

PEDIATRIC CONSENT FORM **(Parents/Guardians)**

TITLE: Determinants of Partial Remission in Type 1 Diabetes (T1D)

SPONSOR: Alberta Children's Hospital Foundation

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STUDY COORDINATOR: Heidi Virtanen 403-955-8866

This consent form is only part of the process of informed consent. It should give you and your child the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, please ask. Take the time to read this carefully and to understand any accompanying information. You will receive a copy of this form.

BACKGROUND

We all have a wide variety of bacteria in our gut/bowels. Both animal and human studies found that there is a difference in the composition of bacteria in the gut between those that develop diabetes and those that did not develop diabetes. Specifically, there is evidence linking an abnormal gut bacterial composition with leakiness of the bowel wall, causing inflammation and the development of Type 1 Diabetes (T1D).

At the time of diagnosis, many patients still have *some* functioning beta cells (cells that produce insulin) so that in the first year of T1D, about 50% of patients will experience partial remission. During this period, their insulin requirements are low and they have excellent blood glucose control. We do not know what determines who will experience a partial remission and what determines the duration of partial remission, but it is believed that the gut bacterial composition could be a factor. Since patients who experience partial remission have fewer long-term diabetes-related complications, understanding the relationship between gut bacterial composition, intestinal permeability, and the duration of partial remission is important. To date, there have been no studies evaluating the impact of the gut bacterial composition on partial remission of T1D.

In this small initial study, we will recruit patients with T1D from the diabetes clinic at the Alberta Children's Hospital within one month of diagnosis and follow them for two years, evaluating gut bacterial composition, intestinal permeability and beta cell function.

We aim to enroll a total of 50 patients from the Alberta Children's Hospital diabetes clinic in this study.

WHAT IS THE PURPOSE OF THE STUDY?

This small study will provide a first look at gut bacterial composition and intestinal permeability as factors involved in partial remission of T1D in children newly diagnosed. This information may help us develop therapies to optimize gut bacterial composition at the onset of diagnosis to initiate and/or prolong partial remission, and therefore enhance clinical outcomes and reduce complications.

WHAT WOULD MY CHILD HAVE TO DO?

There will be a baseline visit and additional visits at 1, 3, 6, 9, 12, 18, and 24 months.

Study visit components are described below, followed by the visit schedule and required components.

Questionnaire (age, gender, date of T1D diagnosis, current medications, other medical conditions, number of episodes of severe hypoglycemia and ketoacidosis, insulin requirements)

Measurements (height, weight)

HbA1c Test and Details about Diagnosis information will be collected from your child's medical chart. This test measures average blood glucose level for the last 2-3 months prior to the test.

Mixed Meal Tolerance Test your child will arrive to clinic fasting. You will get special instructions about diet and insulin dosing before the test. To make the blood sampling easier for the test, an intravenous needle and plastic tube (IV) will be placed in your child's vein. The IV will be kept in place during the test. Two blood samples, ten minutes apart (one teaspoon of blood for each sample) will be taken through the IV. Your child will then drink a meal replacement beverage (like "Boost") which has glucose as well as fats and proteins. Blood samples will be drawn through the IV at regular intervals for 2 hours to measure glycemic control and beta cell function (C-peptide, glucose, insulin, proinsulin) in response to a "meal".

Gut Leakiness Test the night before your child's study visit, after their regular evening meal and 3 hours before bedtime, they will drink a solution containing lactulose and mannitol in 200 mL of water. We will ask you to collect all of your child's urine for the following 12 hrs and bring it into the clinic within 24 hrs after collection.

Stool Sample will be collected at home. One tablespoon of stool will be placed in a pre-labelled tube, placed in a biohazard bag and stored in the home freezer (-20°C). Stool samples will be brought to the clinic on cold packs within 3 days of collection.

Baseline Visit: Fasting, ~3 hours

- Eligibility Screen and Informed Consent
- Questionnaire
- Measurements
- Mixed Meal Tolerance Test
- Gut Leakiness Test
- Stool Sample

3 Month Visit: ~30 minutes

- Questionnaire
- Measurements
- Gut Leakiness Test
- Stool Sample

6 Month Visit: Fasting, ~3 hours

- Questionnaire
- Measurements
- Mixed Meal Tolerance Test
- Gut Leakiness Test
- Stool Sample

9 Month Visit: ~30 minutes

- Questionnaire
- Measurements
- Gut Leakiness Test
- Stool Sample

12 Month Visit: Fasting, ~3 hours

- Questionnaire
- Measurements
- Mixed Meal Tolerance Test
- Gut Leakiness Test
- Stool Sample

18 Month Visit: ~30 minutes

- Questionnaire
- Measurements

24 Month Visit: ~30 minutes

- Questionnaire
- Measurements

WHAT ARE THE RISKS?

Your child could have discomfort and/or a bruise when they get their blood drawn. Once in a while, some people may faint. It is rare, but some people may get an infection, a small blood clot, swelling of the vein and surrounding tissue or bleeding where the needle enters the skin. Some people may feel nauseous when they complete the Mixed Meal Tolerance Test. The Mixed Meal Tolerance Test requires drinking a product which contains milk and soy ingredients. People with severe allergies to these could have a reaction. If your child has a known allergy to either of these ingredients, please let us know. It is possible we may need to advise you to avoid the Mixed Meal Tolerance Tests.

The intestine leakiness drink contains a small amount of lactulose and mannitol, which are not absorbed into your child's system, therefore is not likely to cause side effects. Diarrhea and nausea are seen with much higher doses.

ARE THERE ANY BENEFITS FOR MY CHILD?

There is no guarantee that your child will benefit from this study. During the study we will share with you information about your child's health and diabetes. The information we get from this study may help us to provide better treatments in the future for patients newly diagnosed with T1D.

DOES MY CHILD HAVE TO PARTICIPATE?

Your child will continue to have regular standard treatments through the diabetes clinic and their usual diabetes team. Participation in this study is voluntary and your child may withdraw from it at any time without jeopardizing their health care. To withdraw, let a member of the research team know that you don't wish to participate anymore. You can contact either the study coordinator (403-955-8866) or investigator (403-955-7819) if you wish to withdraw your child from the study. Also, let them if you would

like your child's data erased from the study. The researcher can also withdraw your child from the study. If new information becomes available that might affect your child's willingness to participate in the study, you will be informed as soon as possible.

WHAT ELSE DOES MY CHILD'S PARTICIPATION INVOLVE?

There are no other things involved.

WILL WE BE PAID FOR PARTICIPATING, OR DO WE HAVE TO PAY FOR ANYTHING?

The costs of parking for each visit will be reimbursed.

WILL MY CHILD'S RECORDS BE KEPT PRIVATE?

Only the researchers and designated research assistants will have access to the information collected. All paper files will be kept in locked offices at the Alberta Children's Hospital and data will be stored in password protected computers. The University of Calgary Conjoint Health Research Ethics Board will have access to the records.

IF MY CHILD SUFFERS A RESEARCH-RELATED INJURY, WILL WE BE COMPENSATED?

In the event that your child suffers injury as a result of participating in this research, no compensation will be provided to you by the Department of Pediatrics, the University of Calgary, the Alberta Health Services or the Researchers. You still have all your legal rights. Nothing said in this consent form alters your right to seek damages.

SIGNATURES

Your signature on this form indicates that you have understood to your satisfaction the information regarding your child's participation in the research project and agree to their participation as a subject. In no way does this waive your legal rights nor release the investigators, or involved institutions from their legal and professional responsibilities. You are free to withdraw your child from the study at any time without jeopardizing their health care. If you have further questions concerning matters related to this research, please contact:

Heidi Virtanen 403-955-8866

If you have any questions concerning your rights as a possible participant in this research, please contact the Chair of the Conjoint Health Research Ethics Board, University of Calgary at 403-220-7990.

_____ Parent/Guardian's Name	_____ Signature	_____ Date
_____ Child's Name	_____ Signature (if able to read consent. If not, read & sign assent)	_____ Date
_____ Investigator/Delegate's Name	_____ Signature	_____ Date

The investigator or a member of the research team will, as appropriate, explain to your child the research and his or her involvement. They will seek your child's ongoing cooperation throughout the study.

The University of Calgary Conjoint Health Research Ethics Board has approved this research study.

A signed copy of this consent form has been given to you to keep for your records and reference.