

Aston Medal 2005

Tom Preston



Tom Preston has a great interest and expertise in a many different areas of stable isotope mass spectrometry. These areas include global carbon budget, primary production in aquatic ecosystems, ^{13}C natural abundance fingerprinting, food and drink analysis in support of diagnostic breath tests, body composition studies, macronutrient nutrition, protein synthesis in cancer, non-invasive tests in children's nutrition and the synthesis of labelled tracers.

Not only does he have an interest in all these areas, but he has actually developed specific methods to investigate them. This interest and expertise have allowed him to use techniques, commonly used in one scientific area, to tackle questions which could not be answered with the standard techniques employed in other fields. It is this unique ability for the cross-disciplinary application of mass spectrometry in the area of stable isotope mass spectrometry which characterizes his work. Luckily for the stable isotope community Tom is always keen to share his expertise with colleagues (from undergraduates to experienced specialist). Tom did his first degree in Biochemistry at St Andrew's University before undertaking research for his PhD in Biological Sciences under Professor Bill Stewart at the University of Dundee. There he developed ^{15}N techniques to allow a detailed study of the nitrogen cycle in natural waters. He conceived the technique of continuous flow isotope ratio MS, which he continues to develop. Changing to a medical research theme, Tom Preston moved to the Scottish Universities Research and Reactor Centre, where he undertook postdoctoral research on body composition and protein metabolism in collaboration with the Rowett Research Institute. In 1983, he published the first report on continuous flow isotope ratio MS (CF-IRMS) for ^{15}N analysis and was awarded a VG Scientific Instruments prize for describing bulk and compound-specific isotope analysis. He also introduced CF-IRMS for ^{13}C and ^{18}O applications. A version of the former was to become the standard methodology for diagnostic breath tests using ^{13}C . He went on to pioneer compound-specific ^{15}N analysis of amino acids and has recently adapted compound-specific ^{13}C analysis to volatile fatty acids, to facilitate research into dietary fibre.

Tom heads the Stable Isotope Biochemistry Laboratory at the Scottish Universities Environmental Research Centre (SUERC) and is a Professor in Biochemistry at the University of Glasgow where his current research includes nutrition and metabolism in health and disease, especially chronic inflammatory disease. He serves on the Editorial Board of *Rapid Communications in Mass Spectrometry*.

taken from John Monaghan's article in Mass Matters February 2008