PACE 4: A New inhibitor And a Therapeutic Target For Prostate Cancer

Background
Prostate cancer is the most common type of cancer in men. In fact, one in eight Canadians will be diagnosed with prostate cancer. Although the survival rate of men is high when diagnosed early, many patients with prostate cancer will develop resistance to currently available treatments, resulting in a deterioration of their health. Thus, a new approach to cure this type of cancer must be considered.

Description
The proposed solution for this problem consists of new pro-protein convertase inhibitors blocking tumor progression by neutralizing the enzyme PACE4. This revolutionary new approach specifically targets PACE4 in the proliferative pathway of prostate cancer cells. Targeting PACE4 results in a synergistic anti-tumor action: blocking of the cell cycle resulting in cell dormancy; blocking angiogenesis, and also triggering self-destruction of cancer cells.

Possible Applications
- Therapeutic treatment for prostate cancer.
- Inhibitors are also effective on breast and ovarian cancer cells.
- For diagnostics, possibility of using this approach as a tumor marker in various type of cancers (prostate, ovary, breast, lung, pancreas, thyroid, testis and bladder).

Business Advantages of this solution
- In vitro, ex vivo and in vivo results have clearly established that PACE4 is a therapeutic target for prostate cancer.
- Inhibition of PACE4 has very powerful effects on the proliferation of cancer cells, even when they become resistant to antiandrogen treatment.
- Higher survival rates are expected.

Intellectual Property Status
Three patent families are related to PACE4 technologies:
MULTI-LEU PEPTIDES AND ANALOGUES THEREOF AS SELECTIVE PACE4 INHIBITORS AND EFFECTIVE ANTIPROLIFERATIVE AGENTS
- CA 2,727,574
- EP 2303910
- US 8658591
- US (Div) 9573974
STABLE PEPTIDE-BASED PACE4 INHIBITORS
- CA: 2846287
- EP: 2751141
- US: 9,809,621
SPLICED FORMS OF PACE4 FOR CANCER DIAGNOSTIC
- US (Provisional) 62/565276

Main Inventor Contact
Professor Robert Day, Ph. D.
Robert.Day@USherbrooke.ca
819 821-8000 ext. 75428
Demonstration: PACE4 levels are significantly increased in prostate cancer. (A) PACE4 mRNA levels in prostate tissue obtained from patients following prostate removal surgery. PACE4 mRNA levels correlate with the level of disease severity. ANCT: Non-cancerous adjacent tissues, Gleason 6-9 indicates the degree of severity. A higher Gleason indicates a more aggressive cancer and an unfavourable prognosis. (B) Immunohistochemistry (IHC) of PACE4 protein in prostate cancer vs. normal tissues.