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Australia uses smart nanotechnology for more accurate delivery of insulin

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Researchers hope to secure funding to continue the project and eventually undertake clinical trials



More efficient and longer lasting glucose-responsive insulin that eliminates the need for people with type 1 diabetes to measure their glucose levels could be a step closer, owing to a Monash University-led project in Australia.

The preclinical study engineered a superior artificial pancreas system to release insulin precisely and smartly only when the body actually needs it, making control of blood glucose more reliable.

The new ‘artificial pancreas system’ using phytoglycogen nanoparticles, which are chains on glucose molecules, dubbed a ‘nanosugar platform’ as they are made of glucose, delivers and releases insulin in response to glucose levels in the blood.

The researchers from Monash University, RMIT University, The University of Melbourne and the Baker Institute have developed this system that responds to glucose, which current insulin does not. If it works in humans, only two injections would be needed per day.

Current insulin therapy requires people to monitor their blood sugar throughout the day and take multiple, carefully calculated doses based on food intake, exercise, stress, illness and other factors.

Some must inject themselves up to five times a day. Continuous glucose monitoring devices remove, or at least reduce, the need for finger pricks, and insulin pumps can automatically deliver insulin, but they are very expensive and still are not always able to calculate the correct amount of insulin to be given.