

## Dr Richard Grainger BSc, PhD

Senior Lecturer in Organic Chemistry

**[School of Chemistry \(/schools/chemistry/index.aspx\)](/schools/chemistry/index.aspx)**

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### About

Richard Grainger is a Senior Lecturer in the School of Chemistry, where he carries out research in, and teaches, organic chemistry. His research is focused on the development of new synthetic methods and strategies, and their application in the synthesis of organic molecules of biological or structural interest, particularly natural products. He also has an ongoing interest in organosulfur chemistry.

Richard has published original research papers in leading chemistry journals, including the *Journal of the American Chemical Society* and *Angewandte Chemie*. He has received major grants from EPSRC, including the award of an Advanced Research Fellowship 2005-2010

**Group Webpages** (<http://chemweb.bham.ac.uk/~graingrs/index.htm>)

### Qualifications

- PhD in Organic Chemistry 1996
- BSc (Hons) Chemistry 1992

### Biography

Richard Grainger graduated with a BSc in Chemistry (1<sup>st</sup> class Hons) from the University of Sheffield UK. He carried out his PhD research at the same institution under the supervision of Prof. Varinder Aggarwal, now at the University of Bristol. After 2 years postdoctoral research at the University of Chicago, working with Prof. Viresh Rawal, he returned to the UK to take up an independent academic position at the Department of Chemistry, King's College London. In September 2005 he moved to the School of Chemistry, University of Birmingham, as a lecturer in Chemistry. From 2005-2010 he additionally held the position of EPSRC Advanced Research Fellow.

He has given over 65 presentations of his research at conferences, chemical companies and Universities across the globe, and graduated 11 PhD students and 2 MSc students from his research group. He has acted as external examiner to more than 30 PhD and MPhil research theses in the UK and abroad.

### Teaching

#### Teaching Programmes

- 1<sup>st</sup> year Chemistry for Biochemists
- 1<sup>st</sup> year Chemistry for Chemical Engineers
- 3<sup>rd</sup> year Organic Chemistry: Functional Group Transformations
- 3<sup>rd</sup> year Special Chemistry Topics: Metals in Organic Synthesis
- 4<sup>th</sup> year Organic Chemistry: Total Synthesis of Natural Products

### Postgraduate supervision

Richard is interested in supervising doctoral research students in the following areas:

- Methodology development and application in natural product synthesis
- Organosulfur chemistry

For a full list of available Doctoral Research opportunities, please visit our **[Doctoral Research programme listings. \(http://www.bham.findaphd.com/?es=y&apl=y&apit=&show\)](http://www.bham.findaphd.com/?es=y&apl=y&apit=&show)**.

### Research

#### RESEARCH THEMES

- Synthetic Chemistry

#### RESEARCH ACTIVITY

Dr Grainger's research involves the development of new methods and strategies for the synthesis of complex organic molecules of biological or structural interest. He also has an active research programme in the generation and stabilization of reactive species in organosulfur chemistry.

## Research Interests

- Natural product synthesis
- Free radical reactions
- Organosulfur chemistry
- Synthetic organic photochemistry
- Peri-interactions

## Other activities

- Member of RSC Organic Division Executive 2009-2012
- Member of EPSRC College
- Member of Young Chemists Panel, Society of Chemical Industry, February 2002-December 2005 Secretary April 2003-December 2005

## Publications

Grainger, R. S., Patel, B., Kariuki, B. M., Male, L., Spencer, N. (2011), Sulfur Monoxide Transfer from *peri*-Substituted Trisulfide-2-oxides to Dienes: Substituent Effects, Mechanistic Studies and Application in Thiophene Synthesis, **J. Am. Chem. Soc.**, 133: 5843-5852

Patel, B., Carlisle, J., Bottle, S. E., Hanson, G. R., Kariuki, B. M., Male, L., McMurtrie, J. C., Spencer, N., Grainger, R. S. (2011), In search of a new class of stable nitroxide: synthesis and reactivity of a *peri*-substituted *N,N*-bissulfonylhydroxylamine, **Org. Biomol. Chem.**, 9: 2336-2344

Casey, T. C., Carlisle, J., Tisselli, P., Male, L., Spencer, N., Grainger, R. S. (2010), Stereoselective  $\alpha,\alpha'$ -Annulation Reactions of 1,3-Dioxan-5-ones, **J. Org. Chem.**, 75: 7461-7464

Grainger, R. S., Patel, B., Kariuki, B. M. (2009), 2,7-Di-*tert*-butylphtho[1,8-cd][1,2]dithiole 1,2-dioxides: Thermally Stable, Photochemically Active *vic*-Disulfoxides, **Angew. Chem. Int. Ed.**, 48: 4832-4835

Grainger, R. S., Jervis, P. J. (2009), "Synthesis by Extrusion" In: Trost, B. M., Rawal, V. H. and Kozmin, S. A. (eds.) "Science of Synthesis Volume 46: 1,3-Dienes" Stuttgart: Thieme. pp. 401-444

Ahmed, S., Baker, L. A., Grainger, R. S., Innocenti, P., Quevedo, C. E. (2008), Thermal Elimination of Diethyldithiocarbamates and Application in the Synthesis of (+/-)-Ferrugine, **J. Org. Chem.**, 73: 8116-8119

Grainger, R. S., Welsh, E. J. (2007), Formal Synthesis of (-)-Aphanorphine Using Sequential Photomediated Radical Reactions of Dithiocarbamates, **Angew. Chem. Int. Ed.**, 46: 5377-5380

