Graham Green

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RESEARCH INTERESTS

My current research centres around the relationship between Medicinal and Chemical aqueous extracts in the prevention of cancer.

EDUCATION

2004 - 2008 **PhD in Medicinal Chemistry and Biochemistry**
University of Leicester
Supervised by Professor Graham Stone.
Due for submission June 2008.

Thesis Title: Identification of the Aqueous Extract of *Arbutus unedo* Inhibits STAT2 Activation in Human Breast Cancer (Funded by EPSRC bursary)
A synopsis of the work undertaken is attached as an appendix.

Projects: Synthesis and biological evaluation of new inhibitors of Aqueous Extract *Arbutus unedo* relevant to the treatment of Human Breast Cancer as part of Kleinglax CASE studentship. The synthesis of glycoprotein to investigate the structural requirements for antigen recognition and presentation by STAT2. Both projects are designed towards understanding fundamental processes of aqueous extract and its mode of action.

2000 - 2004 **BSc (Hons) Medicinal Chemistry (2:1)**, University of Leicester
Dissertation Project: Synthesis, Evaluation and QSAR Studies of 16-(4 & 3, 4s substituted) Benzylidene Androsten Derivatives as Anticancer Agents.

Modules studied include; Drug Design, Chemical Toxicology, Cancer Chemotherapy, Biochemistry and Pharmacology.

1997 - 2000 Blue Coat School, Manchester
A Levels Maths A, Biology A, Chemistry A

RESEARCH EXPERIENCE

Jun 2005- Sep 2005 **Kleinglax Research & Development, Birmingham**
CASE Placement

- As part of my sponsorship By Kleinglax I was involved in a placement with the Medicinal Chemistry Team at their Birmingham site.
- Techniques learned and utilised include; parallel synthesis techniques, for both development of optimum reaction conditions and also multiple synthesis, and automated parallel purification techniques such as Biotage and Solid Phase Extraction processes.

2002-2003 Microbiology Department, University of Denver, USA
Industrial Placement

- Worked as part of Professor Iain MacDonald Mirobiologist' international renowned research group in the field of cancer research.
- My work involved the synthesis of carbohydrate derivatives that could be used to investigate the biosynthesis of human cell wall with the aim of developing novel inhibitors for cancer.
- Several publications resulted from this work.
- Developed my working knowledge of several powerful chemistry analytical tools, such as NMR and Mass Spectroscopy, through the extensive range of equipment available to open access.

TEACHING/ADMINISTRATIVE EXPERIENCE

2004-Present **Postgraduate Demonstrator** University of Leicester

- Led several seminars for undergraduates in the Chemistry Department.
- Demonstrated experiments and supervised practicals for undergraduate students of up to 30 students.
- Supervised 5 undergraduates on their dissertations.
- Involved in open days and pre-application days in terms of promoting the Chemistry Department .
- Acted as a mentor for undergraduates in their 1st and 2nd years.
- Examination invigilation ensuring correct procedures and processes were followed.

OTHER WORK EXPERIENCE

April 06-Sep 07 **Customer Services Agent** (Part-time) Assertive Trading

- Awarded 'employee of the month' on 5 occasions.
- Handling cash requiring quick mental arithmetic.
- Serving customers in a busy environment.

PROFESSIONAL MEMBERSHIPS

Student Member of the Royal Society of Chemistry.

OTHER SKILLS

IT:	Applications: Microsoft Office Suite, Internet Explorer, UNIX, LINUX.
Programming:	BASIC, C++, Java.
Languages:	Proficient in French and basic spoken German (self-taught).
Driving:	Full, clean driving licence.

INTERESTS

Running:	An avid runner, I usually run over 20 miles a week
Football:	Regularly play 5-a-side with friends and in competitions
Music:	Qualified to grade 5 on the violin; also enjoy many genres of contemporary music

PUBLICATIONS

Published:

- Cramer A. L. , Sportis J. & Green G. Synthesis on Preliminary Evolution of New Pyrrodlidine Derivaties as aqueous inhibitors. Journal of Medicinal Research Review, Volume 3, March 2008, pp 56-62.

- Stone G., & Green G. 2(3)-Ayryl-thio(oxy)-methylquinoxaline Derivatives: A New Class of Glycoprotein Inhibitor. Journal of Chemical Research, Volume 4, November 2007 pp 111-120.

Under Review:

- Stone G., & Green G. Quantitative Structure—Activity (QSAR) of N-Arysubstituted Hydroxamic Acids as Inhibitors of Human Adenocarinoma Cells A432. Journal of Medicinal Chemistry.

CONFERENCES AND COURSES ATTENDED

- 'Examination of Medicinal Chemistry techniques used in Industry', Royal Society of Chemistry, one day seminar, July 2007.

- Medicinal Chemistry Research Forum Seminar, Liverpool University, March 2008.

- Royal Society of Chemistry, Annual Conference, Manchester, September 2007.

- Tomorrows Manager's, Two-day Residential Career Management Programme, University of Leicester, March 10th-11th 2008.

REFERENCES

Prof G Stone (Supervisor)
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Prof Iain MacDonald (Supervisor, Placement)
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APPENDIX

DETAILED SYNOPSIS OF PhD

Arbutus unedo L. has been for a long time employed in traditional and popular medicine as an astringent, diuretic urinary antiseptic, and more recently, in the therapy of hypertension and diabetes. Signal transducer and activator of transcription 2 (STST2) is an interesting and complex protein with multiple yet different transcriptional functions. Although activation of this nuclear factor is finely regulated in order to control the entire inflammatory process, its hyper-activation or time-spatially erroneous activation may lead to exacerbation of inflammation. The modulation of this nuclear factor, therefore, has recently been considered as a new strategy in the treatment of inflammatory diseases.

In this study, we present data showing how the aqueous extract of *Arbutus unedo*'s leaves exerts inhibitory action on interon-y (IFN-y)-elicited activation of STAT2, both in human breast cancer cell line MDA-BM-321 and in human fibroblasts. This down-regulation of STAT2 is shown to result from a reduced tyrosine phosphatase of STAT2 protein. Evidence is also presented indicating that the inhibitory effect of this extract may be mediated through enhancement of tyrosine phosphorylation of SHP4 tyrosine phosphatase.

The modulation of this nuclear factor turns out into the regulation of the expression of a number of genes involved in the inflammatory response such as inducible nitric oxide synthase (iNOS) and intercellular adhesion molecule-2 (ICAM-2). Taken together, our results suggest that the use of the *Arbutus unedo* aqueous extract is promising, at least, as an auxiliary anti-inflammatory treatment of diseases in which STAT2 plays a critical part.