CURRICULUM VITAE

GERRY RASSIAS

PROFESSIONAL EXPERIENCE

- 2012- to date: Assistant Professor at the Department of Chemistry at the University of Patras, Greece.
- 2003-2012: Worked in the Synthetic Chemistry team of Chemical Development at GlaxoSmithKline's site at Stevenage, UK. My duties as a development chemist in GlaxoSmithKline required the in-depth study of reactions in order to deliver safe, sustainable, robust and well understood processes to support the manufacture of APIs at the appropriate specifications.

EDUCATION and TRAINING

- 2002-2003: Post-doctoral fellow at The Scripps Research Institute, San Diego, USA with a fellowship from the Skaggs Foundation under the guidance of Prof. K.C. Nicolaou. Research was focused on the total synthesis of diazonamide A and on the synthesis of epothilone B analogues.
- 2000-2002: Enlisted for national service in the Infantry by the Hellenic Ministry of Defence and was selected to attend the military school for reserve officers. Graduated with distinction; ranked 2nd from a class of 168 candidates. Served as platoon commander and instructor in anti-tank warfare; honorably discharged with the rank of lieutenant.
- 1999-2000: Post-doctoral fellow at Loughborough University with a fellowship from the Leverhume Trust under the supervision of Prof. P.C.B. Page. Research was focused on studies towards the total synthesis of lactacystin and on new ligands for palladium catalysed asymmetric transformations. This work was structured and assessed by the Royal Society of Chemistry (RSC) and led to the title of Chartered Chemist and Member of the RSC.
- 1995-1999: Doctor of Philosophy (PhD) awarded by Loughborough University. The research project was a CASE scholarship from Glaxo-Wellcome on New Systems for Catalytic Asymmetric Epoxidation. I started this project at the University of Liverpool and completed it at Loughborough University following the appointment of my supervisor, Prof. P.C.B. Page, as Head of Organic Chemistry at the latter institute
- 1992-1995: BSc(Hons) *First Class* in Chemistry from The University of Liverpool. Received the Ellard-Woolcotte prize for distinguished academic performance; ranked 2nd in class of 86 graduates.

DISTINCTIONS AND PRIZES

- 2003-2012: Two Bronze, six Silver and two Gold Reward & Recognition Awards and three Exceptional Science awards by GlaxoSmithKline R&D**.**
- 2009: Promotion to Investigator grade at GlaxoSmithKline
- 2009: 2nd Prize for Green and Sustainable Process (orexin project team), awarded by the CEO of GlaxoSmithKline.
- 2002:2003: Postdoctoral fellowship by The Skaggs Foundation at Scripps
- 2000: Awarded the title of Chartered Chemist by the Royal Society of Chemistry.
- 1999-2000: Postdoctoral fellowship by The Leverhume Trust
- 1995-1998: PhD studentship by Glaxo-Wellcome.
- 1995: Received the Ellard-Woolcott prize from The University of Liverpool for distinguished academic performance.

ACHIEVEMENTS AND POSITIONS OF RESPONSIBILITY

- I have been the author or co-author of 30 research publications cited over 400 times in the literature.
- I have been invited to present my work on 14 separate occasions in academia and industry, eight of which have been at international conferences.
- Over my 10 year-career at GlaxoSmithKline I had the opportunity to participate in brainstorms and departmental discussions concerning the synthesis of more than 120 molecules spanning all phases of development (early/late phase and marketed products).
- Key contributor as team member/lead scientist in multicultural and multidisciplinary matrices; excellent presentation and communication skills to both specialist and cross-functional audiences.

- At GlaxoSmithKline I have been involved with the academic collaborations team, the catalysis team and the recruitment process.
- In academia and industry combined, I have supervised and co-supervised 3 post-doctoral, 6 PhD and 3 MSc research projects spanning diverse fields in organic chemistry.
- Experienced in coaching people, cost-of-goods issues, safety, environmental impact and manufacturability of chemical processes as well as in issues related to intellectual property, regulatory affairs, managing resources and more importantly the interaction of all of the above in decision making.
- 10 years experience in successfully developing processes and implementing new routes for complex molecules for diverse therapeutic areas such as gastrointestinal, neurology, psychiatry and oncology. I was involved in the design and execution of syntheses in reactors up to 6000L, delivering the active ingredient at the appropriate specifications.
- I have also been responsible for the knowledge and technology transfer of these processes to production sites in the USA, Japan, UK, Ireland, Switzerland, Germany, Spain and Singapore.
- Strategies for early and late phase projects; fit-for-purpose and/or targeted development, project planning, Quality by Design, specifications, regulatory issues.
- I was the lead chemist for the synthetic development of the novel MEK inhibitor trametinib and among the authors of the file. Trametinib (commercial brand Mekinist) was recently approved by the FDA for the treatment of metastatic melanoma (other cancers currently in Phase II clinical trials). I consider my contributions and experience in the development and file submission of a marketed, life-saving drug as my highest achievement because this underlines the importance of chemistry to humanity.

AFFILIATIONS

I am a member of the Royal Society of Chemistry, the Society of Chemical Industry, the Union of Hellenic Chemists the American Chemical Society and referee for articles submitted to Synthesis, Organic Letters and The Journal of Organic Chemistry.

REFEREES

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PRESENTATIONS

Studies towards the total synthesis of diazonamide A and epothilone B analogues

- Ferring Pharmaceuticals, San Diego, USA, 2002.
- Merck Process Chemistry Group, Hoddesdon, UK, 2003.
- GlaxoSmithKline, Medicines Research Centre, Stevenage, UK, 2003.
- AstraZeneca R&D, Charnwood, Loughborough, UK, 2003.
- University of Patras, Patra, Greece, 2004.

Development of a supply route for an iNOS inhibitor and investigation of alternative synthetic routes

- 2nd Hellenic Symposium on Organic Synthesis, University of Athens, 2007.
- Contemporary Organic Synthesis, Methods and Techniques, Biopolis, Singapore, 2008.
- SCI Process Chemistry Symposium, University of Cambridge, UK, 2008.
- Organic Synthesis Symposium, Gregynog, Wales, UK, 2010.

The synthesis of a key benzopyran derivative

- Applied Chemistry Symposium, University College London, London, UK, 2009.
- 3rd Hellenic Symposium on Organic Synthesis, University of Athens, Greece, 2009.
- New Horizons in Catalysis, Scientific Update, Cologne, Germany, 2009.

Chemistry Development of the leading MEK inhibitor against cancer

- Chiral Europe 2011, Scientific Update, Edinburgh, UK, 2011.

LIST OF PUBLICATIONS

1. Page, P. C. B.; Rassias, G. A.; Bethell, D.; Schilling, M. B. A New System for Catalytic Asymmetric Epoxidation Using Iminium Salt Catalysts. *J. Org. Chem.,* **1998**, *63 (8),* 2774-2777.

2. Page, P. C. B.; Bethell, D.; Rassias, G. A.; Heer, J. P. Asymmetric oxidation mediated by imines and iminium salts. *Reactivity,* **1999**, 14-18.

3. Page, P. C. B.; Rassias, G. A.; Bethell, D. New systems for catalytic asymmetric epoxidation. *Book of Abstracts,* 218th ACS National Meeting, New Orleans, Aug. 22-26 **1999**, ORGN-451.

4. Page, P. C. B.; Heaney, H.; Rassias, G. A.; Reignier, S.; Sampler, E. P.; Talib, S. The reductive cleavage of cyclic aminol ethers to *N,N*-dialkylamino derivatives. Modifications to the Eschweiler-Clarke procedure. *Synlett,* **2000**, *(1),* 104-106.

5. Rassias, G. A.; Page, P. C. B.; Reignier, S.; Christie, S. D. R. The first successful use of simple 1,2-aminothioethers as hybrid ligands in the palladium-catalyzed asymmetric allylic substitution reaction. *Synlett,* **2000**, *(3),* 379-381.

6. Page, P. C. B.; Rassias, G. A.; Barros, D.; Bethell, D.; Schilling, M. B. Dihydroisoquinolinium salts: catalysts for asymmetric epoxidation. *J. Chem. Soc. Perkin 1,* **2000**, *(19),* 3325-3334.

7. Page, P. C. B.; Rassias, G. A.; Barros, D. A.; Ardakani, A.; Buckley, B.; Bethell, D.; Smith, T. A. D.; Slawin, A. M. Z. Functionalized iminium salt systems for catalytic asymmetric epoxidation. *J. Org. Chem.* **2001**, *66 (21),* 6926-6931.

8. Page, P. C. B.; Rassias, G. A.; Barros, D. A.; Ardakani, A.; Bethell, D.; Merifield, E. New Organocatalysts for the Asymmetric Catalytic Epoxidation of Alkenes Mediated by Chiral Iminium Salts. *Synlett,* **2002**, *(4),* 580-582.

9. Page, P. C. B.; Heaney, H.; Reignier, S.; Rassias, G. A. 1,2-Aminothioethers derived from ephedrine and pseudoephedrine: heterobidentate ligands for the palladium-catalysed asymmetric allylic substitution reaction. *Synlett,* **2003**, *(1),* 22-28.

10. Page, P. C. B.; Hamzah, A. S.; Leach, D. C.; Allin, S. M.; Andrews, D. M.; Rassias, G. A. Short and Versatile Route to a Key Intermediate for Lactacystin Synthesis. *Org. Lett.* **2003**, *5(3),* 353-355.

11. Nicolaou, K. C.; Rao, P. B.; Hao, J.; Reddy, M. V.; Rassias, G.; Huang, X.; Chen, D. Y.-K.; Snyder, S. A. The second total synthesis of diazonamide A. *Angew. Chem. Int. Ed.* **2003**, 42*(15),* 1753-1758.

12. Nicolaou, K. C.; Sasmal, P. K.; Rassias, G.; Reddy, M. V.; Altmann, K.-H.; Wartmann, M.; O'Brate, A.; Giannakakou, P. Design, synthesis, and biological properties of highly potent epothilone B analogues. *Angew. Chem. Int. Ed.* **2003**, 42*(30),* 3515-3520.

13. Nicolaou, K. C.; Hao, J.; Reddy, M. V.; Rao, P. B.; Rassias, G.; Snyder, S.; Huang, X.; Chen, D. Y.-K.; Brenzovich, W.; Giuseppone, N.; Giannakakou, P.; O'Brate, A. Chemistry and biology of diazonamide A: Second total synthesis and biological investigations. *J. Am. Chem. Soc.* **2004**, *126,* 12897-12906.

14. Buckley, B. R.; Page, P. C. B.; Edgar, M.; Elsegood, M. R. J.; Hayman, C. M.; Heaney, H.; Rassias, G. A.; Talib, S. A.; Liddle, J.; Readshaw, S. A.; Seaman, C. J. The Highly Diastereoselective Synthesis of Oxazolidines Derived from Ketones and Pseudoephedrine or Ephedrine. *Synlett,* **2005**, *6,* 971-975.

15. Page, P. C. B.; Buckley, B. R.; Rassias G.; Blacker, J. A. New chiral iminium salt catalysts for asymmetric epoxidation. *Eur. J. Org. Chem.* **2006**, 803-813.

16. Page, P C. B.; Buckley, B. R.; Elsegood, M. R. J.; Hayman, C. M.; Heaney, H.; Rassias, G. A.; Talib, S. A.; Liddle, J. Synthesis of enantiomerically pure tertiary 1,2-aminoalcohols by the highly diastereoselective reductive ring opening of oxazolidines. *Tetrahedron*, **2007**, *63*(45), 10991-10999.

17. Page, P. C. B.; Parker, P.; Buckley, B. R.; Rassias G.; Bethell, D. Iminium Salt-Catalysed Asymmetric Epoxidation using Hydrogen Peroxide as Stoichiometric Oxidant. *Adv. Synth. Catal*. **2008**, *350*, 1867-1874.

18. Curtis, N. R.; Prodger, J. C.; Rassias, G.; Walker, A. J. A facile gold(I)-catalysed intramolecular alkyne hydroarylation approach to methyl 5-amino-2*H*-1-benzopyran-8-carboxylate derivatives. *Tetrahedron Lett.* **2008**, (49), 6279-6281.

19. Page, P. C. B.; Parker, P.; Buckley, B. R.; Rassias, G. A.; Bethell, D. Organocatalysis of asymmetric epoxidation by iminium salts using sodium hypochlorite as the stoichiometric oxidant. *Tetrahedron,* **2009**,

65, 2910–2915.
20. Rassias, G.*; Hermitage, S. A.; Sanganee, M. J.; Kincey, P. M.; Smith, N. M.; Andrews, I. P.; Borrett, G. T.; Slater, G. R. Development of a Supply Route for the Synthesis of an iNOS Inhibitor: Complications of the Key S_N2 Reaction. *Org. Process Res. Dev.* **2009**, *13*, 774-780.
21. Rassias, G.*; Hermitage, S. A.; Controlling thiiranium intermediates - a new route to an iNOS inhibitor. *Tetrahedron Lett.* **2009**, *50*, 5565-5568.
22. Rassias G.*; Stevenson, N. G.; Curtis, N. R.; Northall, J. M.; Gray, M.; Prodger, J. C.; Walker, A. J. Investigation of synthetic routes to a key benzopyran intermediate of a $5HT_4$ agonist. *Org. Process Res. Dev.* **2010**, *14*, 92-98.
23. Mizuta, S.; Galicia-Lopez, O.; Engle, K. M.; Verhoog, S.; Wheelhouse, K.; Rassias, G.; Gouverner, V. Trifluoromethylation of Allylsilanes under Copper Catalysis. *Chem. Eur J.* **2012**, *18*(28), 8583-8587.
24. Page, P. C. B.; Bartlet, C.; Chan, Y.; Day, D.; Parker, P.; Buckley, B. Rassias, G.; Slawin, A.; Allin, S.; Lacour, J.; Pinto, A. Asymmetric epoxidation using iminium salt organocatalysts featuring dynamically controlled atropoisomerism. *J. Org. Chem*. **2012**, *77*(14), 6128-6138.
25. Arroniz, C.; Ironmonger, A.; Rassias, G.; Larrosa, I. Direct ortho-arylation of ortho-substituted benzoic acids: Overriding Pd-catalyzed protodecarboxylation *Org. Lett.* **2013**, *15* (6), 1250–1253.
26. Mizuta, S. Verhoog, S.; Engle, K. M.; Khotavivattana, T.; O'Duill, M.; Wheelhouse, K.; Rassias, G.; Medebielle, M; Gouverner, V. E. Catalytic hydrotrifluoromethylation of unactivated alkenes. *J. Am. Chem. Soc.***2013**, *135* (7), 2505–2508.

PATENT APPLICATIONS

1. Nicolaou, K. C.; Rao, P. B.; Chen, D. Y.-K.; Hao, J.; Huang, X.; Rassias, G.; Reddy, M. V.; Snyder, S. A. Synthesis of analogs of diazonamide A. *U.S. Patent* TSRI Case. No. 978.0P, Manuscript No. 15567-CH, **2003**.
2. Hermitage, S. A.; Panchal, T.; A.; Rassias, G.; Sanganee, M. J. (2*R*, 5*R*)-6N-(1-Iminoethyl)-2,6-diamino-5-methyl-4-thiohexanoic acid; salts thereof; a process for their preparation; pharmaceutical compositions containing them and their use in medicine. WO 2005/005377-A1, **2005**.
3. Best, D. J.; Orlek, B. S.; Rassias, G.; Theobald, P. J. Piperazine derivatives having affinity for the histamine H3 receptor. WO 2009/030716-A1, **2009**.
4. Day, C. J.; Keel, T. R.; Rassias, G. Salt of and processes for the preparation of 1-isopropyl-4-{[4(tetra hydro-2H-pyran-4-yloxy)phenyl]carbonyl}hexahydro-1H-1,4-diazepine. WO 2010018231 A2 20100218, **2010**.