

CURRICULUM VITAE

Name: Richard C. HARTLEY
Date of birth: 19th March 1966

Nationality: British
Place of birth: Singapore

Degrees:

1988 BA (hons) in Natural Sciences - Chemistry (Class 1), University of Cambridge, UK
 1991 PhD (completed Nov. 1991, awarded 1992), University of Cambridge, UK

Employment:

1991-93 Postdoctoral fellow, Department of Chemistry, McGill University, Montreal, Canada
 1994-95 Schering Plough Newman Scholar at University College Dublin, Republic of Ireland
 1995-2003 Lecturer in Organic and Bio-organic Chemistry, University of Glasgow
 2003-date Senior Lecturer in Biological and Synthetic Chemistry, University of Glasgow

Professional Membership

Member of Royal Society of Chemistry, Chartered Chemist.
 Member of the American Chemical Society.

- **Research Interests:**

(a) Diversity-based synthesis of bioactive heterocycles (privileged structures) for chemical interventions including drug discovery (in particular the use of titanium reagents and solid-phase synthesis).
 (b) Chemical biology of radical oxygen species: probes, pharmacokinetics and therapeutics.
 See *Research Interests*

- **>100 Research Outputs including:**

31 papers in international journals (including 2 reviews), and 1 patent.
 29 lectures at conferences, universities and companies.
 See *List of Publications*, pages 2-9

- **>£1.2 Million External Funding:**

Including from SPARC (BBSRC), Wellcome Trust, EPSRC, Scottish Enterprise, GSK, Sanofi-Aventis, Zeneca, New Zealand Crop Research Institute, Nuffield Foundation, and British Council.
 £1,000,321 in the last 5 years, £1,239,986 in total. See *Funding*, pages 10-11

- **Good Group Size and 100% PhD Completion Rate:**

Current Group: 6 PhD students, 2 PDRA, 2 MSci students.
 Former Members: 1 PDRA, 13 PhD and 1 MSc students, 35 MSci /BSc/Erasmus students.
 All PhDs completed in under 4yrs and have careers in chemistry. See *Research Group*, pages 12-13

- **Major Teaching Reforms:**

Restructured MSci and BSc (hons) Chemistry and Chemistry with Medicinal Chemistry Degrees (2003-04).
 Part of team that designed the new degree course: Chemistry with Forensic Science (2004).
 Chaired committee that reviewed and reformed the organic chemistry curriculum of all degrees (1998).
 See *Administrative and Teaching Roles*, page 14-15

- **Important Leadership and Key Administrative Roles:**

Head of Organic Teaching, Class Head of Final Year, Class Head of Chemistry with Medicinal Chemistry, Head of Structural and Chemical Biology component of Wellcome Trust 4yr PhD programme. PI on first joint WestCHEM bid for funding (to CRUK). See *Administrative and Teaching Roles*, page 14-15

- **External Roles:**

Member of Peer Review College of EPSRC, Referee for 10 International Journals, External Examiner for 11 PhD students, Chair of Bocclair Academy School Board, see page 16-17

PUBLICATIONS

(I) Books

None

(II) Chapters in Books

None

(III)(a) Full papers

Publications from research prior to becoming a lecturer

- 1- R. C. Hartley, S. Warren and I. C. Richards, *Stereospecificity and Stereoselectivity in the [3,2] Sigmatropic Rearrangement of Open Chain Sulphonium Ylides*. *Tetrahedron Letters*, volume 33, 8155-8158, **1992**. ISSN 0040-4039
- 2- K. Chibale, R. C. Hartley, K. P. Jenkins, M. Simons, S. Warren, and I. C. Richards, *The Stereochemically Controlled Synthesis of Substituted Spirocyclic Ethers and Lactones with Medium-Sized (7-, 8-, and 12-Membered) Carbocyclic Rings by Phenylthio Migration: 1-Oxaspiro[4.n]alkanes and Alkan-2-ones with n=6, 7, and 11*, *Tetrahedron Letters*, volume 34, 6783-6786, **1993**. ISSN 0040-4039
- 3- R. C. Hartley, S. Lamothe, and T. H. Chan, *Highly Enantioselective Synthesis of Propargyl Alcohols*, *Tetrahedron Letters*, volume 34, 1449-1452, **1993**. ISSN 0040-4039
- 4- R. C. Hartley, S. Warren, and I. C. Richards, *A New and Effective Method for the Low Temperature Generation of Sulphonium Ylides From Allyl Sulfides*, *Journal of the Chemical Society-Perkin Transactions 1*, 507-513, **1994**. ISSN 0300-922X
- 5- L. Jiang, R. C. Hartley, and T. H. Chan, *Use of low molecular weight polyethylene glycol linker for polymer-supported solution synthesis of oligosaccharides*, *Chemical Communications*, 2193-2194, **1996**. ISSN 1359-7345.
- 6- R. C. Hartley, I. C. Richards, and S. Warren, *Stereocontrolled synthesis of E-homoallylic sulfides with 1,4,5 related chiral centres using the [2,3] sigmatropic rearrangement of sulfonium ylides*, *Journal of the Chemical Society-Perkin Transactions 1*, 359-376, **1996**. ISSN 0300-922X

Publications from research since becoming a lecturer

- 7*+ A. P. Rutherford, C. S. Gibb, and R. C. Hartley, *Stereoselective synthesis of beta-hydroxycyclohexanones*, *Tetrahedron Letters*, volume 39, 685-688, **1998**. ISSN 0040-4039
- 8*+ G. D. McAllister, R. C. Hartley, M. J. Dawson, and A. R. Knaggs, *Total synthesis of moracin C*, *Journal of the Chemical Society-Perkin Transactions 1*, 3453-3457, **1998**. ISSN 0300-922X
- 9*+ E. J. Guthrie, J. Macritchie and R. C. Hartley, *Alkylidenation of esters on solid support and traceless synthesis of 2-substituted benzofurans*, *Tetrahedron Letters*, volume 41, 4987-4990, **2000**. ISSN 0040-4039
- 10*+ A. P. Rutherford and R. C. Hartley, *Unexpected stereoselectivity in the anionic oxy-Cope rearrangement of acyclic enol ethers*, *Tetrahedron Letters*, volume 41, 737-741, **2000**. ISSN 0040-4039

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E-mail: richh@chem.gla.ac.uk Tel: 0141 3304398 Fax: 0141 3304888

- 11*+ S. T. Caldwell, A. Crozier and R. C. Hartley, *Isotopic Labelling of Quercetin 4'-O-b-D-Glucoside*, *Tetrahedron*, volume 56, 4101-4106, **2000**. ISSN 0040-4020 *
- 12*+ H. T. Mamdani and R. C. Hartley, *Phosphazene bases and the anionic oxy-Cope rearrangement*, *Tetrahedron Letters*, volume 41, 747-749, **2000**. ISSN 0040-4039
- 13*+ A. P. Rutherford, C. S. Gibb, R. C. Hartley, J. M. Goodman, *Stereocontrol in a one-pot synthesis for anionic oxy-Cope rearrangement followed by intramolecular aldol reaction*, *Journal of the Chemical Society-Perkin Transactions 1*, 507-513, **2001**. ISSN 0300-922X
- 14*+ C. Macleod, R. C. Hartley, Dieter W. Hamprecht, *Novel functionalized titanium (IV) benzylidenes for the traceless solid-phase synthesis of indoles*, *Organic Letters*, volume 4, 75-78, **2002**. ISSN 1523-7060
- 15- W. Mullen, B. A. Graf, S. T. Caldwell, R. C. Hartley, G. G. Duthie, C. A. Edwards, M. E. J. Lean and Alan Crozier, *Determination of flavonol metabolites in plasma and tissues of rats by HPLC-radio-counting and tandem mass spectrometry following oral ingestion of [2-¹⁴C]quercetin-4'-glucoside*, *Journal of Agricultural and Food Chemistry*, volume 50, 6902-6909, **2002**. ISSN 0021-8561 *
- 16- B. A. Graf, W. Mullen, S. T. Caldwell, R. C. Hartley, G. G. Duthie, M. E. J. Lean, A. Crozier, *Fate of quercetin-4'-glucoside in the rat. Free Radical Research*, volume 36, supplement 1, 94-95, **2002**. ISSN 1071-5762
- 17*+ C. Macleod, G. J. McKiernan, E. J. Guthrie, L. J. Farrugia, D. W. Hamprecht, J. Macritchi, R. C. Hartley, *Synthesis of 2-substituted Benzofurans and Indoles using Functionalized Titanium Benzylidene Reagents on Solid Phase*, *Journal of Organic Chemistry*, volume 68, 387-401, **2003**. ISSN 0022-3263 *
- 18- D. P. McPhail, R. C. Hartley, P. T. Gardner, G. G. Duthie, *Kinetic and stoichiometric assessment of antioxidant activity of flavonoids by ESR spectroscopy*, *Journal of Agricultural and Food Chemistry*, volume 51, 1684-1690, **2003**. ISSN 0021-8561
- 19*+ M. Gibson, J. M. Goodman, L. J. Farrugia, R. C. Hartley, *Controlling neighbouring group participation from thioacetals*. *Tetrahedron Letters*, volume 44, 2841-2844, **2003**. ISSN 0040-4039 *
- 20- W. Mullen, R. C. Hartley, A. Crozier, *Detection and identification of ¹⁴C-labeled flavonol metabolites by high-performance liquid chromatography-radiocounting and tandem mass spectrometry*. *Journal of Chromatography A*, volume 1007, 21-29. **2003**. ISSN: 0021-9673
- 21*+ G. J. McKiernan, R. C. Hartley, *Boronate titanium alkylidene reagents for diversity-based synthesis of benzofurans*. *Organic Letters*, volume 5, 4389-4392, **2003**. ISSN 1523-7060 *
- 22*+ C. J. Bennett, S. T. Caldwell, D. B. McPhail, P. C. Morrice, G. G. Duthie, and R. C. Hartley, *Potential therapeutic antioxidants that combine the radical scavenging ability of myricetin and the lipophilic chain of vitamin E to effectively inhibit microsomal lipid peroxidation*. *Bioorganic and Medicinal Chemistry*, volume 12, 2079-2098, **2004**. ISSN: 0968-0896 *
- 23*+ C. F. Roberts and R. C. Hartley, *Titanium reagents for the synthesis of 2-substituted benzo[b]thiophenes on solid phase*. *Journal of Organic Chemistry*, volume 69, 6145-6148, **2004**. ISSN 0022-3263 *
- 24*+ C. Macleod, C. A. Austin, D. W. Hamprecht, and R. C. Hartley, *Preparation of quinolines from resin-bound esters using titanium reagents*. *Tetrahedron Letters*, volume 45, 8879-8882, *

2004.

- 25- R. C. Hartley, and M. W. Kennedy, *Are carotenoids a red herring in sexual display? Trends in Ecology and Evolution*, volume 19, 353-354, **2004**. ISSN 0169-5347.
- 26*+ C. A. Woodland, G. C. Crawley, and R. C. Hartley, *Stereoselectivity in the anionic oxy-Cope rearrangement of acyclic vinyl sulfides. Tetrahedron Letters*, volume 45, 1227-1231, **2004**.
- 27- B. A. Graf, W. Mullen, S. T. Caldwell, R. C. Hartley, G. G. Duthie, M. E. J. Lean, A. Crozier, and C. A. Edwards, *Disposition and metabolism of [2-14C]quercetin-4'-glucoside in rats. Drug Metabolism and Disposition*, 1036-1043, **2005**. ISSN 0090-9556
- 28*+ E. J. Guthrie, C. Macleod, G. J. McKiernan, C. F. Roberts, C. A. Austin, J. Macritchie, D. W. Hamprecht, R. C. Hartley, *The potential for using titanium alkylidene chemistry in solid-phase radiochemical synthesis. Journal of Labelled Compounds and Radiopharmaceuticals*, volume 48, 526-527, **2005**. ISSN 0362-4803
- 29*+ A. Hay, M. J. Burkitt, C. M. Jones, R. C. Hartley, *Development of a new EPR spin trap, DOD-8C (N-[4-dodecyloxy-2-(7'-carboxyhept-1'-yloxy)benzylidene]-N-tert-butylamin-N-oxide), for the trapping of lipid radicals at a predetermined depth within biological membranes. Archives of Biochemistry and Biophysics*, volume 435, 336-346, **2005**. ISSN 0003-9861. *

(III)(b) Other significant contributions to journals

See (V) for comprehensive reviews in journals and (VI) for patents

(IV) Conference contributions

Lectures at conferences

- 30* R. C. Hartley, *Stereoselective Synthesis using the Anionic Oxy-Cope Rearrangement*, oral communication at Twenty Fourth Scottish Regional Meeting of the Royal Society of Chemistry – Perkin Division, Glasgow, December **1995**.
- 31* R. C. Hartley, *Stereocontrolled Synthesis using the Anionic Oxy-Cope Rearrangement*, oral communication at Organic Synthesis Workshop, Gregynog, September **1996**.
- 32* R. C. Hartley, *Stereocontrolled synthesis of b-hydroxycylcohexanones*, oral communication at Autumn Meeting of The Royal Society of Chemistry, University of Aberdeen, 4th September **1997**.
- 33* R. C. Hartley, *Fishing for a Diels-Alderase*, oral communication at Organic Synthesis Workshop, Gregynog, Wales, September **1998**.
- 34* R. C. Hartley, *Enzyme-catalysed Diels-Alder reactions*, invited lecture at "Cycloadditions", Young Chemists' Panel Review Meeting, SCI, London, 1st December **1998**.
- 35* R. C. Hartley, *Functionalised titanium(IV) alkylidene reagents in the traceless solid-phase synthesis of benzofurnas and indoles*, invited oral communication at 15th Lakeland Symposium: Grasmere '01, Grasmere, UK, 11th May **2001**.
- 36* R. C. Hartley, *Functionalised titanium(IV) alkylidene reagents in the traceless solid-phase synthesis of benzofurnas and indoles*, oral communication at the 12th European Symposium on Organic Chemistry, Groningen, Holland, 14th July **2001**.
- 37* R. C. Hartley, *Novel Titanium Benzylidenes for the Synthesis of Heterocycles*, Perkin

Regional Scottish Division Symposium, University of Glasgow, December **2001**

- 38*** R. C. Hartley, *Isolating a Diels-Alderase*, Interdisciplinary Workshop on Applied Biocatalysis, Scarman House, University of Warwick, January **2002**,
- 39*** R. C. Hartley, *Novel functionalized titanium alkylidene reagents*, 224th American Chemical Society National Meeting, Boston, August **2002**, *Abstracts of Papers of the American Chemical Society*, volume 224, pp605-ORGN, **2002**. ISBN 0065-7727
- 40*** R. C. Hartley, *The potential for using titanium alkylidene chemistry in solid phase radiochemical synthesis*, IIS Symposium, Wellcome Trust Genome Campus, Hinxton, Cambridgeshire, 4th November **2004**.

Lectures at universities or industrial companies

- 41*** R. C. Hartley, *Fishing for a Diels-Alderase and other stories*, AgrEvo UK, Saffron Walden, UK, **1998**.
- 42*** R. C. Hartley, *Fishing for a Diels-Alderase and other stories*, University of Strathclyde, December **1998**.
- 43*** R. C. Hartley, *Fishing for a Diels-Alderase and other stories*, University College Dublin, February **1999**.
- 44*** R. C. Hartley, *Fishing for a Diels-Alderase and other stories*, SmithKline Beecham Pharmaceuticals, Harlow, UK, **1999**.
- 45*** R. C. Hartley, *Cycling in Scotland: Pericyclic, Carbocyclic and Heterocyclic*, Trinity College, Dublin, February **2000**.
- 46*** R. C. Hartley, *Cycling in Scotland: Pericyclic, Carbocyclic and Heterocyclic*, University of York, November, **2000**.
- 47*** R. C. Hartley, *Cycling in Scotland: Pericyclic, Carbocyclic and Heterocyclic*, University of Manchester, January, **2001**.
- 48*** R. C. Hartley, *Cycling in the West: Pericyclic, Carbocyclic and Heterocyclic*, University of Glasgow, February, **2001**.
- 49*** R. C. Hartley, *Cycling in the West: Pericyclic, Carbocyclic and Heterocyclic*, Organon Laboratories Ltd, Newhouse (Scotland), April **2001**
- 50*** R. C. Hartley, University of Glasgow (Prof. Connolly retirement symposium), June, **2001**.
- 51*** R. C. Hartley, *Cycling in the West: Pericyclic, Carbocyclic and Heterocyclic*, Celltech, Slough, October **2001**.
- 52*** R. C. Hartley, *Diversity-based synthesis of heterocycles*, University of Marseille, April **2002**.
- 53*** R. C. Hartley, *Heterocycles using titanium alkylidenes and flavonoid antioxidants*, University of Liverpool, September **2002**.
- 54*** R. C. Hartley, *Diversity-based synthesis of heterocycles using titanium alkylidenes*, GSK, Harlow, March **2003**.
- 55*** R. C. Hartley, *A single link to many compounds using titanium reagents to make heterocycles*,

University of Edinburgh, November **2003**.

- 56*** R. C. Hartley, *Some Aspects of Chemical Biology: Diversity-based Synthesis using Titanium Alkylidenes and Oxidative Stress*, University of Leeds, April **2005**
- 57*** R. C. Hartley, *Diversity-based Synthesis using Titanium Alkylidenes and Investigating Oxidative Stress*, Humboldt-University Berlin, December **2005**.
- 58*** R. C. Hartley, *Trapping Spin: Chemical Biology and Methods for Investigating and Ameliorating Oxidative Stress*, School of Pharmacy, University of Brighton, December **2005**.

Posters at conferences (since becoming a lecturer)

- 59*** R. C. Hartley, *Stereoselective Synthesis using the Anionic Oxy-Cope Rearrangement* Chemistry Research for Britain 95 conference, London, November **1995**.
- 60*** R. C. Hartley, E. J. Guthrie, and J. Macritchie, *Alkylidenation of esters on solid support using novel titanium(IV) alkylidene reagents and traceless synthesis of 2-substituted benzofurans*, 4th International Symposium on Transition Metals in Organic Synthesis, Leeds, September **2000**.
- 61*** R. C. Hartley, S. T. Caldwell, A. Crozier, G. G. Duthie, W. Mullen, *Isotopic labelling and feeding of quercetin 4'-glucoside*, A Fresh Look at Antioxidants: Food Applications, Nutrition and Health, SCI, Fitzwilliam College, Cambridge, UK, April **2002**.
- 62*** Bennett, C.; Caldwell, S. T.; McPhail, D. B.; Gardner, P. T.; Duthie, G. G.; Hartley R. C. *Myricetin-vitamin E hybrids: potential therapeutic antioxidants*. 1st International Conference on Polyphenols and Health, Vichy, France, November **2003**.

Posters by my PhD students and post-docs at conferences

- 63=** A. P. Rutherford and R. C. Hartley, *The asymmetric synthesis of novel beta-hydroxycyclohexanones*, Autumn meeting of the Royal Society of Chemistry, University of Aberdeen, Aberdeen, September **1997**.
- 64=** A. P. Rutherford and R. C. Hartley, *A novel one-pot rearrangement/cyclisation reaction*, Pfizer poster symposium, London, December **1997**.
- 65=** G. D. McAllister, R. C. Hartley, M. J. Dawson, and A. R. Knaggs, *Total synthesis of moracin C*, Twenty-sixth Scottish regional meeting of the Royal Society of Chemistry, University of Strathclyde, December **1997**.
- 66=** G. D. McAllister, R. C. Hartley, M. J. Dawson, and A. R. Knaggs, *Total synthesis of moracin C and approaches to chalcomoracin*, 12th International conference on organic synthesis, Venice, **1998**.
- 67=** G. D. McAllister, R. C. Hartley, M. J. Dawson, and A. R. Knaggs, *Total synthesis of moracin C and approaches to chalcomoracin*, Twenty-seventh Scottish regional meeting of the Royal Society of Chemistry, University of St Andrews, December **1998**.
- 68=** E. J. Guthrie, R. C. Hartley, J. Macritchie, and M. O'Mahony, *New Synthetic Approaches to benzofurans using alkylidenation reactions*, **1999** Annual Conference of Royal Society of Chemistry, Heriot-Watt University, September **1999**.
- 69=** E. J. Guthrie, R. C. Hartley, J. Macritchie, *Alkylidenation of esters on solid support and synthesis of 2-substituted benzofurans by cyclative termination*, Belgium Organic Synthesis

Symposium 9, Ghent, Belgium, July **2000**.

- 70=** S. T. Caldwell, R. C. Hartley and A. Crozier, *Isotopic labelling of flavonol glucosides*, Twenty-seventh Scottish Regional meeting of the Perkin Division of the Royal Society of Chemistry, Heriot-Watt University, December **2000**.
- 71=** G. J. McKiernan, E. J. Guthrie, R. C. Hartley and J. Macritchie, *Alkylidenation of esters on solid support using novel titanium(IV) alkylidene reagents and traceless synthesis of 2-substituted benzofuran*, The Scottish Regional meeting of the Perkin Division of the Royal Society of Chemistry, Heriot-Watt University, December **2000**.
- 72=** C. Macleod, R. C. Hartley and D. W. Hamprecht, *Novel Titanium Benzylidenes for the traceless S-P synthesis of Indoles*, Twenty-eighth Scottish Regional meeting of the Perkin Division of the Royal Society of Chemistry, University of Glasgow, December **2001**.
- 73=** C. Macleod, R. C. Hartley and D.W. Hamprecht, *Novel Titanium Benzylidenes for the traceless S-P synthesis of Indoles*, RSC-SCI Heterocyclic meeting, Edinburgh, May **2002**.
- 74=** R. C. Hartley, G. J. McKiernan, *Development of novel titanium(IV) benzylidenes for diversity orientated traceless solid phase synthesis of benzo[b]furans*, RSC-SCI Heterocyclic meeting, Edinburgh, May **2002**.
- 75=** S. T. Caldwell, R. C. Hartley, G. J. McKiernan, *Development of novel titanium(IV) benzylidenes for diversity orientated traceless solid phase synthesis of benzo[b]furans*, 224th American Chemical Society National Meeting, Boston, August **2002**, *Abstracts of Papers of the American Chemical Society*, volume 224, pp166-ORGN, **2002**. ISBN 0065-7727
- 76=** R. C. Hartley, G. J. McKiernan, *Development of novel titanium(IV) benzylidenes for diversity orientated traceless solid phase synthesis of benzo[b]furans*, 224th American Chemical Society National Meeting, Boston, August **2002**, *Abstracts of Papers of the American Chemical Society*, volume 224, pp166-ORGN, **2002**. ISBN 0065-7727
- 77=** R. C. Hartley, C. Macleod, D. W. Hamprecht, *Novel functionalized titanium benzylidenes for the traceless soli-phase synthesis of indoles*, *Abstracts of Papers of the American Chemical Society*, volume 224, pp766-ORGN, **2002**. ISBN 0065-7727
- 78=** C. Bennett, G. G. Duthie, D. B. McPhail, R. C. Hartley, *Synthesis of novel therapeutic antioxidants*, The 1st International SPECS and BioSPECS Synposium, September **2002**, Delft, the Netherlands.
- 79=** Gibson, M.; Farrugia, L. J.; Hartley, R. C. *Control of sulfur neighbouring group participation exploited in a general synthesis of piperidines*. *Abstracts of Papers of the American Chemical Society* **2003**, 226, 375-ORGN. 226th ACS National Meeting, New York, September **2003**
- 80=** Bennett, C.; McPhail, D. B.; Gardner, P. T.; Duthie, G. G.; Hartley R. C. *Myricetin-vitamin E hybrids: potential therapeutic antioxdants*. *Abstracts of Papers of the American Chemical Society* **2003**, 226, 281-MEDI. 226th ACS National Meeting, New York, September **2003**
- 81=** Hay, A.; Hartley, R. C.; McPhail, D. B.; Duthie, G. G. *Novel nitron antioxidants*. *Abstracts of Papers of the American Chemical Society* **2003**, 226, 282-MEDI. 226th ACS National Meeting, New York, September **2003**
- 82=** Roberts, C. F.; Hartley, R. C. *Novel route to 2-substituted benzo[b]thiophenes using functionalised titanium alkylidene reagents*. *Abstracts of Papers of the American Chemical Society* **2003**, 226, 388-ORGN. 226th ACS National Meeting, New York, September **2003**

- 83= Gibson, M; Austin, C. A.; Hamprecht, D. W.; Hartley R. C. *Diversity based synthesis of quinolines and piperidines on solid phase. Abstracts of Papers of the American Chemical Society* **2003**, 226, 330-ORGN. 226th ACS National Meeting, New York, September **2003**
- 84= Forrest, N. D.; Hartley, R. C.; Crozier, A. *New approaches to the ¹³C labelling of (+) catechin. Abstracts of Papers of the American Chemical Society* **2003**, 226, 198-ORGN. 226th ACS National Meeting, New York, September **2003**.
- 85= Forrest, N. D.; Hartley, R. C.; Crozier, A. *New approaches to the ¹³C labelling of (+) catechin*. 1st University of Glasgow/Organon Synthesis Symposium, University of Glasgow, September **2003**.
- 86= Gibson, M; Austin, C. A.; Hamprecht, D. W.; Hartley R. C. *Diversity based synthesis of quinolines and piperidines on solid phase*. 1st University of Glasgow/Organon Synthesis Symposium, University of Glasgow, September **2003**.
- 87= Roberts, C. F.; Hartley, R. C. *Novel route to 2-substituted benzo[b]thiophenes using functionalised titanium alkylidene reagents*. 1st University of Glasgow/Organon Synthesis Symposium, University of Glasgow, September **2003**.
- 88= Hanna M. Pettersson, Richard C. Hartley, *Isotopic Labelling of Quercetin-3-Glucoside*, 1st International Conference on Polyphenols and Health, Vichy, France, November **2003**.
- 89= Alison Hay, *Trapping Spin to Save Lives: Antioxidant Research in the Hartley Group*. Set for Britain symposium as part of Chemistry Week, Houses of Parliament, Westminster. Nov **2003**.
- 90= Roberts, C. F.; Hartley, R. C. *Novel route to 2-substituted benzo[b]thiophenes using functionalised titanium alkylidene reagents*. 32nd Scottish Regional Perkin Meeting, University of Edinburgh, **2003**, Edinburgh, UK.
- 91= Roberts, C. F.; McKiernan G. J.; Hartley, R. C. *A Diversity Based Approach to the Tetracyclic Skeleton of Frondosin B*: 2nd University of Glasgow/Organon Symposium on Synthetic Chemistry, September **2004**, Glasgow, UK.
- 92= Roberts, C. F.; McKiernan G. J.; Hartley, R. C. *A Diversity Based Approach to the Tetracyclic Skeleton of Frondosin B*: Poster presentation at the 5th International Symposium on Transition Metals in Organic Synthesis, September **2004**, Glasgow, UK.
- 93= L. V. Adriaenssens, M. Gibson, and R. C. Hartley, *Asymmetric Synthesis of 2-Substituted Piperidines*, 3rd University of Glasgow/Organon Symposium on Synthetic Chemistry, September **2005**, Glasgow, UK.
- 94= L. V. Adriaenssens, M. Gibson, and R. C. Hartley, *Asymmetric Synthesis of 2-Substituted Piperidines*, 34th Scottish Regional Perkin Meeting, December **2005**, WestChem Department of Chemistry, University of Strathclyde, Glasgow, UK.

Lectures by my students on our work

- 95= G. D. McAllister, *Developing an assay for a Diels-Alderase enzyme*, 10th (Scottish) Graduate Symposium on Novel Organic Chemistry, Fine Chemicals Group of the Society of Chemical Industry, University of Glasgow, March **1998**
- 96= S. T. Caldwell, *Isotopic Labelling of Quercetin Glucosides*, 12th (Scottish) Graduate

Symposium on Novel Organic Chemistry, University of Strathclyde, April **2001**.

- 97=** C. Macleod, *Novel Titanium Benzylidenes for the Traceless S-P Synthesis of Indoles*, Neurology CEDD Case Student Day, GSK Harlow, June **2002**.
- 98=** G. J. McKiernan, *Novel Titanium(IV) Alkylidenes for the Diversity Based Synthesis of Aromatic Heterocycles*, RSC Heterocyclic Division Postgraduate Conference, University of Manchester, July **2003**.
- 99=** Alison Hay, *Novel nitron antioxidants*, RSC Organic & Medicinal Postgraduate symposium, Cambridge, December **2003**.
- 100=** Alison Hay, *Novel nitron antioxidants*, SCI Scottish Postgraduate Symposium, Edinburgh, April **2004**.

(V) Research reviews and research reports

- 101*** R. C. Hartley and S. T. Caldwell, *Novel methods for the synthesis of three-, four-, five-, six-, and seven-membered, saturated and partially unsaturated carbocycles*, *Journal of the Chemical Society-Perkin Transactions 1*, 477-501, **2000**.
- 102*** R. C. Hartley and G. J. McKiernan, Titanium Reagents for the Alkylidenation of Carboxylic Acid and Carbonic Acid Derivatives, *Journal of the Chemical Society-Perkin Transactions 1*, 2763-2793, **2002**.

(VI) All other outputs

- 103=** S. T. Caldwell, C. J. Bennett, R. C. Hartley, D. B. McPhail, G. G. Duthie, *Flavonoid compounds as therapeutic antioxidants*. International Patent No. WO **2004**/007475 A1. Publication date: 22/01/**2004**; Filing date: 14/7/**2003**; Priority date: 13/7/**2002**.

FUNDING

Grants in the last 5 years (Total £1,000,321)

EPR, oxidative stress and ageing, R. C. Hartley, Strategic Promotion of Ageing Research Capacity, BBSRC, Nov. 2005 - Apr. 2007, **£58,534**.

Mitochondrial probes and detection of oxidative stress, L. Robertson (student), R. C. Hartley (PI), Wellcome Trust Studentship, Oct. 2005 - Sep. 2008, **£ 94,861**. My share: £94,861.

Fluorous supports in a radiochemical asymmetric total synthesis of (+)-catechin, R. C. Hartley, Sanofi-Aventis, Oct. 2005 - Sep. 2008, **£23,625**.

From Proteins to Surfaces, C. Gilmore, L. Cronin, R. C. Hartley, M. Kadodwala, C. Wilson. EPSRC, Oct. 2005 – Sep 2006, **£255,195**. 5 independent projects, all applicants PI on own project and equal share - approx. £51k.

SPS of Serotonin and Melatonin Analogues using Titanium Chemistry R. C. Hartley, GSK, Oct. 2004 - Sep. 2007, **£21,000**.

Production of a commercial version of a new antioxidant screening assay, and therapeutic antioxidants, P. Shiels, W. Davies, R. C. Hartley, A. Payne, Sep. 2004 – Aug 2006, **£199,039**. My share: £39,808.

Total Radiochemical Synthesis, R. C. Hartley, Confidential Sponsor, Oct. 2004 – Sep. 2005, **£60,000**.

Capture-release in radioisotopic labelling of heterocycles, R. C. Hartley, Sanofi-Synthelabo, Oct. 2002 - Sep. 2005, **£21,905**.

Novel nitron antioxidants, A. Hay (student), J. D. Barry (sponsor), R. C. Hartley (PI), Wellcome Trust Studentship, Oct. 2001 - Sep. 2004, **£94,377**. My share: £94,377.

Design of therapeutic antioxidants, D. McPhail (Rowett Research Institute), G. Duthie (RRI), R. C. Hartley, Scottish Enterprise, Mar. 2001-July 2003, **£171,785**. My share: £131,325.

Earlier Grants (Total £239,665)

Knowledge of plant-based foods for healthier eating, R. C. Hartley, New Zealand Crop Research Institute, Oct. 2000–Sep. 2003, **£12,000**.

Solid phase synthesis using titanium alkylidenes EPSRC quota, Oct. 2000-Sep. 2003, **£31,600**.

Synthesis of Anthocyanins, R. C. Hartley, Rowett Research Institute, Aberdeen, summer 2000, **£1,500**.

Synthesis and Application of β -Hetero-substituted Alkenylboronates, R. C. Hartley, SmithKline Beecham-EPSRC Industrial Case studentship, Oct. 1999-Sep 2002, **£46,120**.

Consumables for Wellcome PhD student placement, R. C. Hartley, autumn 1999, **£1,000**.

Novel synthetic applications of the anionic oxy-Cope rearrangement, R. C. Hartley, Zeneca-EPSRC Case conversion, Oct. 1998-Jan 2002, **£45,045**.

Synthesis of Isotopically Labelled Flavonols, R. C. Hartley, New Zealand Crop Research Institute, Oct. 1998-Sep 2001, **£14,000**.

Asymmetric alkylidenation reactions, R. C. Hartley, Pfizer, summer 1998, **£1,500**.

A synthetic route for isotopic labelling of bioactive flavonols, R. C. Hartley, Nuffield Foundation, Feb. 1998-Sep. 1998, **£1,300**.

Novel alkylidenations and their use in synthesis, R. C. Hartley, AgrEvo UK-EPSRC Case conversion, Oct. 1997-Sep. 2000, **£44,660**.

Arylcopper Chemistry (travel grant), R. C. Hartley British Council (Dr S. M. Draper of Trinity College Dublin received a similar award from Forbairt as part of joint application), 1997-2000, **£500**.

Isolation of a Diels-Alderase enzyme, R. C. Hartley, Glaxo-Wellcome-EPSRC Case conversion, Oct. 1996-Sep. 1999, **£41,740**.

RESEARCH GROUP

Current Group

Post-doc

Dr Stuart Caldwell
Dr Siham El Fangour

PhD

Ms Carolyn Austin (4th yr: writing up)
Mr Louis Adriaenssens (2nd yr)
Mr Calver Main (2nd yr)
Ms Linsey Robertson (2nd yr, Wellcome Trust programme)
Ms Ching Ching Chua (1st yr)
Ms Caroline Quin (1st yr)

MSci

Ms Helen Cameron
Mr Andre Lamarque

Former PhD students and their careers.

All submitted within 4 yrs of matriculation for a PhD.

PhD 05

Dr Alison Hay is now working with Prof. Stuart Schreiber at Harvard University (USA).
Dr Christine Roberts has joined the group of Dr Mark Moloney at the University of Oxford
Dr Hanna Petersson is a Research Chemist in Synthesis group at Borregaard, Norway.

PhD 04

Dr Mairi Gibson is a medicinal chemist with GSK (Harlow).
Dr Gordon J. McKiernan had a brief spell in the group of Prof. Amy R. Howell (University of Connecticut, USA), then took up a position in the group of Prof. Adam Nelson at University of Leeds.
Dr Neil Forrest is a synthetic chemist at Peakdale Molecular (Chapel-en-le-Frith).

PhD 03

Dr Calum Macleod spent two years as a research chemist working in combinatorial chemistry at Adolor Corporation (Pennsylvania, USA) and is now at Argenta Discovery Ltd (Harlow).
Dr C. Andrew Woodland is working as a synthetic organic chemist with BioFocus (Saffron Walden).

PhD 02

Dr Stuart T. Caldwell spent a short period with Syngenta at Grangemouth (Scotland), but his interest in antioxidants and isotopic labelling brought him back to the my group in June 2002.

PhD 01

Dr Emma J. Guthrie joined Air Products and after a brief spell in the Netherlands, now works in their Fuel Cell Energy Solutions group in Walton-on-Thames.

PhD 00

Dr Graeme D. McAllister joined the group of Prof. Richard Taylor in York and enjoyed it so much that he is now the Experimental Officer and Laboratory Manager of that research team.

PhD 99

Dr Alistair P. Rutherford went on to do a post-doc with Dr Alan Armstrong at the University of Nottingham and Imperial College London. He then worked briefly at Charnwood Catalysis in Loughborough before taking up his current position as a medicinal chemist in Vertex Pharmaceuticals (Oxford) in 2000.

Dr Cameron S. Gibb worked for Oxford Asymmetry before moving to Albany Molecular Research (NY, USA) in 2001, where he is now a Senior Research Scientist I in Chemical Development.

Former MSc students

MSc 05

Jianfeng (Jeffery Li) is now studying for a PhD at Pennsylvania State University (USA).

Former MSci, BSc and Erasmus Students who worked in the group on projects.

Oriol Ymbern Llorens (2005)
Joanne McDermott (2005)
Caroline Quin (2005)
Louise Czemerys (2005)
Natasha McAree (2004)
Carlos Miró Sabaté (2004)
Gavin Craig (2004)
Lesley-Anne Nisbet (2004)
Sukhraj Kaloya (2004)
Ms Lawrence Serot (2003)
Vicky Johnstone (2003)
Caroline Reid (2003)
Asim Jamil (2003)
Andrew Jamieson (2003)
Carolyn Austin (2002)
Joanne Irvine (2002)
Claire Hutchison (2001)
Christine Roberts (2001)
Jan Wiegand (2001)
David Edmonds (2001)
Linda Kelly (2000)
Neil Forrest (2000)
Gordon McKiernan (2000)
Duncan Coutts (1999)
James Garety (1999)
Calum Macleod (1999)
Stuart Caldwell (1998)
Andrew Woodland (1998)
Lorna Noble (1998)
Maureen Lau (1997)
Mark Stewart (1997)
James Kinnaird (1997)
Graeme McAllister (1996)
Alastair Draffan (1996)
Andrew Heron (1996)

ADMINISTRATIVE AND TEACHING ROLES

Academic Head of Organic Chemistry (2000-date)

This involves arranging the staffing of organic chemistry lecture courses (in consultation), maintaining balance in the organic chemistry course content, and carrying out duties that affect organic teaching as a whole (e.g. defining the format for structural drawings in exam papers). During the last 3 years, together with the depute HoD, I have managed the crisis in organic teaching that resulted from staff illness and shortages and have ensured the smooth running of our organic chemistry courses.

Major Teaching Reforms and Reviews (1998-date)

1. Restructured MSci and BSc (hons) Chemistry and Chemistry with Medicinal Chemistry Degrees (2003-04). Designed and Implemented the new final year course and exam structures of all degrees (with exception of Chemical Physics).
2. Part of team that designed new degree course in Chemistry with Forensic Science (2004) that is expected to assist in University recruitment of students.
3. Chaired committee that reviewed and reformed the organic curriculum in all degrees (1998).

Class Head of Final Year (2003-2005)

The final year of our degree courses is key to the national standing of our department. I was responsible for ensuring the coherence and academic standing of courses, liaising with other departments involved in our teaching, recommending suitable staff for teaching the course, ensuring that staffing and disciplinary issues were resolved. Other duties included timetabling, course development, preparing class handbooks, pastoral and student career guidance roles.

Class Head of Chemistry with Medicinal Chemistry (1999-2003)

CMC is the largest chemistry degree class. The CMC course involves contributions from IBLs and Organon and I was responsible for: the coherence and academic standing of the CMC course; recommending suitable staff for teaching the course; and ensuring that disciplinary issues are resolved. Other duties included timetabling, course development, preparing class handbooks, pastoral and student recruitment roles, and responsibility for 3rd year exam results.

Undergraduate Teaching Duties (1995-date)

- 3-4.5 Lecture courses and associated examining. Currently I teach four courses:
 2nd year *Organic Synthesis* (generally about 150 students)
 3rd year *Mechanistic Organic Chemistry* (generally about 70 students)
 4th year *Advanced Organic Synthesis* (generally about 45 students)
 4th year *CMC only: Cancer and Modern Drug Discovery* (generally about 30 students)
- 2-5 MSci/BSc/Erasmus student projects each year (37 to date), and project thesis and essay examining.
- Approx. 30 undergraduate tutorials.
- Up to 60 h laboratory demonstrating.

WestChem Graduate School (2005)

Glasgow University PI on the WestChem £2,280,360 bid for a Cancer Research UK Graduate Training Programme in Medicinal Chemistry (16 PhD students), which was unfortunately unsuccessful, but the WestChem postgraduate handbook that I wrote will be used by WestChem.

Exam paper setter (1999-date)

Final Year Organic Chemistry Paper (New responsibility this year).

3rd Year Organic Chemistry Paper (2005).

Final Year Paper 5 (medicinal chemistry paper) of Chemistry with Medicinal Chemistry finals, (1999-2004).

3rd Year Class Exam Organic Chemistry paper (1999-2003).

Jointly responsible for the organisation of 3rd year class exams, (1999-2003).

Wellcome 4 yr PhD Programme (1999-date)

Head of Structural and Chemical Biology component of programme, 2004-date.

Organiser of Synthesis Component of Wellcome 4yr PhD programme 1999-2004.

Interview Panels (2004-2005)

Reader in Organic Chemistry 2004

Chair in Chemical Proteomics 2005

Lecturer/Senior Lecturer in Organic Chemistry 2005

Departmental Committees etc. (1995-2005)

Member of Teaching Committee 1995-2005.

Member of Staff-Student Committee 1999-2005.

Chemistry Graduate School Committee 1995-1999.

Organiser of bioorganic/organic chemistry postgraduate seminars/symposia, 1996-1999.

Laboratory Safety (1998-date)

Responsible person for safety in the Henderson research laboratory.

EXTERNAL ROLES

External Examiner for PhD Degrees:

Annette Farrell, University College Dublin, August 2000.
Supervisor: Dr Patrick Guiry

Caroline Winn, University of Cambridge, January 2001.
Supervisor: Dr Jonathan Goodman

Colm O'Mahony, University College Dublin, December 2001.
Supervisor: Dr Declan Gilheany

Graham Oakes, University of Liverpool, September 2002,
Supervisor : Dr Nick Greeves

Andrew Wright, University of Strathclyde, March 2004.
Supervisor: Prof. John Murphy

Mamta Patel, University of Bristol, May 2004.
Supervisor: Prof. Varinder Aggarwal

Stuart Lang, University of Strathclyde, January 2005.
Supervisor: Prof. John Murphy

Steven McAteer, University of Leeds, April 2005
Supervisor: Prof. Philip Kocienski

Susan Flanagan, University College Dublin, August 2005.
Supervisor: Prof. Patrick Guiry

Stuart David Hamilton, University of Manchester, November 2005.
Supervisor: Prof. Jonathan Clayden

Chitatu Christopher Musonda, Jr, University of Cape Town, South Africa, January 2006
Supervisor: Prof. Kelly Chibale

Peer Review

Member of EPSRC Peer Review College.

Reviewer of BBSRC grant applications.

Member of Review Panel of the international journal *Tetrahedron*, and have reviewed papers for *Organic Letters*, *Journal of Organic Chemistry*, *Tetrahedron Letters*, *Bioorganic and Medicinal Chemistry Letters*, *Synthesis*, *Journal of the Chemical Society-Perkin 1* (now OBC), *Synlett*, *Synthetic Communications*, and *Comptes Rendus Academies Des Sciences*.

Conference Organisation (For Lectures and Posters at conferences etc.: see pages 6-11 of publications)

10th Scottish Graduate Symposium on Novel Organic Chemistry, Glasgow, April 1998

Chemistry and Ageing, RSC, London, 21st April 2006 - *currently arranging*.

Chemical Biology of Radicals, Oxidative Stress and Ageing, Glasgow, 2007 - *currently arranging*.

Services to Wider Education

Chair of School Board of Bocclair Academy, Bearsden (a secondary school with >1000 students)