



Genetics of Obesity Study

October 2017

# GOOS Newsletter

## Autumn/Winter 2017

I know, it's been a while since the last Newsletter!

I have been reminded of that as it seems that you can get statistics on the number of people who look at your website and indeed where they are from. I'm a bit worried actually, as many hits are from Russia: are they trying to hack us? Seriously though, we are getting more and more e-mails via the GOOS website and a lot more people signing up for the newsletter.

Much has happened over the last few months. Most importantly, Professor Farooqi got her Fellowship (and of course the money we need to carry on our work). No need to worry for the next 5 years at least. You may have read about it as a "Latest News" item ([www.goos.org.uk/resource-centre/latest-news](http://www.goos.org.uk/resource-centre/latest-news)) on the GOOS website: many congratulations Professor!

Now you would think that after such a lot of hard work leading up to the Professor preparing for and being grilled about her/our work, we could all just take it easy for a bit! Not so, as almost immediately after this we opened our new "Translational Research Facility" - TRF. We now have a purpose built, 8 bedded unit of our own (well a few other Research groups from our Institute can also use it, if they ask nicely). If you come and see us here in Cambridge, this is where you will stay and we love it!



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### News From Julia (cont.)

It doesn't stop there! We have also developed and launched a new website ([www.mc4r.org.uk](http://www.mc4r.org.uk)), dedicated to our work on the MC4R gene: the commonest single gene defect causing severe weight problems. You can read more about this in our "Latest Research Highlights" section.

Another very, very exciting thing to happen has been the approval for a Trial of treatment for some of our patients. I will let the Professor tell you more about this in "News from the Professor."

Finally, and by no means least, our team has expanded and you can check this out in our "Meet the Team" section on the GOOS website ([www.goos.org.uk/about-us/meet-the-team](http://www.goos.org.uk/about-us/meet-the-team)). No one team member is more important than another of course but I have to say, having 2 new nurses join us is likely to cause Professor Farooqi to be on her toes as of course we are known to be somewhat bossy!

Hope you enjoy reading our news

**Julia**

### News From The Professor

Well, it's been a very busy few months for myself and the team. We have been working very hard to put together an application to the Wellcome Trust, who have been a major funder of our research over many years. The Wellcome Trust, a charity established by Sir Henry Wellcome, is the major funder of biomedical research in the UK and one of the largest charities worldwide ([www.wellcome.ac.uk](http://www.wellcome.ac.uk)). One of the ways in which they fund research is by supporting individual researchers and their teams to address big research questions of importance to global health and to society. I am pleased to say that our research vision - to find new treatment strategies for obesity - was very well received by a Panel consisting of some of the world's leading scientists.



## News From The Professor (cont.)

The funding was for a Principal Research Fellowship (PRF), which will allow us to push on with an ambitious research programme over the next five years. Fundamental to our success, and critical to our future plans, is how we work with patients and volunteers to deliver high quality translational research. There are lots of things to do. We need to get a more comprehensive understanding of how individual genes but also networks of genes work together to regulate a person's weight. We need to understand how genes work in detail in cells of the body but most importantly in real people. The human body is complicated. We want to address the challenges in two ways. Firstly, we want to understand what happens when people gain weight easily. Then we want to understand how some people manage to stay thin whatever they eat and put that information together to find the key control points to target with new treatments. I am personally very grateful to all our patients, volunteers as well as my terrific research team for all their hard work that has allowed us to get to where we are. We have made major breakthroughs in this field and look forward to continuing to push forward the frontiers of science as we seek to help people with weight problems!

**Professor Farooqi**

## Latest Research Highlights

### Melanocortin-4 receptor (MC4R)

Of all the genes we study, genetic changes or mutations in the melanocortin-4 receptor (MC4R) are the most common cause of severe weight problems that we have identified in our patients. Our team is very keen to understand how these mutations can affect the way the MC4R gene regulates body weight. This is important, because the understanding of the molecular mechanisms involved will contribute to the development of potential therapies targeting the MC4R gene that could help both our patients and the wider public.



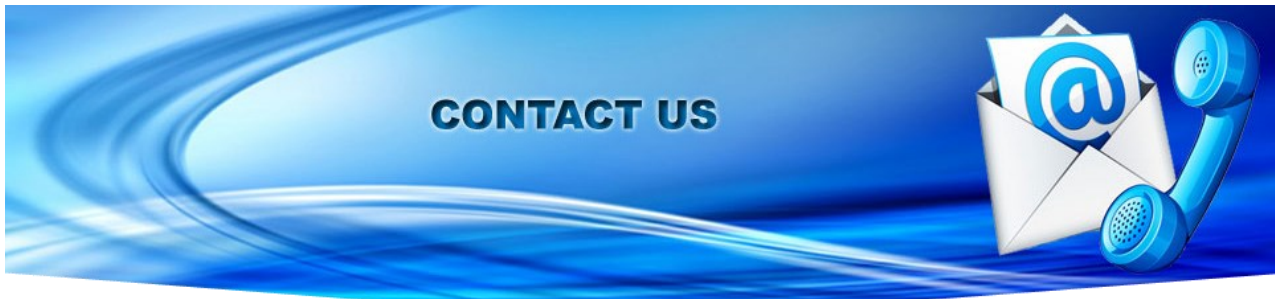
### Latest Research Highlights (cont.)

We have recently published a paper in the scientific journal "Molecular Metabolism" that lists all currently known mutations in the MC4R gene. For this paper, the GOOS team put together all the information and data collected over many years. Overall, we found 350 different mutations that have been found in the MC4R gene!

Our next step was to find out as much as we could about how each of these mutations can affect how the MC4R molecule works by undertaking studies in our laboratory. This work allowed us to classify them into different groups based on the potential impact that they may have and how they may or may not function properly. We were then able to produce a comprehensive classification system that can be used by other scientists and medical professionals which is freely available in a visual format on our new website dedicated to MC4R: [www.mc4r.org.uk](http://www.mc4r.org.uk). Check it out and let us know what you think about it!

We hope this tool and indeed the website will be developed further as we learn more about the MC4R gene and the impact of different mutations on its function. Meanwhile, we will continue our extensive programme of research to understand better how MC4R acts in our bodies at the molecular level, and how we could potentially modulate its activity with drug treatments. We will of course keep you posted!

**Contributed by Jacek Mokrosinski, Post Doctoral Research Associate**



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