



BOX Family Number: «NUMBER»

BOX Family Study Newsletter



Message from the Chief Investigator Dr Kathleen Gillespie

Thank you very much to everyone for continuing to support the BOX Family Study. We are delighted to report that BOX continues to go from strength to strength, thanks to you and your families. We have learnt a huge amount about autoimmunity in type 1 diabetes since the BOX study started over 30 years ago. Some of our more recent research is detailed in this newsletter.

With the support of families and NHS Trust research teams we are really pleased to have received *in our latest collection* over **800** blood samples plus many more mouth swabs, urine, and faecal samples making a total of over 30,000 stored samples.

Can your family join our sample collection?

No appointments are needed when using our home sample collection kits, once you have read our stage one information sheet and consented to take part we will send our specialised sample kits (with full instructions and freepost return packaging) to your home address. Please contact us if you are interested to find out more.



This is the amazing Scarlett who at 3 years old gave blood using our home sample finger prick kit

The microbiome of the gut

We know early life factors are important in the development of type 1 diabetes. Some studies have shown that healthy gut bacteria are different between those who are diagnosed or susceptible to type 1 diabetes and those who are protected. We are interested in collecting faecal stool samples from these groups of people (plus a healthy control population) as part of our stage two yearly follow up.

Immune cell research with Cardiff University

White blood cells are normally involved in protecting the body against infections. But in type 1 diabetes the body mistakenly attacks the insulin producing cells.

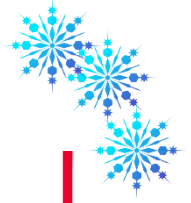
Our research scientist Dr Anna Long is working in collaboration with Cardiff University to discover how the immune process in CD8, B cells and regulatory T cells may offer some protection from developing type 1 diabetes. We will keep you updated with this research and wish to express our warmest thanks to everyone that continues to volunteer samples.

Changed your contact details?

You can now update them online:
www.bristol.ac.uk/translational-health-sciences/box-study

Go Green and let us know your email address for future newsletters

The immune response in type 1 diabetes produces autoantibodies to proteins that are found in the insulin-producing cells of the pancreas. We are investigating what portions of one of the proteins (Zinc Transporter 8; ZnT8) the autoantibodies recognise. By studying this, we hope to improve our ability to predict who will develop type 1 diabetes. We have shown that autoantibodies to ZnT8 are present in individuals who have remained type 1 diabetes-free for more than ten years. Learning more about these autoantibodies may be able to tell us why some people are slowly progress to diagnosis and what this could mean for future therapies aimed towards prevention.



New techniques developed in our laboratory.

In collaboration with colleagues in Italy, Germany and the US, we are working on new methods of measuring type 1 diabetes related auto-antibodies. Traditionally, radiation is used to detect these markers in blood samples, but we would like to move away from this method which is expensive, time consuming and not very sustainable.

These new techniques, using molecules which produce light (a bit like the glow in the dark jelly fish you may have seen on Blue Planet 2!), allow detection of even small numbers of autoantibodies. This is a safer and quicker way of measuring these important markers, and requires smaller amounts of blood than current methods.

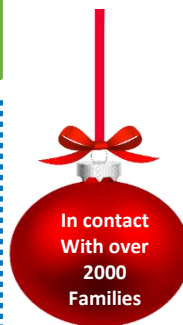
Samples from BOX participants continue to be invaluable for improving and evaluating these techniques and we hope that in the future all our tests will be non-radioactive.

Do you have a kit that you've not returned?

It's not too late to collect your samples
Demonstration video guides are found on our website

Laboratory Christmas closure dates:
18th December to January 2nd 2018

Please do not post samples during this time



Genetic and epigenetic studies

We know that combinations of genetic markers play a role in the development of type 1 diabetes, but how different combinations impact the immune system is largely unknown.

We have discovered that people who have type 1 diabetes or are at increased risk of developing the condition, often have distinct DNA patterns. We are studying whether the genetic risk of type 1 diabetes can be affected by a special mechanism where DNA is modified by an enzyme.

To further investigate the biological consequence of these modifications, our research fellow Dr Jody Ye is travelling to The Albert Einstein College of Medicine in New York as part of her work to further explore this developing area of science.

We anticipate that our findings will bring new insights into how genes are regulated towards the development of type 1 diabetes therapies.

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Season's Greetings from BOX

Left to right: Anna Harding, Rachel Aitken, Clare Megson, Kathleen Gillespie and Isabel Wilson