

# 60 years of the Colworth Medal

The Colworth Medal is an esteemed annual award for outstanding research by a young biochemist of any nationality who has carried out the majority of their work in the UK or Republic of Ireland. Donated in 1963 by Unilever Research Colworth Laboratory, the award is made to an early-career scientist who is within 10 years of receiving their highest qualification. Interviews with past winners from 1963 to 2013 were previously published throughout 2013. To celebrate the 60th anniversary of the Colworth Medal, interviews with our latest winners will appear in *The Biochemist* throughout 2023. In this issue, we will hear from Professor David Grainger (2016) and Professor Matt Johnson (2018).



## Professor David Grainger (2016)



### What led you to a career in the molecular biosciences?

I was always interested in science and the natural world, and would read about this as a kid. I went to a school called Ellowes Hall, in the black country. I remember, at the age of around 15, a secondary school teacher (called

Mr Thorneywork) taking a few of us to one side and explaining the different bases in DNA and how viruses could be used for genetic engineering. I didn't know it at the time, but that would have been the first time I was introduced to molecular genetics.

### The Colworth Medal is presented for outstanding research. Can you tell us about your work?

My work prior to the Colworth Medal focused on studying gene regulation in bacteria on a chromosome-wide scale. At first, we worked a lot to develop the technology and study well defined proteins. As time has progressed, and with the incorporation of unbiased DNA sequencing approaches, we've been able to uncover a growing number of unexpected processes controlling the expression of genes in bacteria. For example, we were recently able to show that the signals instigating transcription of DNA in prokaryotes often act bidirectionally.

### What are you doing now?

After establishing a successful research group at the University of Warwick, I relocated my laboratory to the University of Birmingham in March 2011 and I am now Professor of Molecular Microbiology.

### How did receiving the Colworth Medal impact your career?

Winning the Colworth Medal in 2016 gave me confidence to pursue more ambitious projects and take chances.

### What advice would you give to a future molecular bioscientist?

Listen to advice from others but only take the advice you believe in.

## Professor Markus Ralser (2017)

The 2017 Colworth Medal was awarded to Professor Markus Ralser (Charité University Medicine, Berlin, and University of Oxford) for his work revolutionizing

understanding of the origin of cellular metabolism during early evolution and the dynamic nature of metabolism that allows cells to adapt to stress situations. You can find out more about his work here.

### Professor Matt Johnson (2018)



#### What led you to a career in the molecular biosciences?

I was lucky enough to have fantastic science teachers at my secondary school growing up in Derbyshire who inspired me. I was especially fascinated by the chemistry of life, how metabolites were processed to extract energy and build new biomolecules for growth and development. Studying Biochemistry at University I came across photosynthesis and was instantly hooked. I loved the idea of chlorophyll as the conduit through which the sun's energy entered the biosphere to sustain life. I therefore chose a PhD in this area with Peter Horton and never looked back, the possibilities for international travel and collaboration were attractive and the connections I made with some amazing scientists around the world have been formative.

#### The Colworth Medal is presented for outstanding research. Can you tell us about your work?

My work is focused on photosynthesis, the process that uses solar energy to transform water and carbon dioxide into the energy we consume and the oxygen we breathe. I'm particularly focused on the structure and dynamics of the thylakoid membrane of higher

plants. Often referred to as the 'plumbers' nightmare', its intricate three-dimensional architecture is nonetheless extremely dynamic on a timescale of seconds to minutes. These dynamics form the basis for the regulation of photosynthesis, and therefore the adaptability of plants to different environments and recent work has shown they can be manipulated to boost crop yields.

In my lab we've used a multi-faceted approach that includes atomic force, electron and fluorescence microscopies in combination with biochemistry and spectroscopy to probe these organisational details and understand their functional relevance.

#### What are you doing now?

I am now Professor in Biochemistry and have run my own research group at Sheffield since 2012. Alongside this I am currently the Director of Research of the newly formed School of Biosciences at the University of Sheffield, which brought together three smaller departments to tackle global challenges. Although this has been a challenging role, it has nonetheless been very interesting to play a part in shaping our future research direction.

#### How did receiving the Colworth Medal impact your career?

Being awarded such a prestigious prize as the Colworth Medal was a massive honour. On a personal level it was incredibly humbling to be recognised alongside the many great scientists who have previously won the award, including Sir Hans Kornberg, a scientific hero of mine. Professionally, winning such a well-recognised accolade acted as a catalyst for my career progression from Lecturer to Reader and Professor since it copper-plated my academic standing within the field. Moreover, it provided me with the opportunity to attend a number of Biochemical Society events, meet fantastic people and give something back to the community that helped shape me.

#### What advice would you give to a future molecular bioscientist?

I keep it simple. Love your science and show the same curiosity and drive that you had when you were at school to learn new things and try new stuff. I try not to take myself or my work too seriously and I strive to put family first. If you are happy and fulfilled at home, then science can be your fun hobby (and sometimes escape!). ■