Immunotherapy for the prevention and treatment of osseous metastasis (Ramot)

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Dafna Benayahu, T.A.U Tel Aviv University, Medicine-Sackler Faculty, Cell and Developmental Biology

Technology

SVEP1 is a novel cell adhesion protein. Its expression is primarily associated with bone cells but is also expressed by breast carcinoma cells. Anti-SVEP1 antibodies block cell adhesion in in vitro matrix. Prevention of cell adhesion by anti-SVEP1 antibodies will:

- Interfere with cancer cell homing to the bone
- Inhibit the metastasis process
- Lead to apoptosis of cancer cells

Bone metastases are recognized as a common complication in cancer patients that cause intractable pain and other clinical problems. Bone metastesis lead to fractures, spinal cord compression and hypercalcemia. Once tumor cells are established in the skeleton, cure is no longer possible and only palliative therapy is available. There is a clear need for a new therapeutics to prevent the establishment of secondary bone metastases in cancer.

Potential Applications

- Therapeutic target for prevention of metastases from breast cancer
- Diagnostic marker for bone metastases
- Research tool for understanding cancer development and metastasis

Data-to-date

Target Validation: SVEP1 is expressed in vitro by various breast carcinoma cells lines

Transplanted breast carcinoma cells form tumors that express SVEP1

Anti-SVEP1 antibodies have been developed and were shown to interfere with cell adhesion in vitro

Anti- SVEP1 antibodies reduce by over 40% the homing of G2 and HL-60 cells to bone marrow in vivo

Patent

US 7,919,602

Pending US Div. application (2005)

Contact for more information:

Amichai Bar On ✉, VP BD LS,

Ramot at Tel Aviv University Ltd. P.O. Box 39296, Tel Aviv 61392 ISRAEL
Phone: +972-3-6406608

Fax: +972-3-6406675