Institution: The University of Huddersfield

Unit of Assessment: 5 Biological Sciences

a. Overview

A new University-wide strategy was set out in 2008 by a new VC and PVC for Research and supported by major investment, aiming to establish Huddersfield as an internationally recognised research-led institution. Correspondingly strong strategic support from the School of Applied Sciences and the University has enabled a dramatic growth in research in the Department of Biological Sciences over the period covered by REF2014.

This is the first time the University has submitted staff to this UoA. In REF2014 we are submitting 13 FTE working in four key areas and with more than 200 peer-reviewed papers published in the REF period. 12 of the 13 appointments to the UoA have been made since the end of 2008, and five further members of staff are actively developing their research profiles.

Biological Sciences is one of four Departments (along with Chemistry, Pharmacy and Physics) in the School (*i.e.* the Faculty) of Applied Sciences. We have built on our earlier strengths by establishing four research groupings: the *Molecular Medicine Group* (six staff and one affiliate member); the *Evolutionary Genetics Group* (four staff and two affiliates), the *Forensic Biology Group* (four staff and one affiliate); and the *Glycobiology and Food Science Group* (four staff). Our research includes the study of infectious diseases, molecular carcinogenesis and drug design, the structural biology and biochemistry of food macromolecules, the molecular basis of circadian rhythms, forensic entomology, the origins of animals, the dispersals of modern humans, and the development of new methods for analysing forensic and archaeological DNA. We cover both fundamental and applied research, providing a firm basis for future growth and enabling us to capitalise on a wide diversity of income streams. There is a strong interdisciplinary focus, with several staff working at the boundaries between groups or contributing to more than one group; many also work at the interface with groups in Pharmacy, Chemistry and Physics.

b. Research strategy

Since 2008, Biological Sciences has implemented a strategy of building upon and extending its existing research strengths to create a world-class, research-led Department. This strategy has embodied the institutional objectives set by the University in 2008: (1) the recruitment of new research-active staff, including at chair level; (2) a tripling of the number of postgraduate students; (3) a doubling of the number of research outputs (principally high-quality journal publications); and (4) a four-fold increase in research grant/contract income (50% from Research Councils).

The core of our strategy is based upon **recruiting research-active staff.** We have appointed 12 talented young research-active lecturing staff, all of whom worked as research fellows in leading groups before joining us. The selection process has involved a strong emphasis on their capacity to develop independent research programmes. Early-career academics are provided with internal funding to support the full cost of PhD studentships and help them quickly establish their own independent research programmes. We plan to recruit at least a further six research-active staff over the next period.

The University has also set up a fund to appoint senior research professors. We have used this to recruit Professor Martin Richards (Scopus *h* index = 46), who brought his research team from Leeds University in 2011–12. Richards previously moved from Huddersfield to Leeds in 2004, though maintaining a close collaborative relationship with Huddersfield in the intervening years (including co-supervision of PhD and MSc students with Dr Clarke). We aim to establish additional chairs in biology by the end of the next period, focusing on molecular medicine and forensic science. The recruitment of staff and the establishment of new research groups have been made possible by substantial investment in the Department's infrastructure by both School and University. During the assessment period, the University has supported the building of six new research laboratories: two for archaeogenetics (a molecular biology lab and a state-of-the-art ancient DNA facility), two for forensic biology, a cell culture facility, and a large communal molecular and cellular biology lab (with a second planned for 2014).

Building upon this continuing recruitment policy, we then intend to focus upon:

(a) Developing high-profile, interdisciplinary research. A strategic focus on research areas that explicitly face industry and wider society has proved vital to rapidly transforming the environment for Huddersfield biologists. We have built on our work at the interface between biology and chemistry, and in the field of food science, to enhance our collaborations with industry; whereas involvement with wider society has centred on health and public engagement. Along with nutrition, health is one of the major challenges highlighted by government funders such as BBSRC and is embedded in our molecular medicine research, which is actively concerned with fundamental areas such as drug design. Our investment in archaeogenetics and forensic science feeds the wider public appetite for human ancestry/evolution and forensics, creating significant opportunities for enhancing public understanding of science at local, national and international levels.

(b) Encouraging rapid and focused research development. Our research groups provide the infrastructure for new staff to develop their research rapidly. We have created four research groups over the past five years as new appointments have been made. The *Molecular Medicine Group* has coalesced around the appointments since 2008 of cancer biologist Dr Nik Georgopoulos and structural biologists Dr Richard Bingham and Dr Georgios Psakis, with toxicologist Peter Maskell also affiliated. Several more recent appointments of young researchers, including epithelial biologist Dr Andrew Collett and molecular geneticist Dr Tarja Kinnunen, will reap rewards in the coming years, and significant further appointments are planned in this area in the next period. The group is overseen and supported by Dr Dougie Clarke, who has led the expansion of Biological Sciences research over the past six years.

The *Glycobiology and Food Science Group*, led by Andy Laws, Professor of Chemical Biology, has been enhanced by the appointments of food scientists Dr Vasileios Kontogiorgos (2008) and Dr Gordon Morris (2011), and supported by microbiologist Dr Paul Humphreys. Much of its work is at the interface between structural biology, biochemistry and chemistry and benefits from our strong relationship with the Department of Chemistry.

The *Evolutionary Genetics Group* resulted from Professor Richards' return to Huddersfield to take up a newly created research chair. At the same time, the Department provided funds to appoint two early-career research fellows to the research group: Dr Maria Pala (2011) and Dr Paul Brotherton (2012); Dr Martin Carr, initially appointed as research fellow, was appointed as a lecturer in 2013. All are mentored by Richards and work primarily at the interface between evolutionary genetics and archaeology, making up the Archaeogenetics Research Group (ARG). Pala focuses primarily on contemporary human variation and Brotherton on ancient DNA (aDNA), while Carr's background and current focus is more broadly across evolutionary phylogenetics. Dr Vanin, whose recent work has moved towards forensic biology, is also affiliated. Richards has continued to supervise three FCT-funded Portuguese PhD students and one USM-funded Malaysian split-site PhD student, registered at the University of Leeds, plus a further FCT-funded PhD student registered at the University of Porto from 2012.

These researchers work in partnership with the *Forensic Biology Group*, led by evolutionary and forensic biologist Dr Stefano Vanin, formed in 2011 with Dr Graham Williams, a consultant forensic biologist who moved from the Forensic Science Service in 2007 and received his doctorate at the University in 2012. The group has been augmented in 2013 with the appointment of forensic toxicologist Dr Peter Maskell and forensic anthropologist Dr Anna Williams.

Each of these research groups includes not only by postgraduate students but also by final-year undergraduate and master's student projects – approximately 20 undergraduates and half a dozen master's per group – who are fully integrated into the research programme of each group.

The major expansion of aDNA work that we plan for the next period creates scope for fresh collaborations with leading archaeologists (e.g. Dr Glenn Foard in Applied Sciences and Visiting Professor Dominic Powlesland) and museums – with a previously untapped focus on British prehistory and proto-history, for example – and our combination of expertise in forensics and human genetics creates exciting opportunities for new funding streams, international collaborations and links to industry as well as the potential for commercial exploitation.

(c) Promoting excellent research: Our strategy is rooted in the promotion of excellent research.

Various mechanisms assist the ongoing promotion of research excellence. As well as the School's weekly seminar programme, the University has held a Research Festival, organised around RCUK themes, each September since 2008, which allows the Department to disseminate work both internally and to invited academics, and to discuss research strategy. The University offers various funds to support activities such as collaboration and public engagement. Any academic invited to present at a conference can make use of the School's conference fund, helping ensure our research is disseminated to the widest possible number of peers. Reflecting our strong links with the local community, we run an extremely popular evening Public Lecture series, which takes place every month during term-time and regularly attracts an audience of around 200 people of diverse ages and backgrounds, including many children.

There is evidence that we are implementing our strategy effectively. The Department's trajectory from a small group to an autonomous Department is now clearly reflected in our healthy balance of experienced and young researchers, a significant international dimension (both in the reach of our research and the extent of collaborations) and a strong population of postdoctoral fellows and postgraduate students. We have already greatly exceeded the University's targets referred to above. Members of the Department's research staff have published 204 papers during the assessment period. By increasing the publication rate and bringing in new staff in the coming period, in line with University strategy, we aim to further double the number of publications. Our external research funding has increased 18-fold over the REF period and we plan a further four-fold increase, with greater targeting of research councils now that our research themes are more closely aligned with those of ESPSRC, BBSRC, NERC and AHRC, as well as ERC and inter-disciplinary funders such as the Leverhulme Trust and the British Academy, where we have been especially successful in the past. These activities will be supported by our active research mentoring scheme, as described below. Our growing international reputation, reflected for example in greatly increased global news coverage for our research, has also led to the recruitment of a significant number of government-sponsored PhD bursaries from developing countries such as Libya, resulting in a range of well-funded studentships.

c. People

Staffing strategy and staff development: There have been three strands to staff recruitment. These cover the appointment of full-time academic staff (normally as early-career researchers), senior research professors and senior research fellows/research fellows (SRFs/RFs). SRFs are appointed on fixed-term positions and empowered to submit funding proposals as PIs, with the expectation at appointment that they will smoothly enter the permanent academic cohort. Moreover, in a change from the Department's practice pre-2008, all academic members of staff are now appointed with a view to their contribution to enhancing the research effort. They must have an exemplary track record of undertaking internationally recognised research, and where possible we recruit staff whose research complements that of existing staff's work in the four main research areas highlighted above: glycobiology and food science, which interfaces with Chemistry and is aligned to the national and international grand challenge of nutrition; molecular medicine, which also has strong links to Chemistry and is oriented to the grand challenge of health; and evolution, archaeogenetics and forensics, which link us to organismal biology, archaeology and anthropology, have global reach and significance, and generate public engagement opportunities.

We have stringent recruitment procedures based on both research and teaching potential. We have a Research Development Framework to identify and address the development needs of research staff and research students nearing graduation. We are currently applying for the Athena SWAN Bronze award, and the VC has signed the UKRC CEO charter and made a commitment to advancing gender equality in science, engineering and technology. Promotion to Reader and Professor is through an annual scheme based on merit, independent of staff numbers. Laws was promoted to Professor in 2012, and Vanin to Reader in 2013.

Since 2008 there have been a total of 14 new academic appointments, 12 of whom are submitted in this UoA, with two additional strategic appointments of early-career staff who, with some existing staff, are in the process of developing their research profile. Most appointments have been of early-career researchers and the average age of Biological Sciences staff in this UoA is under 40.

A second strand comes from the University's programme of securing professorial staff with strong

records as international research leaders. Funding is provided for one year by the University, after which responsibility passes to the Department (under the devolved funding model). In 2012 Richards (a pioneer of archaeogenetic research) moved to Huddersfield with three research fellows. Richards is the UK's first Professor of Archaeogenetics and only the second in the world.

This brings us to the third strand: the recruitment of research fellows to develop independent research programmes. In 2011 Pala, a human evolutionary geneticist who had just completed a Newton Fellowship with Richards at Leeds University, having previously worked in the world-leading Torroni lab in Pavia, joined the Department as Senior Research Fellow. In 2012 Brotherton, an innovative specialist in ancient DNA analysis, joined as Research Fellow from the University of Adelaide's Australian Centre for Ancient DNA. Evolutionary geneticist Carr, who arrived with Richards as research fellow on a three-year Leverhulme Trust project, was appointed as lecturer in 2013.

Since 2008 we have established a balanced workload model that generously supports research. Our staff development programme is continuously updated and includes research supervision, project planning and publishing research. Members of staff contribute to a weekly departmental seminar programme and similar programmes run by research groups, which include invited speakers (~30 per year). Career development for younger staff, especially postdoctoral fellows, is provided in accordance with the Concordat, and senior research-active members of staff are trained in mentoring. The University regularly arranges workshops with visitors from funding bodies (*e.g.* ERC, BBSRC, EPSRC) to provide guidance on completing grant applications.

Research students: We currently have 32 full-time research students, up five-fold from 2008, balanced between home and EU. These currently include a GSK BBSRC CASE award and an EPSRC studentship. Currently, the Department jointly funds bursaries for around four or five new research students per year, with plans to increase this over time. We appoint around two industrially-funded students per year and we also recruit many international students with full scholarships supported by their governments. There are frameworks in place to nurture postgraduates, with programmes for career development and facilities and funding to encourage a thriving postgraduate culture and integration with research, within the School and further afield.

All new students attend University and Departmental inductions and receive a supervisor-personalised list of expectations and requirements. Most also have a second supervisor. Students record notes from meetings electronically, with agreed actions. Progression at the end of each year requires a report and oral exam with the supervisory team and another member of the department. Students interact closely with other members of their research group and are closely integrated into the life of the Department. Each is also assigned a personal tutor from outside their research group. The Director of Graduate Education monitors completion times and contacts supervisors when signs of likely delay are detected.

Students attend relevant postgraduate/final-year undergraduate modules in the first and second years (without assessment). Attendance at Departmental and group seminars, where they can hear lectures from world-leading experts in their fields, is firmly encouraged. All research students make an annual presentation at the Departmental Research Student Conference. They are members of the University's Graduate School, which organises development programmes for research students (*e.g. Writing the Thesis*) and runs funding programmes (*e.g.* to support conference attendance with up to £500 for any student presenting a poster or talk). The International Office supports overseas students in writing theses, designing posters and writing papers and reports. All students have the opportunity to learn a foreign language free of charge.

d. Income, infrastructure and facilities

As with staffing, there has been a step-change in the Department's infrastructure over the course of the past five years. Strong investment from both the School and the University has provided newly appointed researchers with significant strategic financial support. Since 2008 the Department has doubled the number of laboratories dedicated to its research; the University has spent £5m on equipment and facilities for the Department during the same period.

Reflecting the influx of research-active lecturing staff, in 2009 we built a *large communal biological sciences research facility* to house our new research groups, including a comprehensive range of

equipment supporting histology, flow cytometry, Li-Cor infra-red imaging, fluorometry, luminometry and real-time PCR. We also have a fully equipped laboratory for mechanical characterization of soft biopolymeric materials for measurements at both small and large deformations. In 2010, with more research students using mammalian cell culture, we expanded the cell culture facility into a large, high-standard *cell-culture suite*. In the same year we established a *clean-room laboratory for forensic biology*, housing ABI fingerprinting DNA analysis systems. In 2012, with the arrival of Richards' group, we built a fully equipped *archaeogenetics lab,* managed by Pala, and a *molecular genetics analysis facility*, housing new ABI DNA/RNA analysers and two Qiagen robots. Vanin has established FLEA (Forensic Laboratory for Entomology and Archaeology), including both an *insectarium* of species for forensic, ethological and chronobiological studies and an *archaeological collection*, in collaboration with the European Association of Forensic Entomology (EAFE). In 2013 we built a £375K state-of-the-art *ancient DNA facility with level 7 clean-room suite*, designed specifically for use with human aDNA – technically the most challenging aDNA research. We believe this may be the best facility currently available in the UK for human aDNA work. We will further expand our biochemistry facilities in 2014 with the creation of a new purpose-built facility.

We also share many *instrumentation facilities* with our colleagues in the School. These facilities are all under the charge of specialist technical staff, many with PhDs. We have installed a new 400 MHz multi-nuclear *NMR spectrometer* for routine use by research students, to sit alongside the higher-specification 500 MHz instrument bought in 2007. We have also installed an FEI SEM with field emission gun, edax and cryogenic facilities to complement the existing Jeol tungsten filament routine instrument. The School established a comprehensive new *X-ray diffraction facility* in 2013, in collaboration with Bruker (used as a showcase by the company), including a single-crystal instrument, suitable for protein crystallography. This instrument suite includes a Bruker small-angle X-ray scattering instrument (SAXS), bought in 2011. The University has also installed a high-performance computing facility in collaboration with the STFC (the Queensgate Grid). Bingham has particularly benefited from this facility for protein structure simulations using advanced computational techniques such as molecular dynamics.

We have two current Knowledge Transfer Partnerships (with Paxman Coolers and the Textile Centre). We benefit from the University's recently established 3M Buckley Innovation Centre, which promotes collaborations between the University and business, and from the new Research Hub and graduate centre, which provides quiet space for researchers and visitors to study, analyse data and write, with meeting rooms, training facilities and a social space for researchers. We work under the University's Good Research Governance of Research guidelines.

e. Collaboration or contribution to the discipline or research base

For a young and growing research grouping, close cooperation with colleagues within the School, other universities and industry is crucial. Recognising this, the University provides centralised funds that foster collaborative research, including pilot funds for industrial collaborations, funds for conference attendance and funds for visiting collaborators, sabbatical visitors etc. Moreover, the close links between Biology and Chemistry have had a synergistic effect and encouraged interdisciplinary research from the outset, and much of our biological research takes place at the molecular level on the interface between these two disciplines. The traditional focus of research at Huddersfield, along with the industry-facing focus of colleagues in Chemistry and, more recently, the additional presence of the Pharmacy Department, have also encouraged a powerful applied approach in the two main areas of glycobiology and food science and molecular medicine. For example, Bingham currently works with Dr Laity (Pharmacy), Laws with Prof Page (Chemistry) and Georgopoulos with Dr McHugh (Pharmacy), and Prof Sweeney and Dr Moran (Chemistry).

A good example of interdisciplinary research is Kontogiorgos' work, which combines concepts from chemistry, agricultural sciences, engineering (rheology) and numerical analysis (mathematics, computing science) in the area of food science. He works with Aristotle University in Greece, both through the Erasmus programme and in a specific Archimedes Action project, and also has collaborators in Melbourne (Professor Kasapis), Rutgers University in the USA, Agri-Food Canada and the Institute of Food Research in Norwich, UK. Also primarily in the area of food science, Laws has interdisciplinary collaborations with Humphreys locally and with Spain, University College Cork and UCL. We are the only centre in Europe currently undertaking NMR analysis of bacterial

polysaccharides. Humphreys is currently the PI for the C14-BIG project, funded by NDA/EPSRC and also involving UCLan and Bristol University.

In molecular medicine, Georgopoulos leads internationally recognised work on the mechanisms of CD40-induced, cancer cell-specific killing, working on new therapeutic strategies with biologists and clinicians at the Universities of York, Sheffield and Leeds, as well as biologists and chemists at Huddersfield. These collaborations have paved the way for several projects. His CD40 work recently led to the design of a novel, pre-clinically tested, combinatorial, tumour-specific anticancer therapy (patent application #1301928.6). This has generated interest from external pharmaceutical partners, following initial correspondence with the commercial arm of Cancer Research UK (Cancer Research Technologies). His collaborative work with Chemistry has led to the synthesis of a promising new class of compounds with high cytotoxic activity against tumour cells. Focusing primarily on bacterial surface proteins, Bingham has ongoing collaborations with the Universities of York and Leeds, while new appointee Kinnunen works with the Universities of Liverpool and Lausanne/Massachusetts General Hospital, USA, on β-klotho and Fibroblast Growth Factor in reproduction.

Archaeogenetics is inherently interdisciplinary: it is a syncretic new branch of science that combines evolutionary genetics and archaeology. The ARG has been funded by humanities bodies such as the British Academy and interdisciplinary funders such as the Leverhulme Trust (2010–2013; with an archaeologist and statistician as Co-Is), and pioneered work on the impact of climate change on prehistoric human populations across the world (cf. recent publications co-authored with leading archaeologists Barker, Bulbeck, Gamble and Mellars). There are ongoing projects with leading archaeologists and linguists from Australia (*e.g.* Denham, Donohue, Hudson) and Malaysia (Mokhtar/Chia: a split-site PhD studentship also including Oppenheimer, University of Oxford). The development of the aDNA facility has led to discussions for fresh collaboration from leading archaeologists and linguists (*e.g.* Parker Pearson, Koch), which should bear fruit in the coming years. The ARG also collaborates closely with mathematicians (Macaulay, Glasgow; Bandelt, Hamburg), forensic scientists (Carracedo, Salas, Santiago di Compostela) and zoologists (Searle, York/Cornell) and has an extensive network of collaborations with population/evolutionary geneticists from Portugal, Spain, France and Italy to India, Taiwan, China and Australia (*e.g.* Pereira, Soares, Porto; including four split-site FCT-funded PhD studentships); Torroni, Pavia (Leverhulme Co-I); Chaubey, Tartu (Marie Curie application, submitted August 2013); Villems, Tartu; Kivisild, Cambridge; Semino, Pavia; Endicott, Paris; Rollo, Camerino; Thangaraj, Hyderabad; Trejaut/Lin, Taipei; Yao, Kunming). Carr focuses on elucidating the tree of life (identifying the protistan choanoflagellates as the sister-group to animals, an essential step in understanding how animals evolved) and continues to collaborate with the Universities of Birmingham, Cologne, Manchester, Tartu, Stirling, York and California, Berkeley.

Forensic biology is equally interdisciplinary. Using new technologies (X-ray tomography, neutron inelastic scattering), Vanin specialises in forensic archaeo-entomology and post-mortem bone transformation (examining, for example, WWI remains). As well as a long-term collaboration on chronobiology with Professor Kyriacou (Leicester), he collaborates with Pisa, Milan, Modena Reggio Emilia, Bari, Bologna, CNRS Toulouse and INRAP, working with both archaeological and forensic materials. The new recruits in the forensic group bring new partners, both academic and external, such as the Burial Research Consortium of UK and US universities and the Police Service of Northern Ireland.

Active 'external' collaborations: The Department has inherited the University's strong industrial focus, especially at the biology-chemistry interface (*e.g.* Laws with GSK; Morris with Nestle and Archimedes Development Ltd; Kinnunen with Eli Lilly) but also in areas as broad as forensics and the nuclear industry. For example, Georgopoulos has been working on an interdisciplinary collaboration with local engineering company Paxman Coolers Ltd, developing *in vitro* models of the effect of cooling in preventing chemotherapy-induced hair loss. This has led to clinical trials in the IKZ, Eindhoven Cancer Registry, Netherlands. The collaboration has informed their research into the role of cell cooling on drug-induced cell death, helping ground a new research area studying chemotherapy-induced cell death. Georgopoulos also has an interdisciplinary industrial collaboration with consultant urologists at the Huddersfield Royal Infirmary NHS Trust. Laws works with the Malaysian Nuclear Agency Ministry of Science, and Humphreys is active both nationally

and internationally in the assessment of microbial impacts on radioactive waste and its disposal.

Visiting positions, awards: Richards is Visiting Professor of Archaeogenetics at the University of Leeds. Georgopoulos is Visiting Associate at the Jack Birch Unit of Molecular Carcinogenesis (JBUMC), Department of Biology, University of York, and he has received the Vice-Chancellor's Enterprise Award for Early-Stage Collaboration for his work with Paxman Coolers.

Conference organisation and invitations: Since 2008, Laws and Morris have co-organised a carbohydrate conference in Nottingham and two in Huddersfield. Morris and Kontogiorgos (with Alan Smith, Pharmacy) also organised the first UK Hydrocolloids Symposium at Huddersfield in 2013. Carr is organising the annual British Society for Protist Biology (BSPB) meeting at Huddersfield in 2015. Vanin has organised an international conference on temporal forensic investigations at Huddersfield in 2013. Richards was on the organising committee for a conference on human population genetics in Moscow in 2013. Georgopoulos, Brotherton, Morris, Richards, Carr and Pala have all contributed invited seminars to international conferences: *e.g.* Richards: CESAGEN ESRC Centre for Economic and Social Aspects of Genomics, Cardiff 2012; Seminar for Arabian Studies, British Museum, 2012; Musee de l'Homme, Paris, 2012; University of Wales Centre for Advanced Welsh and Celtic Studies, Aberystwyth, 2012; *Talking Neolithic* workshop at MPI-EVA, Leipzig, 2013; and has been invited to speak at a day school at the Department for Continuing Education, University of Oxford in 2014; Pala: Iberia and Sardinia – from the Mesolithic to the Bronze Age: First International Workshop, Sardinia, Italy, 2012; Training School on Genomics and Evolutionary Biology, Camerino, Italy, 2013; Carr: PopGroup Nottingham and Glasgow (Jan and Dec 2012); BSPB Spring Meeting, Natural History Museum, London, 2013; International Choanoflagellate Workshop, Cologne 2013; Georgopoulos: School of Cancer Sciences, University of Birmingham, 2012; Bingham, Lyme Disease Action conference, Carlisle, 2012. Several have also chaired sessions, *e.g.* Georgopolous, World Congress on Advances in Oncology and International Symposium on Molecular Medicine, Crete, Greece, 2008.

Committee membership: Laws was member of the RSC Carbohydrate Group Committee, 2000–2009, and Morris is currently a member of the RSC Carbohydrate Group Committee (2012-2014). Carr has been a committee member of the British Society of Protist Biology since 2009 and treasurer since 2013.

Editorships: Vanin is a member of the editorial boards of *International Journal of Criminal Investigation*, the EAFE and the Italian Association for Forensic Entomology. Kontogiorgos is on the editorial boards of *Food Hydrocolloids* and *Food Research International*.

Peer review: Staff regularly referee for funding bodies, including NERC, BBSRC, MRC, Wellcome Trust, Leverhulme Trust, English Heritage, Cancer Research UK, US NSF, South African National Research Foundation, Netherlands Organisation for Scientific Research, National Centre for the Replacement, Refinement and Reduction of Animals in Research.

Staff also regularly referee for more than 60 journals, including *Science*, *PNAS*, *Nature Communications*, *Nature Protocols, Trends in Genetics*, *Trends in Ecology and Evolution*, *Genome Research*, *Current Biology*, *Proceedings of the Royal Society Series B*, *American Journal of Human Genetics*, *The European Journal of Human Genetics, Molecular Cell*, *Naturwissenschaften*, *PLoS Biology/One*, *Molecular Biology and Evolution*, *Journal of Molecular Evolution*, *Nucleic Acids Research*, *Molecular Phylogenetics and Evolution*, *Molecular Ecology*, *Protist*, *Ancient Biomolecules, Heredity, BioEssays*, *BMC Biology/Evolutionary Biology/Genetics*, *Genome Biology*, *Human Mutation*, *Antiquity*, *Current Anthropology*, *The Journal of Archaeological Science*, *The American Journal of Physical Anthropology*, *International Journal of Osteoarchaeology, Palaeoworld, Forensic Science International*, *International Journal of Legal Medicine*, *Science and Justice*, *Australian Journal of Forensic Science, Asian Pacific Journal of Molecular Biology and Biotechnology, European Journal of Entomology, Memorias Instituto Oswaldo Cruz, Lavori Società Veneziana di Scienze Naturali, European Urology*, *FEBS Journal*, *Biology Letters*, *Infection*, *Genetics and Evolution*, *Annals of Oncology*, *Apoptosis*, *Gene Therapy*, *Journal of Pharmacological & Toxicological Methods*, *Cytokine*, *British Journal of Urology International* and *European Journal of Pharmaceutical Sciences.*