

# Under the Microscope Ope

Paediatric Gastroenterology Research Team newsletter  
Addenbrooke's Hospital, Cambridge University Hospitals NHS Trust

Issue 1

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## HELLO!

We are the research team at Addenbrooke's Hospital. We work alongside your clinical team, who are committed to supporting research in any way they can. Together we work hard to make sure that you are receiving the best possible care we can deliver.

We are so excited to bring you (and your grown ups!) our first research newsletter. We want this to be a place where we can share information and stories about the studies we are doing.

Some of you have taken part in our studies, and we want to show you what happens afterwards. You'll be able to see the difference you are making and know your involvement is important and worthwhile!

In each issue you will get to meet members of our research team, and learn about the job they do. We will also tell you all about a topic or study we are working on, so we can share what we are learning with you.

To make our newsletter even more fun, we'll choose a new activity for you to complete every time!



...the team!


## We want to hear from you!

It's really important that you like our newsletters! We've made a feedback form where you and your grown-ups can tell us what you think, what we have done well, and what we can do better.

Scan this QR code to access the feedback form. Or email us at:

claire.glemas@addenbrookes.nhs.uk

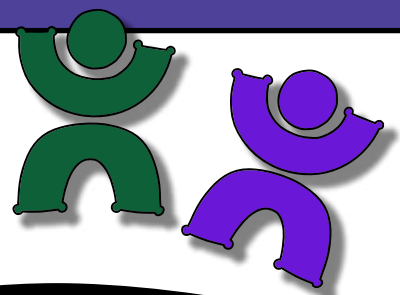


  
"Research carried out with children is very important because they help researchers discover the best way to treat children. Children are not just small adults, and their bodies work in very different ways"

<https://www.who.int/clinical-trials-registry-platform/clinical-trials-in-children>

From your newsletter reporter and research nurse Claire Glemas  
Illustrated by Jen Rose

# Meet our team...



This is where you can learn a little more about us and what we do!

## MATT

Hi, my name is Matt and I am one of the gastro doctors looking after children with tummy problems. I am also in charge of the research team that includes a group of scientists and our research nurse. Together we are trying to find out more about what is causing children to develop gut diseases like inflammatory bowel diseases (IBD). We perform experiments in the laboratory using microscopes and other research equipment.

We perform these experiments on tissue samples from our patients. We can use tiny biopsies to grow a mini version of the intestine in a laboratory dish, then use that to test if the cells of the gut are working properly. If not we can look for ways to fix them. This will help us to find better treatments for gut diseases in the future.

So we can do our research, we need help from you, our patients, and your parents. We want you to tell us about the main problems your disease is causing you, and how we could best help you. We also ask our patients to allow us to take extra tissue samples to use for our experiments. Over the past 10 years over 1000 children have already helped us by giving us tissue samples and helping us with our research!

"I play the piano - not very well but I enjoy it!"



"I love sports and all kinds of exercise! My favourite is riding my bike"

"I love playing with my little girl. She's 5 years old, and her favourite thing to do is build spaceships with cardboard boxes!"

## FLISS

Hi, I'm Fliss and I'm a bioinformatician. Bioinformaticians work with computers to analyse biological data from organisms like humans, mice, yeast and viruses. This helps to answer questions about how they work and what is happening when things go wrong. For example, we might compare genetic data (the material in our bodies that carries all the information about how a thing will look and work) between healthy people and people with a particular disease. Then we can see if we can find any differences which might explain what is going wrong.

"I love to read"

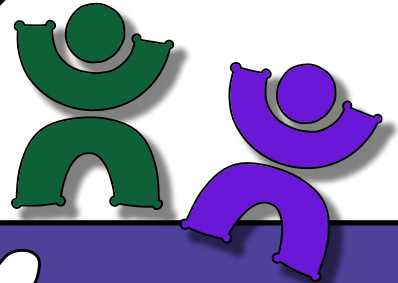


"I really enjoy travelling to new places"

"I love listening to live music, and singing loudly in my car!"

# Our research...

This is where you can find out more about the studies we are doing!



FOCUS ON...

..this stands for Translational Research in Intestinal Physiology and Pathology. But you don't need to remember that!

## TRIPP study

This is the study that is keeping us busy at the moment! If you have allowed us to take extra biopsies and blood, they've probably been used here.

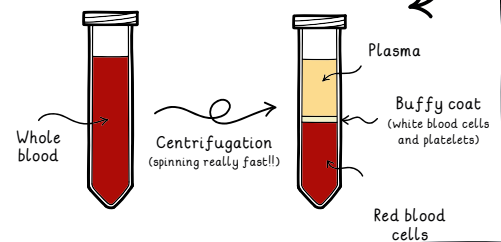
The aim of this study is to help us understand more about the gut and diseases that affect it. We do this by looking at biopsies and blood samples alongside information about the patient.

## blood

Blood is made up of different types of cells and components. We put the blood in a special machine called "centrifuge". This machine spins at a very high speed and separates different parts of blood like plasma, white blood cells and red blood cells. We then store the different parts of blood separately in small tubes in a very big freezer.

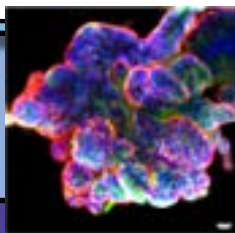
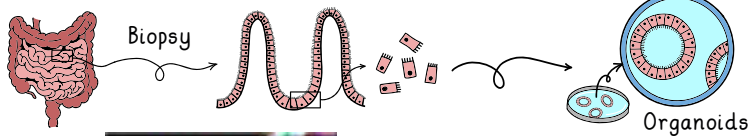
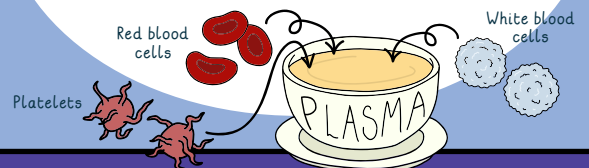
## biopsies

Biopsies are tiny tissue samples (biopsies), We break them into smaller pieces using a special instrument called a pipette. Then we mix the smaller pieces with a jelly-like material called Matrigel and put them in a plate with some food for the cells. The smaller pieces then grow into mini- guts called "organoids". We can grow lots of organoids from a single biopsy. We then investigate these organoids to see the differences between an organoid from a healthy donor and an IBD patient.



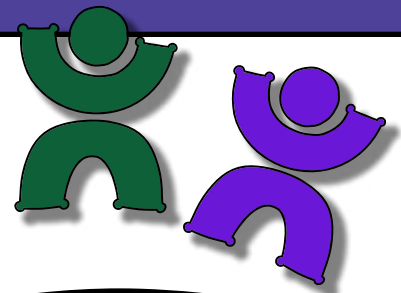
## What is blood made of...?

Whole blood is like chicken noodle soup. The whole thing is the soup, but the soup is made up of lots of ingredients (noodles, chicken and vegetables) mixed into a liquid. Whole blood is made up three main ingredients (red blood cells, platelets and white blood cells) mixed in a liquid called plasma (with a little bit of protein).



An organoid under the microscope

# Time to play!



Let's have some fun  
(and see what you've  
learned!)

## WORD SEARCH

challenge!

Can you find these  
research-related tricky  
words in the word search?  
Do you know what each  
word means?

(don't worry, you can find all these  
words somewhere in this issue!)

RESEARCH  
MICROSCOPES  
ORGANOIDS  
PATIENT  
GENETIC  
PIPETTE  
BIOPSIES  
FREEZER  
ANALYSE  
BLOOD  
TUMMY  
INTESTINE  
DISCOVER  
EXPERIMENTS

S	T	N	E	M	I	R	E	P	X	E	T	S	E
D	O	O	L	B	E	O	H	N	R	C	O	T	N
S	S	A	N	A	L	Y	S	E	T	O	S	N	E
R	S	E	I	S	P	O	I	B	G	I	E	E	T
O	E	A	P	E	T	S	O	O	E	I	P	I	X
V	R	S	C	E	T	E	O	R	N	N	O	T	T
O	E	G	E	P	S	P	E	R	E	T	C	A	D
E	R	O	A	A	I	N	I	A	T	E	S	P	I
A	E	E	E	N	R	P	A	O	I	S	O	R	S
R	S	S	M	E	O	C	E	S	C	T	R	P	C
N	C	A	N	T	Y	I	H	T	S	I	C	T	O
L	E	O	D	S	O	U	D	E	T	N	I	A	V
N	T	U	M	M	Y	N	R	S	T	E	M	C	E
R	H	Y	F	R	E	E	Z	E	R	P	T	S	R