

27 February 2014

ASX ANNOUNCEMENT

ACTINOGEN SIGNS RESEARCH SERVICE AGREEMENT WITH CURTIN UNIVERSITY TO WORK ON CANCER STEM CELLS

The Board of Actinogen Limited (ASX: ACW), a biotechnology company, is pleased to announce that the company has signed a research service agreement to conduct further studies on cancer stem cells project.

One of Actinogen's lead therapeutic programs is focused on discovering and developing drugs to treat brain cancer and potentially other oncology diseases by the targeted killing of cancer stem cells (CSCs).

Cancer stem cells have been reported in many human tumours and are classified as a highly tumorigenic subpopulation that drives tumour formation, proliferation and metastasis. CSCs share a variety of biological properties with normal stem cells such as capacity for self-renewal and propagation of differentiated progeny. However, CSCs differ from normal stem cells in their inherent resistance mechanisms against radiation- and chemotherapy-induced cancer cell death, enabling them to survive and initiate tumour recurrence. Despite their potential clinical importance, the regulation of CSCs at the molecular level is not well-understood and no drugs specifically targeting CSCs have been developed to date. However, recent research in brain tumours has identified a CD133⁺ cell population as a cancer stem cell population, giving the way to some targeted therapeutic approaches.

In its previous experiments Actinogen have tested a total of 11 actinomycetes' supernatants against U87MG and U125MG neurospheres (free floating clusters rich in stem cells). The results have demonstrated that two isolates killed the whole cell population (ACN 5059 and ACN 5086). Cells which had died due to supernatant treatment had a high percentage of CD133⁺ cells, and thus actinomycete isolates ACN 5059 and ACN 5086 can be assumed to target CD133⁺ cells.

In its future experiments, Actinogen and Curtin University will examine the effect of actinomycete isolates on cell viability in four different GBM (glioblastoma multiforme, a type of brain tumour) cell lines (U138, U87, A172 and LN18) using additional new techniques and assays. To confirm the activity is specific against cancer stem cells, the cells will be grown in conditions that provide for the development of sphere formation. Identification of CSCs within these cultures will be based upon the presence of the cell surface markers CD133 and CD44. The isolates will be then tested on their ability to induce cell death in cultures enriched with CD133 and CD44 positive cells.

The experimental work will be conducted in the laboratory of Professor Arun Dharmarajan using methodology established in his research group. Professor Dharmarajan is among world leading scientists in the area of cancer stem cell research and is a discoverer of secreted frizzled-related protein 4 (sFRP4) that was recently shown to inhibit cancer stem cells proliferation in several tumours including brain (Warrier et al (2014), *Oncology Research*, 21(2), 93-102).

“We are delighted to work on this important project with Australian lead scientists at Curtin University. Ability to identify a compound that destroys cancer stem cells and thus prevents tumour regeneration could be a significant step forward in discovering new and more effective cancer therapeutics” said Dr Brendan de Kauwe, an Executive Director of Actinogen. “The Company is very pleased to have another of its key projects underway and will keep shareholders updated as the trials progress.”

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Dr Brendan de Kauwe
Executive Director
Actinogen Limited

About Actinogen Limited
Actinogen Limited (ASX: ACW)

Actinogen is dedicated to the discovery and isolation of a group of environmental bacteria known as the Actinomycetes. Actinomycetes have been shown to be able to use a wide range of unusual nutritional resources and often produce bioactive molecules as a by-product that have been proven to be useful to man; including well known commercial examples such as bacterial antibiotics, anti fungal agents, anticancer agents and a variety of other chemicals that are used in the control of physiological and physical processes.

In addition, there are examples of Actinomycetes that can degrade industrial wastes such as oils, tar, domestic and industrial waste, and the rehabilitation of oil spills. Actinogen has proven high-level expertise in the discovery and isolation of Actinomycetes from WA soils and in the detection of bioactive molecules they produce. During 2011, Actinogen began a bio-ethanol research program, which has had very encouraging results and to date is a focal project for the company. The Company’s strategy is to collaborate with groups nationally and internationally who are active in the development of technology that is synergistic with or that could utilise the Company’s current Actinomycetes research projects and exclusive intellectual property.