Michael Balls read Zoology at Oxford University, and, after post-graduate studies in Switzerland and post-doctoral research in the USA, returned to Britain in 1966, to become a Lecturer in the School of Biological Sciences at the University of East Anglia. In 1975, he moved to the University of Nottingham Medical School, as a Senior Lecturer in the Department of Human Morphology. He became Reader in Medical Cell Biology in 1985, and was promoted to Professor of Medical Cell Biology in 1990. In 1995, he was made an Emeritus Professor of the University.

Professor Balls became a Trustee of FRAME (Fund for the Replacement of Animals in Medical Experiments) in 1979, and has been Chairman of the Trustees since 1981. He has been Editor of ATLA (Alternatives to Laboratory Animals) since 1983.

He acted as an adviser to the British Government during the drafting and passage through Parliament of the Animals (Scientific Procedures) Act 1986, and, from 1987-1995, was a founder member of the Animal Procedures Committee, which advises the Home Secretary on all matters related to animal experimentation.

In 1993, Professor Balls became the first Head of the European Centre for the Validation of Alternative Methods (ECVAM), which is now part of the Institute for Health & Consumer Protection of the European Commission's Joint Research Centre, located at Ispra, near Lake Maggiore, in Italy. ECVAM is responsible for leading and coordinating efforts at the European Union level, which are aimed at reducing, refining and replacing the use of laboratory animal procedures in research, education and testing, through the development and validation of advanced testing methods. He retired from ECVAM at the end of June 2002.

Professor Balls was appointed a Commander of the Most Excellent Order of the British Empire (CBE) in the Queen’s Birthday Honours List, June 2002.