO conference. Although the patient population is limited, the data we have obtained indicate that INTUVAX induces a tumor-specific immunity, which appears to inhibit the growth rate of tumor metastases and thus prolong survival. We are also very happy to see that preliminary data indicate that subsequent treatment with TKIs may accentuate the antitumour effect in a synergistic manner. This synergy may well be due to some TKIs', particularly sunitinib's, ability to "open up " the tumor for vaccine-induced cytotoxic T cells via a well-documented mechanism that down-regulates the tumor tissue's immunosuppressive environment, says Immunicum's Chief Scientific Officer, Alex Karlsson-Parra.

- - The results just seems to get better and better as data matures. Besides that we have not yet reached median survival for patients with poor prognosis and that eight patients are still alive, two patients have for instance, without any add-on therapy, exhibited a late ongoing clinical response after initial slow progress. This is consistent with the theory that the immune system may sometimes need time to build an effective anti-tumor response. We now look forward to continue to evaluate the clinical efficacy of INTUVAX in a fully funded phase II study in patients with metastatic renal cell cancer, says Immunicum's CEO, Jamal El-Mosleh.

**Presentation details are as follows:**

All 12 patients were included in the evaluation of immunological and safety parameters. However, one patient was not included in evaluation of clinical efficacy as he had 2 concomitant cancers (myeloma and RCC) and not RCC with metastases.

INTUVAX (5-20 million vaccine cells) was injected intratumorally twice with 2 weeks interval before nephrectomy.

- The safety profile was excellent. Adverse events with potential relationship to vaccination mainly consisted of short time fever (5 patients). No clinical or laboratory signs of autoimmunity were observed in any patient.

- Nine out of 11 evaluated patients exhibited an increased number of tumor-specific and IFN-gamma producing lymphocytes (ELISPOT-assay including addition of autologous tumor material) when comparing pre-values with values obtained 1 week after the second vaccination.

- A massive infiltration of CD8+ T cells was found in 5 out of 12 removed kidney tumors which, to the best of Immunicum's knowledge, is the most intensive and general intratumoral infiltration of CD8+ T cells ever reported in any human solid tumor. An additional two patients also showed a strong intratumoral infiltration of CD8+ T cells.

- No initial objective tumor regression (according to so-called RECIST-criteria) was observed in any patient. However, three of the four patients who have so far received subsequent therapy with TKIs (3, 4, 9, and 17 months after vaccination), show an ongoing partial tumor regression. One of these responding patients (Heng/MSKCC poor prognosis) exhibited an extensive sarcomatoid transformation of the resected primary tumor. Notably, another responding patient with MSKCC poor prognosis, and who developed 4 brain metastases 4 months after INTUVAX treatment, has responded with a complete disappearance of two lesions and prominent shrinkage (>60 %) of the other two lesions 6 months after initiation of sunitinib treatment. These two cases of objective response upon subsequent sunitinib treatment is surprising since recent data indicate that brain metastases as well as RCC with extensive sarcomatoid transformation are highly resistant to sunitinib.

- Two patients exhibiting a late ongoing clinical response without add-on therapy, despite initial slow progress. One patient exhibits an ongoing stable disease for more than 6 months after previous slow tumor progression for 15 months. Remarkably, yet another patient exhibited an ongoing late objective partial (>40 %) tumor regression, without add-on therapy with TKIs that started after 16 months of very slow progression.

- One year survival rate for the whole study group is currently at 63 % (8 of 11 patients up for efficacy evaluation are still alive) which is comparable with historical data for newly diagnosed poor + intermediate prognosis patients on sunitinib or sunitinib + autologous DC-based cancer vaccination.

- Median overall survival (mOS) for the whole patient population, or for different prognosis groups (poor and intermediate), is still not reached but has currently already surpassed recently reported mOS for newly diagnosed mRCC patients with MSKCC poor prognosis receiving upfront sunitinib before nephrectomy or newly diagnosed mRCC patients with Heng poor prognosis receiving an autologous DC-based cancer vaccine + sunitinib (12.7 vs 9.0 and 13.4 vs 9.1 months, respectively).

- Median OS (from diagnosis) for the patient group with poor prognosis (Heng criteria) and concomitant extensive sarcomatoid differentiation (n=3, one received sunitinib 3 months after vaccination) was 7.5 months, which compares favorably with recent published data on mOS (from diagnosis), which was 3.0 months in this subgroup with very poor prognosis.

- No clear-cut correlation between the numbers of injected vaccine cells, degree of HLA-incompatibility between vaccine cells and patient tissue or intratumoral infiltration of CD8+ T cells and OS has been observed. However in patients with sarcomatoid differentiation (n=6) a tendency to prolonged survival is found in those with massive intratumoral infiltration of CD8+ T cells; OS for 2 patients with moderate CD8+ T cell infiltration was 3.8 and 7.5 months respectively and OS for 4 patients with massive infiltration was 7.0 months for one patient, while 3 patients are still alive at 10.0, 14.2 and 21 months after diagnosis.

**Conclusions**

Immunicum's findings indicate that intratumoral injection of pre-activated allogeneic DCs is safe and induces a systemic CTL-mediated anti-tumor response that may prolong survival in mRCC-patients. Moreover, data on patients who have received additional treatment with TKIs indicate a synergistic effect between intratumoral INTUVAX-vaccination and subsequent treatment with TKIs. A fully financed phase II-study is currently in the final phase of planning.

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**About Immunicum AB (publ):**

Immunicum AB (publ) develops cancer immunotherapies. Its two main groups of therapeutic cancer vaccines, SUBCUVAX® and INTUVAX®, and the method of expansion of tumor-specific T-cells (CD70) is based on the Nobel prize awarded discovery of the dendritic cell and its central role in the activation of the specific immune response. Since the raw material consists of allogeneic dendritic cells, Immunicum's products can be produced in large scale. The vaccines are now undergoing clinical trials in renal cell carcinoma and hepatocellular carcinoma.

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