



CREATING NEW DRUGS FOR DIABETES

Megan Thornton is working on drug development.

Image: Simren Khosa, Deakin University

New treatments for diabetes are desperately needed. Deakin researchers are playing their part – working on drugs with fewer side effects.

Diabetes is expected to affect 360 million people by 2030, with over three million people dying from the disease every year. “The full impact is much larger because people may live with diabetes for years, but their cause of death is often recorded as heart disease or kidney failure,” says Deakin researcher Dan Priebbenow.

Type 2 diabetes accounts for 90 per cent of cases. Type 2 diabetes occurs when the cells of a person’s body do not respond adequately to the insulin that is produced, leading to raised blood glucose levels.

Some of the key treatments have significant side effects.

For example, rosiglitazone (known commercially as Avandia) reduces blood glucose levels by making the cells more sensitive to insulin. But it can also cause weight gain and fluid retention, and has been associated with heart attacks.

Megan Thornton and Dan, both PhD students in the School of Life and Environmental Sciences, are working to develop new drugs to combat Type 2 diabetes with fewer side effects.

Megan is focusing on a class of compounds commonly found in food and drink, such as wine, chocolate, fruit and vegetables. They are well known for their antioxidant and anti-inflammatory effects and are known to be safe to the body. “Two of them have also been found to reduce glucose levels in the blood, but the effect is weak,” says Megan.

She aims to synthesise many variations on these compounds to see if she can improve their glucose-reducing abilities. “Ultimately, my aim is to synthesise the perfect Type 2 diabetes pharmaceutical,” says Megan.

Dan’s work has a slightly different focus. He is aiming to improve the activity of compounds, previously made at Deakin, that have shown insulin-sensitising activity. His research focuses on new synthetic methods for making the scaffold (the central part of the molecule). This scaffold can then be built on to include the key characteristics of those molecules found in nature that are already known to reduce blood glucose levels.

“I am developing new methods for making the scaffold and comparing these with established ones, to see which route is the best and most effective for what we are trying to achieve,” he says.



Dan is working to develop side-effect free drugs to combat Type 2 diabetes. Image: Simon Fox, Deakin University.

FURTHER INFORMATION:

School of Life and Environmental Sciences
Principal supervisor: Dr Fred Pfeffer
E: fred.pfeffer@deakin.edu.au
www.deakin.edu.au/scitech/les