Research Project Directory

Spring 2017

DIABETES UK
KNOW DIABETES. FIGHT DIABETES.

Introduction

Welcome to our directory of research projects for 2017.

I'm delighted to share with you the innovative research we're supporting across the UK. Each project is only possible thanks to the continued support of our members, donors, fundraisers and local groups.

We've been funding research for over 80 years, awarding our first ever grant in 1935. Since then, we've seen some incredible steps forward in diabetes care: the insulin pen, glucose meters, islet transplants. We've supported the researchers behind all of these breakthroughs.

Every year we spend around £7 million on world-leading diabetes research. That makes us the largest charitable funder of diabetes research in the UK. The pioneering work we fund today covers all forms of diabetes and related complications. Everything we know about managing and treating diabetes is thanks to research. And through research, we'll build a world where diabetes can do no harm.

In 2016 we committed to supporting 35 new projects. I hope you enjoy reading about them and some of the other key bits of research we fund. By supporting us you'll help us fund more research in the future.

You can support research projects through our Adopt a Project scheme (page 6). You can also find out more about each of the projects detailed here at www.diabetes.org.uk/research

I'd like to once again thank all of our current supporters – our work depends entirely on your donations. Your support is absolutely vital. Please get in touch with us at research@diabetes.org.uk if you have any questions, comments or suggestions about our research.

Dr Elizabeth Robertson
Director of Research

Contents

Research spotlights

Professor Colhoun (Edinburgh) is studying the genetics behind Type 1 diabetes, to find new ways to stop the condition from progressing.

Dr Sutherland (Dundee) is studying the genetics of people with Type 2 diabetes, to see if it's possible to predict whether the drug metformin will be effective.

Professor Lean (Glasgow) and Professor Taylor (Newcastle) are testing if a low-calorie diet approach can put Type 2 diabetes into long-term remission.

Dr Hogg (Belfast) is developing a better way to detect diabetes-related retinopathy so that it can be caught earlier.

Dr Siddiqi (York) is trying to understand the true impact of diabetes on people who have a mental health condition and find better ways to support them.

Professor Squires (Lincoln) is working to find ways to stop or prevent diabetes-related kidney damage.

Professor Dayan (Cardiff) is coordinating UK-wide Type 1 diabetes research teams to test new immune therapies.

Dr Barlow (Birmingham) is trying to understand why exercise is good for people with Type 2 diabetes.

Dr Oram (Exeter) is studying an extremely rare form of Type 1 diabetes, which develops in children before 12 months of age.

Professor Lillycrop (Southampton) is looking for specific genetic changes that come about in babies as a result of gestational diabetes in mothers.

Dr Petrova (London) is searching for a way to treat Charcot foot, a debilitating condition where the bones in the foot can collapse.

Your support is changing lives

Mo Latham, from the Isle of Wight, donated £10,000 to fund research into eye complications associated with diabetes.

Mo, who has Type 1 diabetes, decided to support Professor Heping Xu's research at Queen's University Belfast because she wants to see a bigger impact of research.

Professor Xu is studying how to improve treatments for retinopathy, a serious eye condition that can affect people with diabetes.

Professor Xu: "This donation is greatly appreciated. It can be difficult to imagine the costs associated with research. In this case, £10,000 is enough to allow us to grow the cells we need in the laboratory and carry out experiments to study those cells for nearly a year. I hope that this research will lead to improvements in treating eye damage in diabetes in the future."

Mo and her partner, David, have cycled the length of the UK on a tandem and taken part in several climbs, including the Three Peaks Challenge, to raise funds for us.

"Research is our way forward and I want to see it make a bigger impact. I'm very pleased to see the money going to such a great project carried out by Professor Xu."

Mo Latham, Diabetes UK research supporter

Adopt a project details

We can't fund research without you.

All of the research we fund is only possible thanks to our supporters. We want to bring you closer to the researchers we support, so you can see how your donation is making a difference.

You can rest assured that this research is of the highest scientific quality.

All our research is reviewed by scientific experts and approved by the Diabetes UK Research Committee, made up of researchers, healthcare professionals and people living with diabetes. You can be confident that the research you support is of the highest scientific quality and is being run by scientists with the skills and expertise they need.

All of the research we fund has the potential to improve the lives of people living with, or at risk of, diabetes.

The logistics

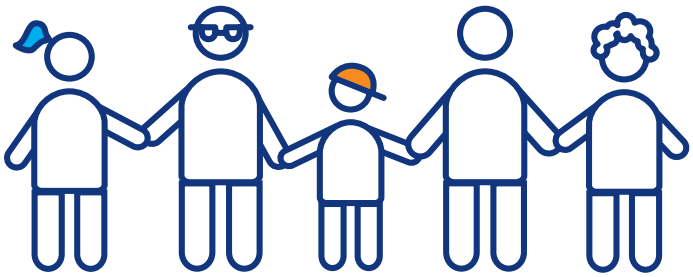
Our research projects can be adopted by our local groups, community groups, companies, clubs, organisations and individuals for a minimum donation of £1,000.

Recognition

Raising £1,000 or more is a huge achievement, and we like to give you special recognition for your efforts. To show our appreciation, adopters can find their name listed beneath their chosen project(s) in future editions of this directory.

In addition you'll receive:

- £1,000 – a thank you certificate and an annual report on your chosen project
- £2,500 – the above, plus a letter of thanks from our Chief Executive, Chris Askew
- £5,000 – all of the above, plus the chance to have a talk from a researcher or member of our Research team



Adopt a project today

If you're interested in adopting one of the projects listed in this directory, please contact the Diabetes UK office in your local area (see back cover for details). If you've already decided which project you'd like to support, you can send the project details with your cheque (made payable to 'Diabetes UK') to your local office and we'll do the rest.

You can find your local fundraising team at **www.diabetes.org.uk/in_your_area**

Projects

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Eastern

Potential treatment for extreme insulin resistance

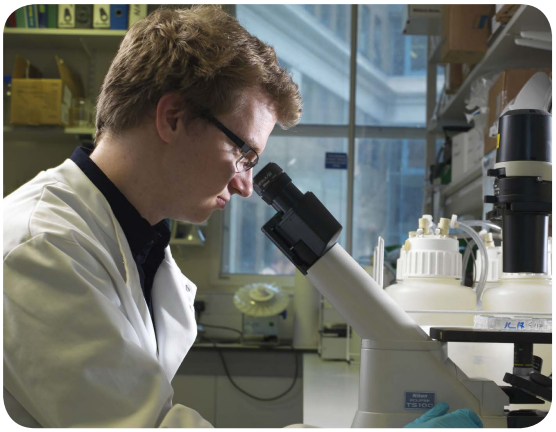
Dr Robert Semple, University of Cambridge

£280,360 Project grant
Jan 2016 – Dec 2019

Investigation of anti-insulin receptor antibodies as a potential therapy for extreme insulin resistance due to insulin receptor mutations

Dr Robert Semple and his team will develop and evaluate the therapeutic potential of proteins called antibodies for people with a type of extreme insulin resistance caused by rare genetic changes. They will also develop a diagnostic screening test that will identify people that are likely to respond to the therapeutic antibody treatment.

Adopted by:
Diabetes UK local groups: Huntingdonshire - in memory of Joan Margaret Davies, Kings Lynn



Available for adoption Fully funded
Less than a year to run, but can still be adopted

London

Monogenic diabetes and pancreatic tumours

Dr Donato Iacovazzo,
Queen Mary University of London

£236,195 Sir George Alberti Training Fellowship
Oct 2016 – Sept 2019

Diabetes and insulinomatosis - the role of a novel germline mutation

Dr Iacovazzo is studying a rare type of diabetes that occurs at the same time as tumours appear in the pancreas. Previous research has found a specific genetic mutation that may be behind this condition, and this study aims to confirm whether this is the case. If successful, this project will improve our understanding of this rare condition and help to identify people at risk of developing it.

Can sorcin keep beta cells healthy?

Dr Isabelle Leclerc, Imperial College London

£251,702 Project grant
Feb 2017 – Jan 2020

Molecular mechanisms linking Sorcin to pancreatic beta cell lipotoxicity and ER Ca2+ stores

In Type 2 diabetes, insulin-producing beta cells become exhausted over time and stop working properly. Dr Leclerc wants to know if a particular molecule – called sorcin – can protect beta cells against this exhaustion and keep them healthy. This work could inform the development of new treatments to do just that in the future.

Can new ceramic materials combat Charcot foot?

Dr Nina Petrova, King's College Hospital

£274,774 Project grant
Jul 2016 – Jun 2019

Can novel bioceramics provide an effective bone forming scaffold and lead to bone regeneration in Charcot osteoarthropathy?

Dr Petrova is searching for a way to treat the debilitating condition known as Charcot foot, where the bones in the foot can collapse. Her team is testing a new range of materials called bioceramics, to see if any of them can encourage healing and potentially be used as a treatment for Charcot foot in the future.

A new address for Type 1 trial recruitment

Professor Desmond Johnston, Imperial College London

£448,892 Targeted research grant
Jan 2015 – Jan 2018

An incident and high risk Type 1 diabetes research cohort – ADDRESS-2 – After Diabetes Diagnosis Research Support System-2

Professor Desmond Johnston and his team will work closely with researchers across the UK to increase the value of ADDRESS (the After Diabetes Diagnosis Research Support System), which helps to recruit people newly diagnosed with Type 1 diabetes and their families into trials of new immune therapies.

Fully funded through partnership with Tesco

The role of NAMPT in Type 2

Dr Paul Caton, King's College London

£137,282 Project grant
Feb 2016 – Jan 2018

Characterising the role, function and regulation of eNAMPT in Type 2 diabetes

Dr Paul Caton and his team aim to find out if raised levels of the protein NAMPT in the blood lead to reduced insulin release and action and contribute to the development of Type 2 diabetes. This could help to identify targets for new drugs to improve the management and prevention of this condition.

Keywords: beta cell function, Type 2 diabetes

Adopted by: Diabetes UK local group: Havering

Helper molecules to improve islet transplant

Professor Peter Jones, King's College London

£237,642 Project grant
Jan 2016 – Jan 2019

Using the MSC secretome to improve the outcomes of islet transplantation

Professor Peter Jones and his team will find out which molecules allow a particular kind of 'helper cell' to improve islet transplants. Such molecules could be combined with islet transplants to improve their outcomes for people with Type 1 diabetes and make them more widely available.

Black African ethnicity and Type 2 risk

Dr Louise Goff, King's College London

£521,799 Project grant
Dec 2015 – Dec 2018

The South London Diabetes and Ethnicity Phenotyping Study

Dr Louise Goff and her team will compare sensitivity to insulin among people of Black African and White European origin at different stages of Type 2 diabetes. She hopes to improve our understanding of the exact causes of diabetes in these ethnic groups and enable more tailored strategies for prevention and treatment.

Boosting beta cell growth and survival

Dr Bo Liu, King's College London

£311,383 Project grant
Jul 2015 – Jul 2018

The role of islet microRNAs in regulating functional beta cell mass

Diabetes UK Fellow Dr Bo Liu will study the role of microRNAs in the growth and survival of insulin-producing beta cells and find out if their growth can be promoted by manipulating these molecules and their targets. Her work could help to support the development of new therapies for Type 1 and Type 2 diabetes.

Adopted by: Diabetes UK local groups: South Gloucestershire, Barnet

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Banking on retinopathy research

Dr Marcus Fruttiger, University College London

£171,732 Project grant
Jan 2014 – Jan 2019

Advanced histopathology for diabetic retinopathy

Dr Marcus Fruttiger and his team will collect and study eyes donated by people with diabetic retinopathy after their death. This will help to improve our understanding of the mechanisms that lead to retinopathy and lay the foundation for a retinopathy tissue bank that will, in the long run, become a valuable resource for research in this area.

Adopted by:
Individual: Mrs Jean Postlethwaite
Diabetes UK local groups: Brentwood, Chichester, North Norfolk

Lymphatics: A novel therapeutic target for kidney disease in people with diabetes?

Dr David Long, University College London

£168,996 Project grant
April 2016 – February 2020

Targeting kidney lymphatics in diabetic nephropathy

Dr David Long and his colleagues aim to build on their recent work, investigating the function of kidney lymphatic vessels in diabetic kidney disease. This will help us to understand whether targeting lymphatic vessels could be a novel treatment strategy for diabetic kidney disease.

Unravelling how beta cells lose their 'identity' and function

Professor Guy Rutter, Imperial College London

£239,045 Project grant
Jan 2016 – Dec 2017

The impact of long non-coding RNA at the Pax6 locus on beta cell identity and function

Professor Guy Rutter and his colleagues aim to gain a better understanding of how beta cell 'identity' and function is threatened during the development of Type 2 diabetes. It has become increasingly clear that during Type 2 diabetes progression, pancreatic beta cells, which are responsible for storing and releasing insulin, lose their identity thus impairing their function.

Follicular helper T cells: an indicator of the autoimmune response?

Professor Lucy Walker, University College London

£279,643 Project grant
June 2016 – May 2019

Investigating follicular helper T cells as biomarkers and new therapeutic targets in autoimmune diabetes

Professor Lucy Walker and her colleagues will build on their recent findings that show a specific immune cell – called the follicular helper T cell – which can trigger Type 1 diabetes in mice, is more common in people with Type 1 diabetes. Professor Walker will study the mechanisms used by follicular helper T cells to cause Type 1 diabetes and test new strategies to interrupt this. Additionally, she will test whether follicular helper T cells can be used as an early indicator of the autoimmune response in diabetes.

Funding provided through partnership with Tesco: £258,783

Identifying key genes in Type 2 diabetes

Supervised by Professor Guy Rutter, Imperial College London

£102,734 PhD Studentship
Oct 2016 – Oct 2019

Use of functional genomics to identify the causal genes at two novel Type 2 diabetes loci

Scientists have found over 90 regions of our DNA that are associated with an increased risk of Type 2 diabetes, but they haven't managed to zero in on the specific genes within those regions that are responsible. This project aims to focus on a few genes in particular, to examine their effects on beta cells and identify whether they are key in causing Type 2 diabetes. This could lead to the development of new therapies that stop the loss of functioning insulin-producing beta cells in people with the condition.

Can combinations of gut hormones treat Type 2 diabetes?

Dr Victoria Salem, Imperial College London

£871,172 Harry Keen Intermediate Clinical Fellowship
Sept 2016 – Sept 2021

Gut hormone combinations as a novel and effective treatment for obesity-related Type 2 diabetes

Obesity is the biggest risk factor of Type 2 diabetes, and bariatric surgery is currently an effective treatment. A rise in the levels of particular gut hormones are seen following surgery, and Dr Salem has found that the beneficial effects of the surgery can be replicated using the gut hormones alone in animal models. During her fellowship, Dr Salem plans to explore the underlying biology of how gut hormones effectively treat diabetes and obesity, to inform the development of combination hormone treatments that could result in diabetes remission and sustained weight loss.

Fully funded through our partnership with Tesco

Dr Victoria Salem,
Imperial College London

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Midlands

Keeping kidney cells talking

Dr Claire Hills, University of Lincoln

£14,779 Early-Career Small grant
Sept 2017 – Sept 2018

ECM remodelling and connexin mediated cell communication in the diabetic kidney

Dr Hills wants to understand why kidney cells can't function properly in people with diabetes. She'll be looking at how high glucose levels, combined with a specific stress molecule, change the behaviour of kidney cells. This study could help to identify new drugs to prevent or treat kidney disease in the future.

Adopted by: G Abbott and Sons in memory of Clifford Abbott

Why is exercise good for people with Type 2 diabetes?

Dr Jonathan Barlow, University of Birmingham

£13,500 Early-Career Small grant
Jan 2017 – Jan 2018

Skeletal muscle to pancreatic beta cell crosstalk: can exercise improve the function of pancreatic beta-cells during nutritional overload?

We know that exercise is good for people with Type 2 diabetes, but Dr Barlow would like to understand the relationship between the two better. He'll look at the direct effects of muscle contraction on insulin-producing beta cells in the pancreas, to find out exactly why exercise is beneficial for people with Type 2 diabetes and how this could be maximised in the future.

Fatty livers and gestational diabetes

Dr Fahmy Hanna,
University Hospitals of North Midlands

£121,843 Project grant
Sept 2016 – Aug 2018

Is fat in the liver a marker of post-pregnancy glycaemic deterioration in women with gestational diabetes (FLiP GD2)?

Gestational diabetes can increase the risk of Type 2 diabetes in later life, as can high levels of fat in the liver. Dr Hanna is testing a screening programme, to see if women with gestational diabetes and high levels of fat in the liver are at a higher risk of Type 2 diabetes overall. If so, this group of women could be supported to reduce their risk.

Finding new ways to stop diabetes-related kidney damage

Professor Paul Squires, University of Lincoln

£202,820 Project grant
Jan 2017 – Jan 2020

Determination of a role for connexin mediated cell communication in the progression of renal fibrosis in the diabetic kidney

Many people with diabetes experience nephropathy – a condition that is the leading cause of end-stage kidney disease. We know that high levels of glucose can damage kidney cells, and Professor Squires hopes to find ways to stop or prevent this damage from happening. These could be developed into treatments for diabetes-related nephropathy in the future.

Adopted by: Diabetes UK local group: Solihull

Chimeras to target Type 1

Dr Michael Christie, University of Lincoln

£146,761 Project grant
Oct 2015 – Dec 2017

Preclinical testing of IA-2-IgG Fc chimeric proteins for antigen-specific B-cell depletion therapy of Type 1 diabetes

Dr Michael Christie will develop a technique to eliminate 'B cells' of the immune system that cause Type 1 diabetes, leaving other kinds of B cell intact. He will study the technique in mice and in blood samples of people with Type 1 diabetes to work out if this is an effective way to prevent the condition.

Adopted by:
Diabetes UK local group: Market Harborough
Organisation: Anson Charitable Trust, The Foster Wood Foundation, Freemasons' Grand Charity, The George John and Sheliah Livanos Charitable Trust

Trading 'bad' fats for 'good' fats in Type 2

Professor Victor Zammit, University of Warwick

£394,855 Project grant
Aug 2016 – Aug 2019

Role of alternative pathways of triglyceride synthesis in determining insulin sensitivity in muscle of individuals at risk of Type 2 diabetes

Professor Zammit and his team aim to find out if enzymes that produce fat in the muscle determine whether it is 'good' fat (seen in athletes) or 'bad' fat (seen in many people with Type 2 diabetes). They will also see if altering the route by which muscle fat is produced might help to prevent or reduce insulin resistance and Type 2 diabetes.

Adopted by:
Diabetes UK local group: Birmingham
Organisation: Barclay Bank PLC, Meggit Aerospace Braking Systems

Professor Mike Lean, University of Glasgow & Professor Roy Taylor, Newcastle University

Professor David Hodson, University of Birmingham

Available for adoption Fully funded
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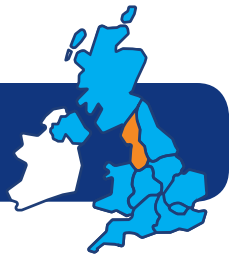
North West



Developing better ways to watch babies grow during pregnancy

Dr Jenny Myers, University of Manchester

£200,163 Project grant
Jan 2017 – Jan 2022

VELOCITY: evaluating fetal growth in pregnancies complicated by pre-existing diabetes

Type 1 or Type 2 diabetes in women is linked to babies growing smaller or larger than usual during pregnancy, which can lead to dangerous complications. Dr Myers wants to develop a more accurate way to monitor a baby's growth during pregnancy, so that any changes can be found earlier on. This could help to prevent complications during pregnancy and improve the long-term health of the babies in the future.

Type 2 drugs and cardiovascular problems

Dr Martin Rutter, University of Manchester

£218,495 Project grant
Jan 2015 – Jan 2019

Prescribing to reduce cardiovascular events in patients with diabetes

Dr Martin Rutter will study key Type 2 diabetes drugs to find out if they are linked to cardiovascular problems. This will provide reliable and urgently needed information about the possible link between common Type 2 diabetes drugs and the risk of heart attack and stroke.

Adopted by:
Diabetes UK local groups: Southampton and District, South Fylde

Family history and physical inactivity in Type 2

Dr Daniel Cuthbertson, University of Liverpool

£90,295 PhD Studentship
Sep 2014 – Dec 2017

Characterising the metabolic disruption caused by brief periods of reduced physical activity in people with a family history of Type 2 diabetes

Our new PhD student will investigate the impact of reduced physical activity in people with or without a family history of Type 2 diabetes. They hope to find out if family history increases the risk of harmful metabolic changes as a result of being less active. Findings could lead to more accurate guidance and help to identify new targets for Type 2 diabetes therapies.

Adopted by:
Organisation: Moffat Charitable Trust,
The Pilkington Charities Fund
Diabetes UK local group: Wirral

Overcoming infertility in diabetes

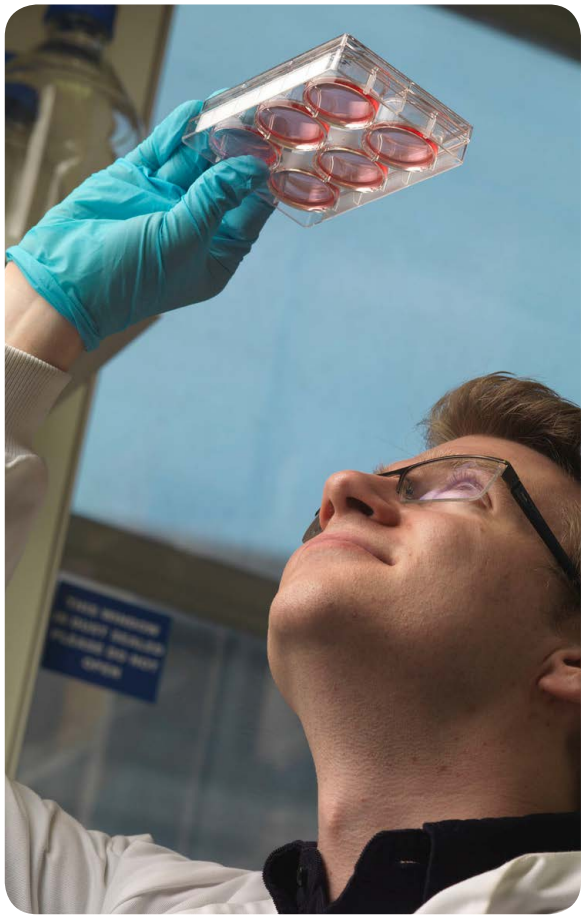
Dr Melissa Westwood, University of Manchester

£419,032 Project grant
Nov 2015 – Oct 2018

Endometrial function in women with diabetes – role of hexosamine biosynthetic pathway

Dr Melissa Westwood and her team aim to find out how high glucose levels cause problems in the womb that reduce fertility in women with diabetes. Their findings will support the development of new therapies to diagnose and correct these problems.

Northern & Yorkshire



Understanding the emotional impact of gestational diabetes

Dr Rosalind Haddrill, University of Leeds

£4,247 Early-Career Small Grant
Jan 2017 – Jan 2018

Women's perspectives on a subsequent pregnancy after gestational diabetes

Dr Haddrill would like to understand how women with gestational diabetes feel after going through their pregnancy, whether they change their lifestyle afterwards and if it influences their decision to have another baby. This short study will build a basis for further research to improve existing therapies and develop new ones for women with gestational diabetes.

Not all fat's the same: protecting against Type 2 diabetes

Dr Lee Roberts, University of Leeds

£449,043 RD Lawrence Fellowship
Sept 2016 – Sept 2021

Small molecule paracrine and endocrine signalling during the browning of white fat

Dr Roberts is focusing on fat cells, with different types responsible for storing and burning fat. He hopes to find specific signals from 'good' beige fat cells, to see if they can improve fat metabolism and protect the body from Type 2 diabetes. If successful, this research could inform the development of new protective Type 2 diabetes treatments.

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Improving support for people with mental illness and diabetes

Dr Najma Siddiqi, University of York

£93,300 Project grant
Jan 2017 – Oct 2018

The psychosocial impact of diabetes and diabetes care provision for people with severe mental illness: a patient, carer and healthcare staff survey

Living with diabetes can have a real psychological impact on people, but very little is known about how much it affects people who are already living with a mental illness. This study will help us to understand the true impact of diabetes on people that have a mental illness, and identify better ways to support these people in the future.

Adopted by:
Diabetes UK local group: York and District

The impacts of islet transplantation

Professor James Shaw, Newcastle University

£411,015 Targeted research grant
Jul 2007 – Jan 2018

Establishment of optimised biomedical and psychosocial measures to determine overall outcomes in islet transplant recipients

This project will create a national database to assess the overall risks and benefits of islet transplantation and to determine which patients are most likely to benefit from an islet transplant.

Adopted by:
Individuals: John Foord
Organisations: Harrogate Grammar School, Legal and General (Hove)
Diabetes UK local groups: Berwick-upon-Tweed, Blackpool, Carlisle, Durham, Wyre and Fylde Children's Support, York and District

Studying the veins to improve heart bypass

Dr Karen Porter, University of Leeds

£190,751 Project grant
Jul 2015 – Jul 2018

Vascular smooth muscle cell dysfunction and Type 2 diabetes: DNA damage and miR-145

Dr Karen Porter will work to understand the precise mechanisms that cause and sustain damage to and dysfunction of smooth muscle cells in the veins of the leg. This could inform the development of new treatments to reduce the failure of heart bypass operations that rely on such veins to overcome cardiovascular problems.

Adopted by:
Diabetes UK group local: Penrith and District

A new approach to islet transplantation

Professor James Shaw, Newcastle University

£360,436 Project grant
Apr 2015 – Apr 2018

Development of a novel donor human islet/ recipient endothelial progenitor cell chimeric tissue transplant for Type 1 diabetes

Professor James Shaw will work with researchers from Israel to pioneer a new approach that involves transplanting insulin-producing islets with cells that improve blood vessel growth and oxygen supply. Ultimately, this technique could help to free people with Type 1 diabetes from insulin with a single transplant.

Adopted by:
Diabetes UK local group: Gateshead
Individuals: Joanne and Dave Bamber
Organisations: The Frances & Augustus Newman Foundation

Beta cell identity loss in Type 2 diabetes

Professor James Shaw, Newcastle University

£92,460 PhD Studentship
Apr 2015 – Apr 2018

Defining the role of dedifferentiation as a primary mechanism of beta-cell dysfunction in Type 2 diabetes

The insulin-producing beta cells in the pancreas usually cease to function in Type 2 diabetes. Rather than dying off, this may be because the cells transform and lose their identity. Professor James Shaw's study will track the development of human beta cells in the lab to uncover the mechanisms involved in this identity loss.

Adopted by: Diabetes UK local group: Leeds

Purifying proteins to help understand insulin

Professor Andrzej Marek Brzozowski, University of York

£39,034 Equipment grant
Jan 2015 – Jan 2018

Protein purification equipment for insulin receptor and insulin analogues research

Professor Brzozowski will purchase a state-of-the-art protein purification system to support studies of the interaction between insulin and its receptor at the molecular level. This work will enable the design of new, safer forms of insulin, oral insulin and insulin-related drugs.

The direct route to Type 2 remission?

Professor Michael Lean, University of Glasgow and Professor Roy Taylor, Newcastle University

£2,565,977 Targeted research grant
Oct 2013 – Sept 2018

The DiRECT (Diabetes REmission Clinical Trial) study: Remission of Type 2 diabetes using non-surgical weight management with low energy liquid diet and long-term maintenance within routine NHS care

In 2011, researchers funded by us used a low-calorie diet to investigate the mechanisms by which Type 2 diabetes can be put into remission. Now, with support from our single largest-ever grant, Professor Michael Lean and Professor Roy Taylor will investigate the long-term outcomes of this approach as part of routine GP care. This vital work will determine whether low-calorie diets can help to stem the rising tide of Type 2 diabetes.

Adopted by:
Individuals: Mr Simon Priestley
Organisations: Charles Wolfson Charitable Trust, Edward Duthie Solicitors, Catherine Cookson Charitable Trust, The Javon Charitable Trust, MJM Smith Trust
Diabetes UK local groups: Central Fife, Darlington, Newcastle, Northampton, Tynedale, Tunbridge Wells

The thymus in Type 1 diabetes

Dr Allison Green, University of York

£248,325 Project grant
May 2015 – May 2018

Thymic B cells as mediators of Type 1 diabetes

The thymus usually helps to remove immune cells that target the body rather than protecting against invading germs – but this does not happen in Type 1 diabetes. Dr Allison Green will investigate the role of key cells in the thymus, which appear to play a role in the development of Type 1 diabetes in mice.

This project is fully funded through partnership with Tesco

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Northern Ireland

Can Type 2 treatments preserve beta cell identity?

Dr Charlotte Moffett, University of Ulster

£14,735 Early-Career Small grant
Jan 2017 – Jan 2018

Lineage tracing of beta to alpha cell transformation in diabetes: significance and effect of therapeutic drugs

Type 2 diabetes progresses because beta cells stop working properly over time, and scientists believe that they could be changing their identity. Dr Moffet wants to see if treatments already licensed to treat Type 2 diabetes may be able to stop the cells from changing their identity, potentially helping to slow the progression of the condition in the future.

Islet cell receptors as targets in Type 2

Professor Aine McKillop, University of Ulster

£92,193 Project grant
Oct 2015 – Oct 2018

Novel fatty acid receptors in islet cells as therapeutic targets for diabetes

A student supervised by Professor Aine McKillop will investigate the role of islet cell receptors GPR55 and GPR120 as potential targets for new Type 2 diabetes therapies. They will focus on the mechanisms by which the receptors work and their ability to control insulin production and regulate glucose levels and beta cell numbers.

Adopted by: Diabetes UK local group: Newtownabbey

Earlier detection of diabetic retinopathy using non-invasive imaging

Dr Ruth Hogg, Queen's University Belfast

£200,931 Project grant
Sept 2016 – Sept 2019

Improved phenotyping of microvascular changes in diabetic retinopathy with multi-level data

Dr Ruth Hogg and her team will develop new software to assess high resolution images of the blood vessels in the retina, produced using a new non-invasive imaging method called optical coherence tomography angiography (OCT-A). The study will increase our understanding of the earlier stages of diabetic retinopathy and associated changes to the vessels in the retina, allowing for earlier diagnosis of diabetic retinopathy.

Scotland

Protecting against fat in the pancreas

Dr James Minchin, University of Edinburgh

£14,883 Early-Career Small Grant
Jan 2017 – Jan 2018

Establishing a zebrafish model to study genetic resistance to pancreatic steatosis

Dr Minchin would like to understand what influence your genetic material has on fat accumulation in the pancreas and whether it affects the susceptibility to Type 2 diabetes. He will be using zebrafish as a laboratory model to study a gene called Stabilin 1, which might have a protective function. This research might lead to the development of new drugs to protect against Type 2 diabetes.

Keeping mitochondria healthy to prevent Type 2

Professor Hari Hundal, University of Dundee

£203,494 Project grant
Jan 2017 – Dec 2019

Nutrient-induced mitochondrial dysfunction and its reciprocal control by inflammatory signalling: implications for skeletal muscle insulin action

High levels of fat can cause mitochondria (important structures inside our cells that burn fuel) to become stressed and break down. This is linked to inflammation and insulin resistance: two important features of Type 2 diabetes. Professor Hundal wants to know if, and how, unsaturated fats or metformin might protect the mitochondria and keep insulin resistance at bay. In the future, this could help to prevent Type 2 diabetes from developing.

Metformin and Type 2 genetics

Dr Calum Sutherland, University of Dundee

£282,456 Project grant
Jan 2017 – Dec 2019

Establishing the mechanism underlying the genetic association of a glucose transporter to metformin response to improve its use in the clinic

Metformin is one of the most commonly used drugs to treat Type 2 diabetes, but it's only effective in two thirds of people and we don't know why. Dr Sutherland wants to study the genetics of people with Type 2 diabetes, to see if it's possible to predict whether treatment with metformin will be effective. This way, we could improve the strategies for personalising Type 2 diabetes therapies in the future.

Relating glucose intake in muscle to Type 2 diabetes

Dr Li Kang, University of Dundee

£263,519 Project grant
Jan 2017 – Jan 2020

Extracellular and endothelial regulation of muscle glucose uptake in insulin resistance in vivo

Current research into insulin resistance in Type 2 diabetes focuses on how insulin works inside cells, but Dr Kang is investigating the role of insulin on the outside. Muscle cells are surrounded by a structure known as the extracellular matrix, and she believes that changes to this structure could affect how well muscle cells can take in glucose. If successful, this could lead to the development of new treatments to combat insulin resistance.

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Does cholesterol influence how fat cells use insulin?

Professor Gwyn Gould, University of Glasgow

£107,787 Project grant
Oct 2016 – Oct 2019

How does cholesterol regulate insulin action in adipocytes?

Professor Gould is looking to understand why fat and muscle cells don't take in glucose properly in people with Type 2 diabetes, and what role cholesterol plays in that process. If successful, this research could help the development of new treatments to combat insulin resistance in Type 2 diabetes.

Blocking brain damage in diabetes

Professor Rory McCrimmon, University of Dundee

£280,305 Project grant
Oct 2015 – Oct 2018

Nrf2-based approaches to preventing cognitive impairment in diabetes

Professor Rory McCrimmon will investigate whether high blood glucose levels and regular hypos contribute to accelerated aging of the brain, which is seen in some people with diabetes. His findings could reveal a way to improve the defence systems in the brain to help prevent these changes.

Adopted by:
Diabetes UK local group: Daventry and District

The direct route to Type 2 remission?

Professor Michael Lean, University of Glasgow and Professor Roy Taylor, Newcastle University

£2,565,977 Targeted research grant
Oct 2013 – Oct 2018

The DiRECT (Diabetes REmission Clinical Trial) study: Remission of Type 2 diabetes using non-surgical weight management with low energy liquid diet and long-term maintenance within routine NHS care

In 2011, researchers funded by Diabetes UK used a low-calorie diet to investigate the mechanisms by which Type 2 diabetes can be put into remission. Now, with support from our single largest-ever grant, Professor Michael Lean and Professor Roy Taylor will investigate the long-term outcomes of this approach as part of routine GP care. This vital work will determine whether low-calorie diets can help to stem the rising tide of Type 2 diabetes.

Adopted by:
Individuals: Mr Simon Priestley
Organisations: Charles Wolfson Charitable Trust, Edward Duthie Solicitors, Catherine Cookson Charitable Trust, The Javon Charitable Trust, MJM Smith Trust
Diabetes UK local groups: Central Fife, Darlington, Newcastle, Northampton, Tynedale, Tunbridge Wells

The role of dietary fat in insulin resistance

Supervised by Professor Hari Hundal, University of Dundee

£93,000 PhD Studentship
Oct 2016 – Oct 2019

Lipid-induced insulin resistance and metabolic dysfunction: the role of caveolins and cavins

Increased levels of a molecule called DAG (found in dietary fat) has been shown to cause insulin resistance in muscle cells, by disrupting important signals. Increased dietary fat also appears to reduce the number of cave-like structures (formed by proteins called caveolins) on the surface of cells. The aim of this project is to investigate the connection between the cave-like structures, DAG and insulin resistance. This will improve our understanding of how insulin resistance happens in people with Type 2 diabetes, and could inform future strategies for managing and treating the condition.

Adopted by: Organisations: Pethybridge Trust

Improving current methods for catching complications early

Supervised by Professor Jackie Price, University of Edinburgh

£71,656 PhD Studentship
Oct 2016 – Oct 2019

Retinal trait changes as a novel biomarker to improve cardiovascular and microvascular risk prediction in people with Type 2 diabetes

People with Type 2 diabetes have an increased risk of developing vascular complications that include cardiovascular disease, kidney disease and retinopathy. This project aims to determine whether changes to vessels in the retina (the light-sensitive area at the back of the eye) could be used as an indicator of diabetes-related complications well before symptoms appear, therefore predicting a person's risk. If successful, this non-invasive screening method could reduce the prevalence of the debilitating complications that people with Type 2 diabetes can experience.

Fully funded through partnership with Tesco

Harnessing genetic information to understand Type 1 diabetes and its complications

Professor Helen Colhoun, University of Edinburgh

£334,038 Project grant
Apr 2016 – Apr 2019

Harnessing genetic information in the SDRNT1BIO to understand Type 1 diabetes and its complications

Professor Helen Colhoun and her team will identify novel genetic determinants of Type 1 diabetes and its complications and provide important insights into the complex pathways that new therapies need to intervene in - a necessary step towards the development of such therapies.

Adopted by: Diabetes UK groups: Petersfield and District

Available for adoption Fully funded
Less than a year to run, but can still be adopted

South East

Gestational diabetes and the long-term health of offspring

Professor Karen Lillycrop,
University of Southampton

£484,212 Project grant
Nov 2016 – Oct 2019

Gestational diabetes, the epigenome and the health of the next generation

Professor Lillycrop is studying the genes of babies from mothers with and without gestational diabetes, to look for specific genetic changes that come about as a result of gestational diabetes. She hopes to find out whether those genetic changes have an impact on the long-term health of the babies, and whether treatments to prevent the changes to genes from happening can be developed.

Taking account of ACC1 in beta cells

Dr James Cantley, University of Oxford

£576,631 RD Lawrence Fellowship
Oct 2014 – Oct 2019

The role of Acetyl-CoA carboxylase in the metabolic and endocrine regulation of beta cell mass

Dr Cantley will use state-of-the-art techniques in molecular and cell biology to study the mechanisms by which ACC1, a critically important enzyme, influences the size and number of beta cells. His work will improve knowledge of beta cells and of how they might be targeted with new therapies.

Adopted by:
Diabetes UK local group: Aylesbury and District

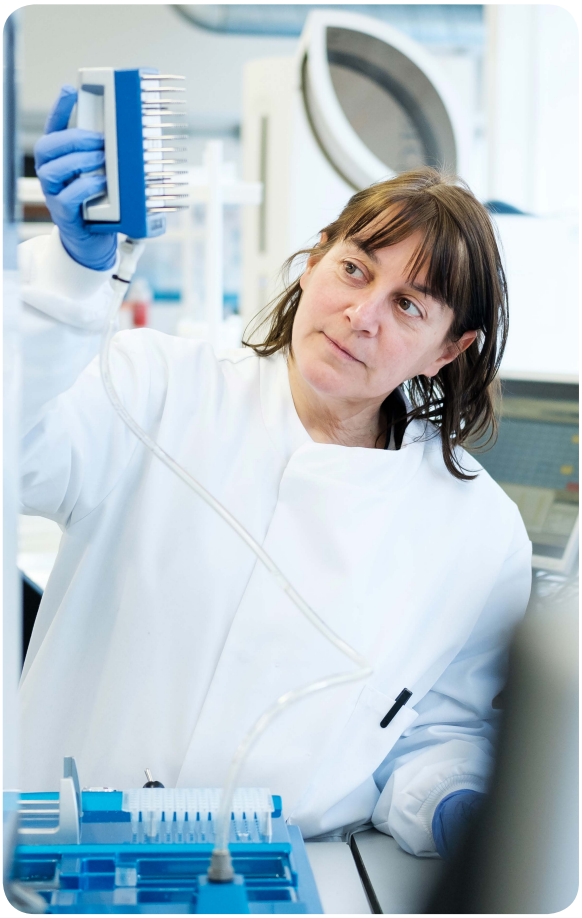
Understanding glucagon in Type 2

Dr Quan Zhang, University of Oxford

£536,419 RD Lawrence Fellowship
Sep 2015 – Sep 2020

KATP channel-dependent and -independent regulation of the glucagon-secreting pancreatic alpha cell

Dr Quan Zhang will use advanced techniques to study mechanisms involved in the release of glucagon (the hormone that raises blood glucose when it falls too low) and find out how they become disrupted in diabetes.



Professor Karen Lillycrop,
University of Southampton

South West

Understanding the extremely early onset of Type 1 diabetes

Dr Richard Oram, University of Exeter Medical School

£799,275 Harry Keen Intermediate Fellowship
Mar 2017 – Mar 2021

Extreme early onset Type 1 diabetes

Dr Oram will study an extremely rare form of Type 1 diabetes, which develops in children before 12 months of age. He wants to understand how it is possible for the immune system to go rogue at such a young age. Dr Oram hopes that understanding why this rare form of Type 1 diabetes will help these children shed light on why Type 1 diabetes develops in general.

Understanding the immune attack in Type 1 diabetes

Professor Noel Morgan, University of Exeter

£164,015 Project grant
Jan 2017 – Dec 2019

Characterisation of immune cell interactions in the insulitic infiltrate of patients with recent-onset Type 1 diabetes

In Type 1 diabetes, immune cells move into the pancreas and attack insulin-producing beta cells, but we don't currently known how or why. Professor Morgan believes that the immune attack may not be the same in everyone with Type 1 diabetes and plans to find out how immune cells interact with each other to coordinate an attack against beta cells. This project will help us to understand how and why Type 1 diabetes develops.

Can Type 2 diabetes drugs protect against complications?

Dr Kim Gooding, University of Exeter

£199,995 Project grant
Jan 2017 – Jan 2020

The vascular actions of glucagon-like peptide-1 analogues and its mediators in people with Type 2 diabetes and diabetic retinopathy

New studies suggest that Type 2 diabetes drugs (used to control blood glucose levels) have positive effects on blood vessels. Dr Kim Gooding wants to know if they also have these positive effects in people with diabetes-related complications, such as retinopathy. In the long-term, this will tell us whether drugs currently used to treat Type 2 diabetes could also treat complications, and inform the development of new treatments to combat complications in the future.

Improving the treatment of neonatal diabetes

Dr Pamela Bowman, University of Exeter Medical School

£202,344 Sir George Alberti Training Fellowship
Jul 2016 – Jun 2020

Assessing the glycaemic and CNS response to sulphonylurea therapy in patients with KCNJ11 mutations

Neonatal diabetes is a rare condition that can be caused by a mutation in a gene called KCNJ11, and is treated with sulphonylureas. Dr Bowman plans to investigate the safety and effectiveness of sulphonylureas in more detail than has been carried out to date, to improve the treatment that people living with this condition receive.

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Understanding the role of muscle in Type 2

Professor Jeremy Tavaré, University of Bristol

£215,674 Project grant
Mar 2015 – Mar 2018

Understanding the role of the TBC1D1 interactome in regulating skeletal muscle glucose transport

Professor Jeremy Tavaré will investigate mechanisms by which the protein TBC1D1 controls the uptake of glucose into muscle. This could help researchers to discover targets for new drugs to improve insulin sensitivity and enhance the treatment of Type 2 diabetes.

Adopted by: Diabetes UK local groups: Swindon, Plymouth

Detecting cell death to prevent Type 1

Dr Kathleen Gillespie, University of Bristol

£67,990 Equipment grant
Apr 2015 – Apr 2018

Droplet digital PCR to detect beta cell death in Type 1 diabetes

A new equipment grant will help Dr Kathleen Gillespie and her team buy a droplet digital PCR machine – a piece of new technology that will improve the sensitivity of tests to detect the death of beta cells. This could be a vital tool for ongoing studies to predict and prevent Type 1 diabetes.

Thinking outside the box

Dr Kathleen Gillespie, University of Bristol

£474,706 Project grant
Nov 2014 – Nov 2019

Children of the Bart's Oxford Study: insights into the changing dynamics of susceptibility to Type 1 diabetes

With our support, Dr Kathleen Gillespie will extend the existing Bart's–Oxford study, the world's longest running family study of Type 1 diabetes. Her work will provide a unique resource of biological samples for the study of genetic risk factors, environmental influences and their impact on the immune system over time.

Adopted by:
Individual: Mrs Angela Rowland, Mrs Louise Ledwith, Ms Jennifer Finnerty
Organisation: Ms Susan Seaborn (Diabetes charity shop)
Diabetes UK local groups: London Borough of Hillingdon, South Northants, Thurrock

Imaging the kidney in diabetes

Professor Richard Coward, University of Bristol

£23,441 Equipment grant
Sep 2015 – Sep 2018

Imaging the kidney in diabetes

With our support, Professor Coward will purchase a combined transmitted light and fluorescent microscope and an imaging computer, which will help his team to study kidney cells and drive forward their understanding of diabetic kidney disease and the development of new therapies.

Adopted by:
Diabetes UK local groups: South Gloucestershire, Plymouth

Fighting toxic fatty acids in Type 2

Supervised by Dr Hannah Welters, University of Exeter

£92,124 PhD Studentship
Oct 2015 – Oct 2018

Investigating the relationship between fatty acid metabolism and the control of viability in human beta cells

Increased levels of fatty acid molecules in people with Type 2 diabetes are thought to contribute to the death and malfunction of insulin-producing beta cells. This research will clarify the role of different fatty acids when broken down in human beta cells and could identify potential new therapies to reduce fatty acid toxicity.

Racking our brains on energy balance

Dr Craig Beall, University of Exeter Medical School

£436,582 RD Lawrence Fellowship
Sep 2013 – Sep 2018

Targeting the hypothalamic purinergic system for the regulation of whole body glucose homeostasis

Dr Craig Beall aims to identify cell surface receptors that are activated by the energy-sensing enzyme AMPK in the brain. He wants to understand their role in the regulation of appetite, blood glucose and energy balance, which affect both Type 1 and Type 2 diabetes.

Adopted by: Diabetes UK local groups: Caithness, Chippenham and District, Exeter and District, South Gloucestershire

STAT6 and beta cells in Type 1

Supervised by Professor Noel Morgan, University of Exeter Medical School

£158,747 PhD Studentship
Jan 2016 – Jan 2019

STAT6 as a regulator of beta-cell health; a previously unrecognised role in human diabetes

Professor Noel Morgan's PhD student will study the role of a protein called STAT6 in beta cell health and survival, and investigate the possibility that the loss of this protein may contribute to beta cell death in Type 1 diabetes.

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Developing a Type 1 diabetes genetic risk score to improve diagnosis and treatment

Dr Michael Weedon, University of Exeter

£241,113 Project grant
Jan 2017 – Jan 2020

Developing a Type 1 diabetes genetic risk score to get the right diagnosis and the right treatment for patients with diabetes

Dr Michael Weedon and his colleagues are aiming to develop a simple genetic test that could predict the type of diabetes and the treatment required in young adults. They will combine this test with currently used indicators of diabetes, in order to produce a model for better classifying diabetes, ensuring that the correct treatment can be given very soon after people are recognised as having diabetes.

Investigating a potential cause of Type 1 diabetes

Supervised by Professor Noel Morgan, University of Exeter Medical School

£91,571 PhD Studentship
Oct 2016 – Oct 2019

Depletion of the phosphatase inhibitor, PPP1R1A, may contribute to beta cell loss in Type 1 diabetes

It's believed that one of the factors involved in the development of Type 1 diabetes could be a specific type of virus that infects pancreatic beta cells, causing the immune system to attack them. The aim of this project is to investigate key proteins that may be involved in the potential viral infection of beta cells. The results will improve our understanding of the causes of Type 1 diabetes, ultimately informing future research into the prevention and treatment of the condition.

Adopted by:
Diabetes UK Icaol group: Plymouth
Organisations: Pethybridge Trust

Wales

New NHS teams for Type 1 vaccine trials

Professor Colin Dayan, Cardiff University

£1,068,514 Targeted research grant
May 2015 – May 2019

Type 1 diabetes UK immunotherapy consortium: clinical engagement and training core

Professor Colin Dayan and his team will work to set up, train and maintain a network of 15 Type 1 vaccine research teams across the UK who will help recruit for and run clinical trials of the new therapies. They will also help train the doctors and researchers who will lead trials of new immune therapies in the future.

Fully funded through partnership with Tesco

Gene therapy to target T cells in Type 1

Professor Susan Wong, Cardiff University

£240,125 Project grant
Jun 2015 – Jun 2018

Targeting islet-specific CD8 T cells in Type 1 diabetes

In Type 1 diabetes, T cells of the immune system destroy insulin-producing cells in the pancreas. Professor Susan Wong will work to develop a gene therapy to encourage the body's own immune system to destroy the 'bad' T cells and protect against Type 1 diabetes.

Adopted by:
Individuals: Mr Alfred Harris
Organisation: Ceasars Arms
Diabetes UK local groups: Southampton and District, South Northants, Cardiff, Llanybydder

Available for adoption Fully funded
Less than a year to run, but can still be adopted

Thank you

Diabetes UK Groups:

Aylesbury and District

Barnet

Berwick-upon-Tweed

Birmingham

Blackpool

Brentwood

Caithness

Cardiff

Carlisle

Central Fife

Chichester

Chippenham and District

Darlington

Daventry and District

Durham

Exeter and District

Gateshead

Havering

Huntingdonshire

Kings Lynn

Leeds

Llanybydder

London Borough of Hillingdon

Market Harborough

Newcastle

Newtownabbey

North Norfolk

Northampton

Penrith and District

Petersfield and District

Plymouth

Solihull

South Fylde

South Gloucestershire

South Northants

Southampton and District

Swindon

Thurrock

Tunbridge Wells

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Wyre and Fylde Children's Support

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John Foord

Mr Alfred Harris

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Charles Wolfson Charitable Trust

Edward Duthie Solicitors

Freemasons' Grand Charity

Harrogate Grammar School

Legal and General (Hove)

Meggit Aerospace Braking Systems

MJM Smith Trust

Moffat Charitable Trust

Ms Susan Seaborn (Diabetes charity shop)

Pethybridge Trust

The Foster Wood Foundation

The Frances & Augustus Newman Foundation

The George John and Sheliah Livanos Charitable Trust

The Javon Charitable Trust

The Pilkington Charities Fund

Diabetes UK Midlands, Wales and South West
6th Floor West, Tameway Tower
48 Bridge Street
Walsall WS1 1JZ
01922 614500
midlands@diabetes.org.uk

Diabetes UK North West, Northern & Yorkshire
and Northern Ireland
First Floor, The Boultings
Winwick Street
Warrington
Cheshire WA2 7TT
01925 653281
northwest.fundraising@diabetes.org.uk

Diabetes UK London, Eastern and South East
Blenheim House
1 Blenheim Road
Epsom
Surrey KT19 9AP
01372 720 148
fundraising.southeast@diabetes.org.uk

Diabetes Scotland
The Venlaw
349 Bath Street
Glasgow G2 4AA
0141 245 6380
scotland@diabetes.org.uk

Wells Lawrence House
126 Back Church Lane
London E1 1FH

www.diabetes.org.uk/research

@DiabetesUK