

Charles McDonald 1953–2017

Charles (Charlie) McDonald obtained his first degree in biochemistry from the University of Stirling, followed by a PhD under the supervision of Jeff Sampson, at the University of Leicester. Here he helped elucidate the role of cAMP phosphodiesterase and its modulation by carbohydrate, during cellular development and aggregation in *Dictyostelium discoideum*. Charlie emerged from these formative experiences as a gifted experimental biologist. He then moved into the field of steroid control of development, where he obtained a post-doctoral position in the laboratory of Steve Higgins at Leeds, who had followed a similar move from microbial biology to hormonal regulation in mammals, several years earlier. It was the combination of experimental virtuosity, an interest in the application of contemporary molecular biology methodology and the study of complex developmental questions in biology, that made Charlie a welcome addition to the staff in the Department of Biochemistry headed up by Professor Peter Banks, under the MRC's 'New Blood' Lectureship Programme in 1984.

Charlie immediately threw himself into establishing his research group through funding from the MRC, a number of medical charities including Yorkshire Cancer Research and SERC (now BBSRC) funded departmental research studentships. Within five years Charlie had broken the back of a programme to understand the properties of a set of genes encoding proline-rich proteins from the mouse parotid and salivary glands. To give you some idea of the hurdles that Charlie and his group had to overcome: mammalian gene cloning and sequencing was in its infancy in the UK; introns had only been described a few years earlier by Rich Roberts and Phil Sharpe and the mouse parotid is not the easiest tissue from which to extract nucleic acids, let alone proteins. Last, but not least, proline rich proteins are, by their chemical nature, unstructured and have a tendency to aggregate during purification. Charlie's PhD students had to be made of stern stuff! In fact, amongst his first crop of students were Andy Bannister (now at the Gurdon Institute, Cambridge),

Nullin Divecha (University of Southampton) and Stefan Roberts (University of Bristol and Biochemical Society Honorary Meetings Secretary), all of whom have gone onto forge highly successful academic research careers.

Charlie will probably be remembered by most colleagues and students, for his outstanding contribution to undergraduate biochemistry teaching, following the merger of the Departments of Biochemistry, Microbiology and Genetics with the Wolfson Institute of Biotechnology in 1988, under the leadership of Professor Ernie Bailey, to form the current Department of Molecular Biology and Biotechnology. In this 'second career', which came after a period of important political service in Sheffield, Charlie re-invigorated Sheffield's undergraduate laboratory classes (drawing on his wealth of experimental skills) and began to nudge us away from our collective 'comfort zones' in our approach to teaching. Charlie was always enthusiastic, rigorous and innovative, and he made an incredibly valuable contribution to both student engagement, course regeneration and ultimately helped MBB to obtain quality recognition and accreditation from the Royal Society of Biology.

Charlie retired from the department on health grounds in 2013 (but only after considerable coercion by his colleagues!), and he continued to fight a brave battle against his illness to the end. We last worked together on a new Molecular Systems and Synthetic Biology course for third year students, which Charlie pioneered and I now enjoy continuing to teach – carefully following his masterplan, of course! Discussing science, education, politics, art, literature and music with Charlie was always a joy if not sometimes a challenge (for me!). Charlie was an avid musicologist and a lover of the 'great outdoors', especially the Scottish Highlands, which assumed a greater importance to him towards the end of his life. He is survived by his wife Angela and his three children. ■

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