

New research offers alternative to daily injections for diabetics

January 16 2014



A new study from researchers in our Department of Pharmacy & Pharmacology proposes an exciting alternative treatment for people with diabetes.

(Medical Xpress)—The impact of latest research from our Department of Pharmacy & Pharmacology could make frequent insulin injections for sufferers of Type 2 diabetes a thing of the past.

While one of the major challenges facing anyone with the condition is the need for frequent, self-administered, injections, this new research proposes an alternative treatment which could be taken in the form of a pill.

The study 'Unsaturated glycosceramides as molecular carriers for mucosal drug delivery of GLP-1', published recently in *The Journal of Controlled Release: Official Journal of the Controlled Release Society*, is a collaborative project between the University of Bath's Department of

Pharmacy & Pharmacology and researchers at Harvard Medical School.

It reveals that by chemically combining a form of the naturally occurring hormone 'glucagon-like-peptide-1' (GLP-1) with a specific native lipid (known as GM1), the combined material is now capable of passing through the surface cells of the intestine to enter the body as though it had been injected. This could herald a major breakthrough in diabetes treatment by providing patients with an alternative to frequent injections.

Professor Randy Mersny from our Department of Pharmacy & Pharmacology said: "We are excited about these findings showing the feasibility of this novel approach. We plan to optimise the construction of these molecules and prepare pills that can be tested in models of intestinal absorption.

Obesity is a risk factor for Type 2 diabetes and GLP-1 injection therapy has been shown to not only help regulate blood sugar but also induce weight loss. Thus, our work may have far reaching implications in treating the global challenge of metabolic disease associated with obesity through this easier administration method.

While the application of this finding will likely take 5-8 years to reach patients, this promising first step is essential to start the path of studies required to start this development process."

Worldwide 347 million people have diabetes, of which Type 2 diabetes accounts for approximately 90 per cent of diagnoses. By 2030, the World Health Organisation projects that diabetes will be the 7th leading cause of death. More than 80 per cent of diabetes deaths occur in low and middle-income countries. Researchers suggest that simple lifestyle changes have been shown to be effective in preventing or delaying the onset of Type 2 [diabetes](#).

More information: "Unsaturated glycosceramides as molecular carriers for mucosal drug delivery of GLP-1." Te Welscher YM, Chinnapen DJ, Kaoutzani L, Mrsny RJ, Lencer W. *J Control Release*. 2013 Dec 23;175C:72-78. [DOI: 10.1016/j.jconrel.2013.12.013](https://doi.org/10.1016/j.jconrel.2013.12.013).

Provided by University of Bath

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