

Community news Pears

In association with



Building

Issue 4 November 2017



Type 1 diabetes

Construction update

Q&A with
Miranda Rosenthal

Welcome to the fourth edition of our newsletter, keeping the local community up to date with progress on the Pears Building and the UCL Institute of Immunity and Transplantation.

The main occupant of the Pears Building will be the UCL Institute of Immunity and Transplantation (IIT), a world-class research facility.

The IIT is currently located in the Royal Free Hospital, where scientists and clinicians are researching revolutionary new treatments for conditions including leukaemia and diabetes.

When the Pears Building opens, the IIT will strengthen links between patients, doctors and some of the world's leading scientists, supporting research and developing new treatments at a greater pace.

The IIT will be the most important research centre of its type outside North America and one of five leading global research centres in immunity and transplantation.

Please turn over for more information about the project.

In this edition, we also highlight current research into type 1 diabetes at the IIT and how researchers are working with local patients.

Update on the building project

Submission of plans

Following public consultations and technical meetings with local groups and interested parties over the past year, we finalised the detailed basement construction plan (DBCP) and submitted it to Camden Council for its review and approval. Prior to submission of the DBCP, it was assessed by two independent certifying engineers, both of whom confirmed that the proposed works are in compliance with the s106 Agreement with the Pears Building development, posing no risks to neighbouring properties. Camden Council will also have its own independent assessor and will make its decision based on this.

We hope to get approval for the DBCP in the coming month, when we can then appoint the design and build contractor and proceed with the construction works.



Car park

Meanwhile the car park at the Royal Free Hospital, where the Pears Building will be located, has been decommissioned. This has quite noticeably reduced the amount of traffic into and out of Pond Street. When the link road closes in a few weeks' time, the amount of traffic movement will be even less, but some of this will be replaced by construction traffic.

Monitoring the site

We have installed a range of monitoring equipment below ground level to monitor site conditions such as ground movement, ground water conditions and vibration, all of which were addressed in the DBCP.

There is also environmental monitoring equipment around the site of the new Pears Building to record the levels of noise and pollution emanating from the surrounding area. This is important as it can be employed as a 'benchmark' to monitor conditions on site when the main construction works start. In an attempt to address concerns raised by St Stephen's and Hampstead Hill School, we are also installing an acoustic barrier aimed at preventing noise transfer from the construction site.

Do you have any feedback on this newsletter?

Please contact the communications team at: rf.communications@nhs.net, we would love to hear from you.

To read earlier issues, visit www.royalfree.nhs.uk/about-us/investing-in-our-future/pears-building

The Institute in focus

Focus on IIT research into diabetes

In this issue we hear about the work of Professor Lucy Walker, the IIT's chair in immune regulation.

The main focus of Professor Walker's research is type 1 diabetes, a condition where the body's immune system attacks the pancreas and affects insulin production.

Around 400,000 people in the UK have type 1 diabetes – 30,000 of whom are children. The peak age of onset is nine to 14 years, but there are now increasing numbers of very young children under five with the condition. The scale of type 1 diabetes is huge and, with the overall incidence increasing by 4% a year in the UK, it is, more than ever, an extremely important condition to study.

The overarching aim is to understand the basic mechanisms of why a person's immune system attacks the pancreas and causes type 1 diabetes. As Professor Walker puts it: "If we can understand the immune response that causes type 1 diabetes, we can devise new ways to stop it."

Her team of eight looks at the body's immune cells, the different molecules they express and the pathways they use, to see how their behaviour is controlled.

They then look at blood samples from people with type 1 diabetes compared to those without, to try to understand the immune response that causes the condition. The researchers work closely with the Royal Free Hospital's type 1 diabetes clinic, where patients are asked to consent to giving blood samples, specifically to help this research.

Through the research done at the IIT, important information is now known about the immune cells that cause type 1 diabetes, and it can be used in two ways.



Professor Lucy Walker with
PhD student Chunjing Wang
examining specimens

Professor Walker says: "It's fantastic the way clinicians and patients at the Royal Free are really keen to work with the scientists. There's a really interactive and collaborative environment, which makes a huge difference to our work."

First, we can work on developing new therapies that interfere with this type of immune response.

Second, and more importantly in the short term, we can tell far more quickly if new therapies are likely to be successful. Currently when therapies are tried in people with type 1 diabetes results only become clear after about a year.

However, by looking at biological markers in the immune cells discovered in this research, we can tell far sooner which therapies look promising. So while drug trials are currently generally very long-term and expensive, having a way to monitor the blood's response might allow new medicines to be developed faster.

A particularly remarkable outcome of Professor Walker's work is that the immune markers they have identified in the blood appear even before a person develops type 1 diabetes. This may help researchers predict who will develop type 1 diabetes before any symptoms occur. Once we have new medicines to treat type 1 diabetes these could therefore be given really early on in a person's life, before any pancreas cells have been destroyed.

Professor Walker's research has very real implications for the increasing numbers of adults and children living with type 1 diabetes.



Q&A

UCL

with **Dr Miranda Rosenthal**,
Consultant at the Royal Free Hospital
and lead clinician on diabetes

What is your role in the IIT?

I work in the Royal Free Hospital's diabetes clinic, where part of my role is to give the local population the opportunity to take part in research that helps us to understand why people develop type 1 diabetes.

Visitors to our clinic are mainly from the Camden and Barnet areas, and around 230 people so far have happily agreed to help the IIT's research.

How does your work help people with type 1 diabetes?

Among other things, our clinic offers a specialist insulin pump service for adults with type 1 diabetes. This type of therapy is particularly helpful for those who have severe recurrent hypoglycaemic unawareness as a result of insulin therapy. An insulin pump is a pager-size electronic device that provides the wearer with a tailor-made slow release of insulin, so they do not need multiple daily injections. The aim of the therapy is to offer improved control without 'hypos' (hypoglycemia), aiming to mimic better a normal pancreas's insulin production. This means users suffer fewer negative effects and are able to get on with their lives more easily. We are able to treat many of our patients with these pumps, so about 30% of people in the local area with this type of diabetes use them, compared with just 1–2% of the general UK population.

The clinic also offers a pancreatic islet transplantation service. This is when healthy parts of a pancreas are taken from a deceased donor and put into a person with type 1 diabetes, enabling the recipient's body to produce some of its own insulin. It is only a very small service at present, as it is quite an invasive treatment, but it is another way for people to deal with their severe recurrent hypoglycaemic unawareness and improve the way they live their lives.

It is certainly an ideal model for the possible direction of stem cell research in the future.

How does your work help the researchers?

I recruit people with type 1 diabetes to help the research done in the IIT – the first time that this kind of opportunity has been available to residents in North London. People who sign up provide up to five blood samples over three years. These samples are a vital part of the research, enabling researchers to look at the stability of biomarkers over time and investigate the immunological characteristics that are shared.

How do you think the IIT will improve the treatment of people with type 1 diabetes?

Our ultimate goal is to be able to develop and offer new trials and treatments. Our current research is the start of a journey that we hope will make future treatments for type 1 diabetes available faster for people living locally.

The IIT in the Pears Building will be perfectly placed to do this, as it will bring scientists, doctors and patients together in one site – the only immunology research centre outside the USA to do so.



Professor Lucy Walker with
Research Associate Dr Frank Heuts