

LICENSING OPPORTUNITIES

with Ulster University



Novel G-Protein Coupled Receptor Therapeutic Target and Related Agonists for Treatment of Type 2 Diabetes

Ulster University is looking for partners to progress an exciting new technology.

Biomedical Sciences researchers have identified a G- Protein Coupled Receptor 84 (GPR84) in the pancreas and have demonstrated a key role of GPR84 in islet function. The research has uncovered a novel therapeutic target for use in treatment of metabolic disease.



THE PROBLEM

Diabetes is a major public health challenge, expected to affect 592 million people by 2035. This alarming increase in incidence coupled with the failure of established anti-diabetic drugs to manage or control diabetes demonstrates the market need for new innovations.

THE TECHNOLOGY

Ulster researchers have validated a new islet target, GPR84 for improved diabetes treatment and care. These studies have identified the involvement of GPR84 in regulating hormone secretion and β -cell mass; and determined the role of GPR84 in the regulation of insulin secretion using small molecule agonists in in vitro and in vivo studies using diabetic animal models.

Results to date have demonstrated the following:

- Identified GPR84 receptor expression on pancreatic beta and alpha cells, and GLP-1 secreting and GIP-secreting cells.



- GPR84 agonists increased GIP and GLP-1 secretion from GIP and GLP-1 secreting cell lines and triggered a dose-dependent rise in $[Ca^{2+}]_i$
- Activation of GPR84 agonists promotes intracellular calcium mobilisation, increases cAMP and phosphorylation of mitogen-activated protein kinases (MAPK) ERK1/2, pathways critical for the regulation of cell survival, proliferation and growth.
- GPR84 agonists (DIM and Embelin) exhibited enhanced anti-hyperglycaemic activity, increased insulin and reduced glucagon release in acute studies in diet induced animal models of diabetes.
- Following long-term in vivo administration in high fat fed animals, GPR84 agonists reduced body weight by 15% in 21 days, significantly decreased plasma glucose, and increased insulin secretion.
- GPR84 agonists displayed anti-hyperlipidaemia activity (decrease in body fat by 27% and decrease in total and LDL cholesterol by 30%).
- GPR84 agonists increased GLP-1 secretion by 61% indicating GPR84 activation involves modulation of GLP-1 release.
- Treatment with GPR84 based therapies restores pancreatic islet architecture in high fat fed-induced diabetic mice by enhancing beta cell proliferation and beta cell mass.

THE OPPORTUNITY

Further long-term studies using GPR84 agonists and combination therapies in diabetic models are required to assess the scientific basis, therapeutic usefulness and extra-pancreatic actions of this promising class of anti-diabetic agents.

We can offer you **exclusive licensing** to enhance your existing intellectual property pipeline and ensure competitive positioning of this emerging technology. In addition, Ulster University experts along with the inventors of this technology are available to assist in its successful commercialisation.

If you would like to collaborate with us and progress this technology, please get in touch using the contact details below.

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