

# One step closer to curing diabetes

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Injecting insulin could become a thing of the past for diabetics. Credit: Andrea Rico (via Flickr)

A human cell line genetically engineered to produce, store and release insulin in response to blood sugar levels in the human body could eliminate the need for daily injections for insulin-reliant diabetics.

Developed by UTS's Professor Ann Simpson and her team at the UTS Centre for Health Technologies, these insulin producing "Melligen" [cells](#) show promise as a possible cure for type 1 [diabetes](#). This month, the team secured US [patent protection](#) for the cell line from the US Patent and Trademark Office.

"My team and I are extremely pleased that the US [patent](#) for the Melligen cells has been granted," says Simpson. "This takes us a step closer to releasing diabetics from the need to inject insulin daily and, more importantly, protecting them from the debilitating complications of the disease such as blindness, kidney failure and cardiovascular problems."

The group is now working with US clinical stage biotechnology company PharmaCyte Biotech to commercialise the research.

PharmaCyte specialises in the development of targeted treatments for cancer and diabetes using its signature live cell encapsulation technology. This technology, known as Cell-in-a-Box, is a key process in the commercialisation of the Melligen cell as a revolutionary treatment.

"This is a culmination of many years' work by our group and we look forward to working with PharmaCyte's Diabetes Consortium to utilise the Cell-in-a-Box technology to encapsulate the cells for preclinical trials aimed at curing diabetes," says Simpson.

"We anticipate that the capsule technology will protect the Melligen cells from the body's immune response that normally destroys foreign tissue, allowing the Melligen cells to be transplanted into humans."

PharmaCyte's Chief Executive Officer, Kenneth L Waggoner, says, "We at PharmaCyte consider ourselves to be very fortunate in having secured the exclusive world-wide licence to use the Melligen cells to develop a treatment for diabetes.

"If we are successful in this effort, it will bring to fruition the many years of research that have been conducted by Professor Simpson and her colleagues at UTS in developing these remarkable cells. Importantly, we are very pleased that Professor Simpson will be assisting PharmaCyte

in this endeavour as a member of our International Diabetes Consortium.

"For the millions of people worldwide who suffer from a disease of epidemic proportions, our treatment could relieve them of the onerous daily requirements for insulin administration and dietary restrictions and offer a life free from the very serious and even life-threatening complications associated with diabetes."

With the World Health Organization attributing more than 1.5 million deaths to diabetes in 2012 and more than 422 million adults suffering from the disease in 2014, the development has the potential to impact millions of lives.

The cell line already has patent protection from the European counterpart to the US Patent and Trademark Office and the patent has been validated in France, Switzerland, Great Britain, Ireland, Germany, Spain, Denmark, Italy and the Netherlands.

Provided by University of Technology, Sydney

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