Welcome to the second issue of our newsletter - it's been a busy few months!

We held our research strategy meeting in Cambridge. We hold these meetings to look forward, think about what we want to accomplish in the lab, and about how we can do it! It was great to have the whole team back together after two years, and we were very lucky to have both patients and parents joining us for the first time - this really helps to make sure we are getting it right!

Our lab member April (she works hands on in the lab reading, writing and designing research projects) graduated from the University of Manchester, Faculty of Biology, Medicine and Health with her PhD. Congratulations Dr Foster!

We are sad to say goodbye to Aurelie, one of our research assistants. She has moved to Germany to work in a lab at the university in Munich. We will miss her a lot!

Komal celebrated 10 years of working in our lab! She started the team from scratch when the lab was an empty room at Addenbrooke’s Hospital! Find out more about Komal in our ‘Meet our team’ page.

...our strategy meeting!

...April

“If we knew what it was we were doing, it would not be called research, would it?”

Albert Einstein

From your newsletter reporter and research nurse Claire Glemas
Illustrated by Jen Rose
Hi, I'm Rob. I am a consultant paediatric gastroenterologist, and I mostly look after children with IBD. I have been treating children and young people with IBD for nearly 25 years, the last 15 years at Addenbrooke's.

I really enjoy working together with our clinical and research teams, providing the best treatments we have, but also learning more about these conditions - so that we can find better ways of treating them and getting patients back doing all the normal stuff. I am really committed to helping Matt and our research team understand more about the gut in IBD, as that is the only way we can find better treatments.

Our team also takes part in 'clinical trials' - these are studies where our patients can get access to the latest medicines. The studies are quite difficult as we need to study patients and the effects of treatments very closely - something we just couldn’t do without help from Claire, our research nurse.

I spend the rest of my week on a mission to get a children’s hospital built in Cambridge. I am helping a large team to get our region its own dedicated hospital for children - Cambridge Children's. It’s a very complicated but very important project. We are making really great progress and are hoping to be able to start building in 2024!

Hi, I am Komal and I work in the lab. I have two roles - I work as a scientist and a lab manager! I take the research biopsies that you kindly give us to the laboratory and grow them into “mini-guts” in small dishes. These are called organoids! I then perform experiments on these mini-guts. Since you have IBD, I try to find out about the special characteristics that your cells have that are different from kids without IBD. I also help in the organisation of the lab and make sure we have all the materials, chemicals and fancy equipment to do all our experiments.

"I have twins - a boy and a girl!"

"I love cooking and feeding my friends and family!"

"I have twins - a boy and a girl!"

"I enjoy cycling - I often go out with Matt. This gives us time to talk about research ideas and how to improve our service."

"Now my children are almost grown up I have more time to relax - I like to ride and fix old motorbikes."

"I'm very scared of earthworms and slugs...ewwww!"
Did you know that inside all of us, an army of millions of cells patrols our bodies, keeping us safe from all sorts of nasty things that try to harm us like germs and viruses? This army of cells is called our immune system. It is especially important in our intestine because of all the nasty bugs and germs that hang around in our poo!

Normally our immune system works really well! However, sometimes things can go wrong and our immune system goes into overdrive, attacking everything in sight, including our healthy cells. This is what happens when you have inflammatory bowel disease (IBD).

A very important type of cell is called the epithelium - these cells form the lining of your gut. In one way, they're like the outer wall of a castle because they protect our bodies from intruders trying to get in. However, they are also a bit like watchmen that stand on the walls, looking out for enemies. Your epithelium does this by sensing what's going on and sending signals to your immune cells, telling them if they need to get ready for a fight.

But what if your epithelium doesn't send its messages correctly? What if it sends too many signals and calls in your immune system too strongly or at the wrong time?

We think this could be part of what's happening when someone has IBD. People who have IBD have more of a molecule (called a transcription factor) than normal. We think it might control how many signals their epithelium sends to their immune system, causing it to go into overdrive.

Our job was to test this theory!

If you read last month's issue of the newsletter, you'll know that an organoid is like a 'minigut' grown in a dish. Using genetic engineering, we made the organoids produce lots and lots of the transcription factor to see if it makes the epithelium send too many signals.

We were right! The engineered organoids did send a lot more signals than before. Hopefully in the future this research will help someone to produce a new treatment that stops epithelial cells signalling too much. This will stop the immune system going into overdrive, helping people who have IBD get better.

(We also made them glow in the dark, so we could see if the genetic engineering had worked properly!)
Time to play!

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

Just another busy day in the lab!

If you look really carefully there are 12 differences between these two pictures.

Can you spot them all?

Can you believe these ‘spot the difference’ pictures were drawn by one of our amazing patients, Luca who is 9 years old! Thank you Luca, we love them!

If you would like to help us with our newsletter too, get in touch with Claire, our research nurse.

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