

# EXE-T1D

Understanding beta-cell destruction through the study  
of Extremely Early-onset Type 1 diabetes

**A research project helping scientists to  
understand why some people develop  
Type 1 diabetes in early life.**



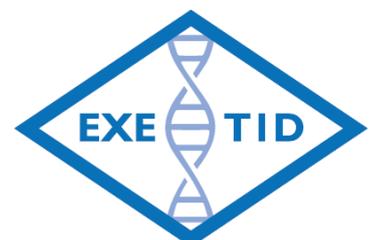
Could you and your child spare some time to help  
researchers better understand how a child's immune  
system is working and how it affects their diabetes?

**DiABETES UK**  
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Study 2

**Chief Investigator: Dr Richard Oram**



## Why are we doing this research?

Type 1 diabetes (T1D) results from destruction of insulin producing beta cells by the body's own immune system (autoimmunity). We do not fully understand what causes this type of diabetes and why there is variation in age of onset and severity between people who develop the disease. The aim of this work is to study very unusual people who develop T1D and/or autoimmune diseases extremely young as babies under 2 years of age.

Very few people develop autoimmunity so early in life. We think that, for the condition to have developed that early, they must have a very unusual or extreme form of autoimmunity. Sometimes this is caused by a spelling mistake inherited in a single gene but sometimes the cause is not obvious even after genetic testing. Studying the immune system of people with very early-onset diabetes might help us to learn a lot about the disease.

## Why has your child been invited?

Your child has been invited into this study because they were diagnosed with T1D in their early life and were referred to the Exeter Molecular Genetics Laboratory or to Dr Oram by your child's clinician or GP to investigate the cause.

## What does participation involve?

We are hoping to collect research samples with no additional needles by taking a little extra blood when your child has their routine/clinical tests. Your child's usual doctor / nurse or our study nurse, will ask some questions about their diabetes and health. Some of the tests we are doing are standard tests to identify type 1 diabetes and we will update your child's clinician with relevant results. In some cases, the results may help decisions about their future treatment but we cannot promise that.

### Study 2 involves children aged less than 24 months at recruitment and involves 2 visits.

**Visit 1:** A blood sample will be collected from your child for our researchers to analyse their beta cell function and their immune system. The total volume of the blood sample will be between 4 mls and 30mls (approx. 2 tablespoons) according to your child's age.

The blood sample will be collected either as part of your child's review visit with their clinical team at the time routine bloods are collected (so no additional needles), or (depending on where you live) you will both be invited to the Exeter Clinical Research Facility/King's College. Alternatively, if you live in the UK and would prefer our research nurse to visit you at home, this can be arranged.

**Visit 2:** The period close to diagnosis is when we may learn the most about what causes very early-onset Type 1 diabetes. An identical follow-up blood sample will be collected from your child two years after Visit 1 to see how the immune system has changed. This will most likely be done at their review visit when routine bloods are collected.

**Please see the flowchart opposite for more details about the visits.**

## What will happen to your child's samples and data?

All samples and data will be stored under a unique study ID number. We will explore immune system, genetic and insulin markers in your child's blood and urine samples and combine this with their other data (height, weight, diabetes history). We will share results from these tests with their GP/clinician. These assessments will help us to determine whether such testing helps to characterise early onset T1D. We will ask your permission to gift samples and data collected during this study, and as part of their diabetes referral to the Exeter Molecular Genetics Laboratory / Dr Oram, to the Peninsula Research Bank for safe storage and use in future research.

## How will your child's identity be protected?

It is NHS policy to include three forms of identification to ensure that clinical samples and results are linked to the correct person. Your child's samples will be sent for testing at the Exeter Clinical Laboratories at the Royal Devon & Exeter (RD&E) Hospital with three forms of identifiable information (name, DOB, NHS/CHI/hospital number) using Exeter-specific clinical analyses request forms. The samples are processed by registered healthcare scientists and are afforded the stringent information governance as given to all clinical samples. The clinical results will be made available to your child's clinician and/or GP, as they may help with their ongoing medical management.

Separately, we will conduct novel analyses on research samples at King's College London and possibly other specialist research collaborators in the USA to study the function of their immune system and other factors that may play a role in the development of Type 1 diabetes. Research samples will be stored and analysed using a unique study ID — this format protects your child's confidentiality to prevent researchers being able to identify them.

## Are there any risks or benefits in taking part?

Donation of blood samples can be uncomfortable but this procedure will be carried out by an experienced paediatric nurse /researcher to minimise any discomfort and numbing cream or spray will be offered. The project is unlikely to benefit your child directly but will help us understand more about early onset diabetes and so may contribute to an improvement in healthcare in the future. However, if we unexpectedly identify anything that could impact on your child's clinical care, we will inform your child's GP/clinician who may then want to follow this up.

### Study Visit Flowchart

#### What will happen during my research appointment?

VISIT	What does this involve?	Are there any risks?
<p><b>Give consent to participate</b> at one of these locations:</p> <ul style="list-style-type: none"> <li>• Exeter Clinical Research Facility</li> <li>• Local care provider</li> <li>• Your home</li> </ul> <p><b>15 -20 mins</b></p>	<p>Every effort will be made to co-ordinate your child's visit with their routine clinic reviews.</p> <p>At the visit, a member of the study research team will discuss the study with you and answer any questions that you or your child have. If willing to take part, you will be asked to sign a consent form.</p> <p>You will then be asked some questions about your child's general health and medical history and their height and weight will be measured.</p>	<p>No. Participation is entirely voluntary and it is up to you/your child whether to join the study and you can withdraw at any time without giving a reason and without affecting your/their legal rights.</p>
<p><b>Urine sample (optional)</b></p>	<p>We may ask your child to provide a urine sample to test how much insulin their body is able to produce.</p> <p>A specimen container or nappy will be provided, together with instructions about how to collect a urine sample.</p>	<p>No, and this test is optional.</p>
<p><b>Blood sample</b></p> <p><b>20 mins</b></p>	<p>Where possible, the blood sample will be collected at the same time as your child's routine sample, using a needle and syringe. A refrigerant topical anaesthetic spray can be used to reduce the discomfort and fear of the needle.</p> <p>The blood will be analysed to assess:</p> <ul style="list-style-type: none"> <li>• your child's immune system</li> <li>• how much insulin your child's body is able to make.</li> </ul> <p>The exact number of blood tubes will vary according to your child's age and size but it will involve a single draw of blood and the total amount of blood we will take over the visit will follow WHO guidelines and will not exceed 30 millilitres (ml) (approx 2 tbsp).</p>	<p>There may be slight discomfort and bruising from the insertion of the needle into the vein. These risks will be minimised by the procedures being carried out by a qualified researcher who will monitor your child closely throughout the whole procedure.</p>
<p><b>TOTAL visit time is less than 1 hour</b></p>	<p>We will ensure that your child is comfortable before ending their visit.</p>	<p>None.</p>
<p><b>VISIT 2</b></p> <p><b>2 years after Visit 1</b></p>	<p><b>What does this involve?</b></p>	<p><b>Are there any risks?</b></p>
<p><b>Blood sample and data</b></p> <p><b>40 mins</b></p>	<p>Where possible, your child's 2 year data and blood sample will be collected at the same time as your child's routine clinic appointment. Your child's height and weight will be recorded, and a blood and optional urine sample will be collected, as described above for Visit 1.</p> <p>We will ensure that your child is comfortable before ending their visit.</p>	<p>As described above, there may be slight discomfort and bruising from the insertion of the needle into the vein.</p>

## Does your child have to take part in this study?

No. Participation is entirely voluntary. It is up to you to decide to join the study. If you agree to your child taking part, we will ask you to sign a consent form like the one overleaf. You are free to withdraw your child at any point. Participation in the study will not affect your child's clinical care/treatment.

## What will happen to your child's data?

Your child's research data will be protected in the same way that we protect your child's research samples by using a unique ID to safeguard their research data. Their personal identifiable data will be held separately and will only be accessible to personnel with training in data protection who require this information to perform their clinical or study role. Your contact details are requested to enable the study team to communicate with you to provide you with information, to answer any queries you may have, to collect additional clinical information about your child's diabetes and to arrange your child's appointment. A unique Study ID will be allocated, under which all study data and samples will be link-anonymised and stored on a secure password-protected study database on an NHS server. Research data will be held separately to identifiable information and will be looked after in a secure way to protect their confidentiality.

## Who is organising and funding this research?

The research will be managed through the NIHR Exeter Clinical Research Facility (Exeter CRF), which is funded by the National Institute of Health Research, a part of the NHS, and a collaboration with the University of Exeter. Additional funding for the project has been provided by Diabetes UK and The Leona M. and Harry B. Helmsley Charitable Trust.

## Will your child's participation be kept confidential?

Yes. We will follow current ethical and legal practice and all information about your child will be handled in confidence. The University of Exeter / Royal Devon & Exeter NHS Foundation Trust (RD&E) are co-sponsors for this study based in the UK. We will use information collected from you and from your child's medical records to undertake this research and will act as the 'data controllers' for this study. This means that we are responsible for looking after your child's information and using it properly. The University of Exeter / Royal Devon & Exeter NHS Foundation Trust will keep identifiable information about your child indefinitely after the study ends in order to link information from their medical records to their study data, unless you/they ask for this information to be deleted before that time. Research data will be held separately to identifiable information. For the purposes of this study we will use consent to protect your child's confidentiality and allow you choice in their participation. All information collected in this study will be kept strictly confidential and stored either on a password protected computer or in a locked cabinet at the Exeter CRF, which can only be accessed by the researcher and research team. Your child will be allocated a unique participant number, which will ensure the information from their samples and tests cannot be identified by anyone else.

## Where can I find out more?

For further information about the project, please contact a member of our study team on: **01392 408181**

Additional information can be found on the study website:

**<https://www.diabetesgenes.org/current-research/exe-t1d/>**

## Who has reviewed this study?

This project has been reviewed and approved by the NRES East Midlands — Derby Research Ethics Committee and the Health Research Authority (HRA).

## What if there is a problem?

The research team will be happy to discuss any problems you may have. However, if you have concerns or complaints arising from your child's experience of participating in this study which you do not wish to discuss with the research team directly, the RD&E Patient Engagement and Experience team (01392 402093) will provide independent advice.

## General Data Protection Regulation ('GDPR') and your child's rights

This information sheet gives you new information that you have a right to receive under changes in the law made by the General Data Protection Regulation ('GDPR') and Data Protection Act 2018. We have provided you with as much information as possible to help you to make an informed decision about your child taking part or not and their right to withdraw. The University of Exeter and RD&E's lawful basis to process personal data for the purposes of carrying out research is what is termed as a 'task in the public interest' and will endeavour to be transparent about the processing of your child's personal data. Your rights to access, change or move your child's information are limited, as we need to manage their information in specific ways in order for the research to be reliable and accurate. If they withdraw from the study, we will keep the information about them that we have already obtained. To safeguard their rights, we will use the minimum personally-identifiable information possible.

If you do have any queries about the University's processing of your child's personal data that cannot be resolved by the research team, further information may be obtained from the University's Data Protection Officer by emailing: [dataprotection@exeter.ac.uk](mailto:dataprotection@exeter.ac.uk) or at: [www.exeter.ac.uk/dataprotection](http://www.exeter.ac.uk/dataprotection). If you have any concerns about how the data is controlled and managed for this study then you can also contact the Sponsor Representative, Pam Baxter, Senior Research Governance Officer, University of Exeter, Tel: 01392 723588 or Email: [P.R.Baxter2@exeter.ac.uk](mailto:P.R.Baxter2@exeter.ac.uk).

Thank you for reading this leaflet, which is yours to keep.

If you are happy for your child to participate in this study, you will be asked to **sign a consent form in the presence of a member of your usual clinical team/the research team**, a copy of which you will be given to keep. **The consent form will include the following statements:**

### CONSENT STATEMENTS

I agree for my child to:

- attend an appointment(s) as detailed in the study flowchart.
- provide information about their health for use in this project.
- allow the research team to contact my child's clinicians/GP about their treatment and study participation now and in the future, and to provide them with clinical results relevant to their care.
- provide blood and/or urine samples for analysis, including genetic studies using DNA. Samples will be stored for the duration of the study.

I understand that:

- my child's participation is voluntary and that they may withdraw at any time without their clinical care being affected.
- individuals from the study team, regulatory authorities or the UK NHS Trust will have access to relevant sections of my child's medical notes and data collected during the study for research, monitoring and audit purposes.
- the research data and samples will be stored separately and securely from any identifiable data, by using an ID format to protect my child's confidentiality.
- my child's clinical samples will be sent for testing at the Exeter Clinical Laboratories, together with three forms of identifiable information (name, DOB, NHS/CHI/hospital number) in accordance with the NHS requirements for clinical sample analysis. The clinical results will be made available to my child's clinician and/or GP, as they may help with their ongoing medical management.

I agree for my child to take part in this research study.

#### Optional Consent Statements:

- I agree for my child to gift samples and data from the project to the Peninsula Research Bank, managed by the Exeter Clinical Research Facility, to be used for future research with ethical approval.
- I agree that information held by the Exeter Molecular Genetics Laboratory and in my child's medical records may be used to follow up on my child's future health status.
- I am happy to be contacted by the research team about participating in other future studies.