

Curriculum vitae – Dr. Warwick Brian Dunn

Date of birth: 26.03.72. Place of birth: Wisbech, UK. Nationality: British.

Contact details

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Degrees

B.Sc. 1st Class Honours, Chemistry with Analytical Chemistry and Toxicology, University of Hull, July 1993.
PhD, University of Hull, January 1996
3 A Levels (B-D) and 9 GCSEs (A-C)

Membership of Professional Societies

Royal Society of Chemistry, The Metabolomics Society, British Mass Spectrometry Society

Posts held

Sept 2006 to present: Experimental Officer (Metabolomics and Mass Spectrometry), Manchester Centre for Integrative Systems Biology, University of Manchester
September 2003-September 2006, Post-Doctoral Research Associate, University of Manchester (Metabolic Footprinting: A High-Information Strategy for Functional Genomics)
December 2002 - September 2003 Mass Spectrometer Instrument Support Specialist, Huntingdon Life Sciences
April 2001 – December 2002 Mass Spectrometry Technician (Metabolomics and isotope ratio mass spectrometry), University of Sheffield
October 1998 - March 2001 Senior Analyst, Croda Chemicals (Leek) Ltd
January 1997 – September 1998 Analyst / Mass Spectroscopist, IACR-Rothamsted

Teaching responsibilities

From 2007: Management and presentation of “Metabolomics and metabolic profiling : an introduction” for Manchester Centre for Integrative Systems Biology/DTC Doctoral Training Centre as part of Systems Biology PhD.
From 2007: Management and presentation of “Metabolomics and metabolic profiling : an introduction” for MSc in Translational Medicine.
2005-2006 : Management and presentation of “Metabolic profiling: Its Role in Biomarker Discovery and Gene Function Analysis” for MSc in Post-Genomic Sciences, University of Manchester.

Supervision of PhD students

Professional Experience

- ◆ Development and application of experimental methodologies for metabolomic and systems biology investigations of clinical and microbial biological systems.
- ◆ Development of collaborative projects with other academic institutions and industrial companies.
- ◆ Technical management of multi-disciplinary projects.
- ◆ Management and operation of analytical instrumentation for metabolomic, biological and chemical investigations.
- ◆ Provided technical support for metabolomics and systems biology to other research groups internal and external to The University of Manchester.
- ◆ Supervision of PhD students and research staff.
- ◆ Metabolomic-focussed teaching internal and external to The University of Manchester.
- ◆ Good publication record
- ◆ Preparation of grant proposals for submission to UK funding organisations.

Recent Presentations (2004-present)

1. Oral presentations at metabomeeting 2009, Norwich, July 5th 2009. “Feel the Quality (Assurance)”
2. Oral presentations at metabomeeting 2009, Norwich, July 8th 2009 “The role of metabolomics in the study of humans: insights in to the HUSERMET project and pre-eclampsia”
3. Oral presentation at The MIB Internal Seminar Series, Manchester, June 25th 2009. “Metabolomics and Systems Biology : Working Together”
4. Oral presentation at The NorthWest Cardiac Society meeting, Warrington, June 20th 2009. “Providing an insight in to clinical based studies: the role of metabolomics & systems biology”
5. Oral presentation at The University of Sheffield seminar series, Sheffield, May 15th 2009. “The role of inductive metabolomics in clinical systems biology: advantages, limitations and case studies”
6. Oral presentation at The Humboldt-Universitat of Berlin systems biology seminar series, Berlin, May 7th 2009. “The role of inductive metabolomics in clinical systems biology: advantages, limitations and case studies”

7. Oral presentation at Advances in Metabolic Profiling conference, Lisbon, 16-17th October 2008. "Quality Assurance and Metabolite Identification in Metabolic Profiling: Considerations and Mass Spectrometric Applications in Preeclampsia Studies"
8. Oral presentation at Metabolomics Society's 4th Annual International Conference, Boston, 2-6th September 2008. "Metabolic alterations are observed in the metabolomes of plasma and placental tissue related to preeclampsia"
9. Oral presentations at two ThermoFisher Scientific European Proteomics Tour seminars in Utrecht and Copenhagen, Oct 7th and 8th 2008. "The role of the LTQ-Orbitrap in metabolic profiling of mammalian metabolomes"
10. Oral presentation at LECO seminar, Manchester, September 18th 2008. "High throughput metabolomics using GC-TOFMS"
11. Oral presentation at ThermoFisher Scientific seminar at Genomes to Systems 2008, Manchester, 17-19th March 2008. "The role of the LTQ-Orbitrap in metabolic profiling of mammalian metabolomes"
12. Oral presentation at NHS Trust Seminar Series, June 2007. "The role of metabolomics in clinical studies: case studies in preeclampsia and heart disease"
13. Oral presentation at Anatune company seminar, Open University, May 2005. "The Role of Fast GC-TOF-MS in metabolomics studies"
14. Department of Biosciences seminar, University of Westminster, October 2004. "Measuring the metabolome; the when, how and why of metabolomics"
15. Oral presentation at SEB Annual Meeting, Herriot-Watt University, March 2004. "Metabolic footprinting: a high information strategy for functional genomics"

Recent publications in peer-reviewed journals (2004-present)

1. Begley, P., Francis-McIntyre, S., Dunn, W.B., et al. (2009) Development and Performance of a Gas Chromatography-Time-of-Flight Mass Spectrometry Analysis for Large-Scale Nontargeted Metabolomic Studies of Human Serum. *Analytical Chemistry*, in press
2. Dunn, W.B., Brown, M., Worton, S.A., Crocker, I.P., Broadhurst, D., Horgan, R., Kenny, L.C., Baker, P.N., Kell, D.B. and Heazell, A.E.P. Changes in the metabolic footprint of cultured villous trophoblast identifies metabolic disturbances related to hypoxia and pre-eclampsia. *Placenta*, accepted
3. Allwood, J.W., Erban, A., de Koning, J., Dunn, W.B., Luedemann, A., Lommen, A., Kay, L., Löscher, R., Kopka, J. and Goodacre, R. Inter-laboratory reproducibility of fast gas chromatography –electron impact – time of flight mass spectrometry (GC-EI-TOF/MS) based plant metabolomics. *Metabolomics*, in press
4. Biais B, Allwood JW, Deborde C, Xu Y, Maucourt M, Beauvoit B, Dunn WB, Jacob D, Goodacre R, Rolin D, Moing A. 1H NMR, GC-EI-TOFMS, and data set correlation for fruit metabolomics: application to spatial metabolite analysis in melon. *Analytical Chemistry*. 2009;81(8):2884-94.
5. Zelena E, Dunn WB, Broadhurst D, Francis-McIntyre S, Carroll KM, Begley P, et al. Development of a Robust and Repeatable UPLC-MS Method for the Long-Term Metabolomic Study of Human Serum. *Analytical Chemistry* 2009;81(4):1357-1364.
6. Brown M, Dunn WB, Dobson P, Patel Y, Winder CL, Francis-McIntyre S, et al. Mass spectrometry tools and metabolite-specific databases for molecular identification in metabolomics. *The Analyst* 2009 134 1322-1332.
7. Winder CL, Dunn WB, Schuler S, Broadhurst D, Jarvis R, Stephens GM, et al. Global metabolic profiling of *Escherichia coli* cultures: An evaluation of methods for quenching and extraction of intracellular metabolites. *Analytical Chemistry* 2008;80(8):2939-2948.
8. Samuel JL, Schaub MC, Zaugg M, Mamas M, Dunn WB, Swynghedauw B. Genomics in cardiac metabolism. *Cardiovascular Research* 2008;79(2):218-227.
9. Peiris D, Dunn WB, Brown M, Kell DB, Roy I, Hedger JN. Metabolite profiles of interacting mycelial fronts differ for pairings of the wood decay basidiomycete fungus, *Stereum hirsutum* with its competitors *Coprinus micaceus* and *Coprinus disseminatus*. *Metabolomics* 2008;4(1):52-62.
10. MacKenzie DA, Defornez M, Dunn WB, Brown M, Fuller LJ, de Herrera S, et al. Relatedness of medically important strains of *Saccharomyces cerevisiae* as revealed by phylogenetics and metabolomics. *Yeast* 2008;25(7):501-512.
11. Lu HM, Dunn WB, Shen HL, Kell DB, Liang YZ. Comparative evaluation of software for deconvolution of metabolomics data based on GC-TOF-MS. *Trac-Trends in Analytical Chemistry* 2008;27(3):215-227.
12. Kenny LC, Broadhurst D, Brown M, Dunn WB, Redman CWG, Kill DB, et al. Detection and identification of novel metabolomic biomarkers in preeclampsia. *Reproductive Sciences* 2008;15(6):591-597.
13. Hergard MJ, Swainston N, Dobson P, Dunn WB, Arva M, et al. A consensus yeast metabolic network reconstruction obtained from a community approach to systems biology. *Nature Biotechnology* 2008;26(10):1155-1160.
14. Heazell AEP, Brown M, Dunn WB, Worton SA, Crocker IP, Baker PN, et al. Analysis of the metabolic footprint and tissue metabolome of placental villous explants cultured at different oxygen tensions reveals novel redox biomarkers. *Placenta* 2008;29(8):691-698.
15. Dunn WB, Broadhurst D, Ellis DI, Brown M, Halsall A, O'Hagan S, et al. A GC-TOF-MS study of the stability of serum and urine metabolomes during the UK Biobank sample collection and preparation protocols. *International Journal of Epidemiology* 2008;37:23-30.
16. Dunn WB, Broadhurst D, Brown M, Baker PN, Redman CWG, Kenny LC, et al. Metabolic profiling of serum using Ultra Performance Liquid Chromatography and the LTQ-Orbitrap mass spectrometry system. *Journal of Chromatography B-Analytical Technologies in the Biomedical and Life Sciences* 2008;871(2):288-298.
17. Dunn WB. Current trends and future requirements for the mass spectrometric investigation of microbial, mammalian and plant metabolomes. *Physical Biology* 2008;5(1).
18. Pope GA, MacKenzie DA, Defemez M, Aroso M, Fuller LJ, Mellon FA, et al. Metabolic footprinting as a tool for discriminating between brewing yeasts. *Yeast* 2007;24(8):667-679.
19. O'Hagan S, Dunn WB, Knowles JD, Broadhurst D, Williams R, Ashworth JJ, et al. Closed-loop, multiobjective optimization of two-dimensional gas chromatography/mass spectrometry for serum metabolomics. *Analytical Chemistry* 2007;79(2):464-476.
20. Ellis DI, Dunn WB, Griffin JL, Allwood JW, Goodacre RT. Metabolic fingerprinting as a diagnostic tool. *Pharmacogenomics* 2007;8(9):1243-1266.
21. Dunn WB, Broadhurst D, Deepak SM, Buch MH, McDowell G, Spasic I, et al. Serum metabolomics reveals many novel metabolic markers of heart failure, including pseudouridine and 2-oxoglutarate. *Metabolomics* 2007;3(4):413-426.
22. Castrillo JI, Zeef LA, Hoyle DC, Zhang N, Hayes A, Gardner DCJ, et al. Growth control of the eukaryote cell: A systems biology study in yeast. *Journal of Biology* 2007;6(2).
23. Underwood BR, Broadhurst D, Dunn WB, Ellis DI, Michell AW, Vacher C, et al. Huntington disease patients and transgenic mice have similar pro-catabolic serum metabolite profiles. *Brain* 2006;129:877-886.
24. Spasic I, Dunn WB, Velarde G, Tseng A, Jenkins H, Hardy NW, et al. MeMo: a hybrid SQL/XML approach to metabolomic data management for functional genomics. *BMC Bioinformatics* 2006:in press.

25. Vaidyanathan S, Jones D, Broadhurst DI, Ellis J, Jenkins T, Dunn WB, et al. A laser desorption ionisation mass spectrometry approach for high throughput metabolomics. *Metabolomics* 2005;1(3):243-250.
26. O'Hagan S, Dunn WB, Brown M, Knowles JD, Kell DB. Closed-loop, multiobjective optimization of analytical instrumentation: Gas chromatography/time-of-flight mass spectrometry of the metabolomes of human serum and of yeast fermentations. *Analytical Chemistry* 2005;77(1):290-303.
27. Kenny LC, Dunn WB, Ellis DI, Myers JE, Baker PN, consortium G, et al. Novel biomarkers for preeclampsia detected using metabolomics and machine learning. *Metabolomics* 2005;1(3):227-234.
28. Kell DB, Brown M, Davey HM, Dunn WB, Spasic I, Oliver SG. Metabolic footprinting and systems biology: The medium is the message. *Nature Reviews Microbiology* 2005;3(7):557-565.
29. Dunn WB, Overy S, Quick WP. Evaluation of automated electrospray-TOF mass spectrometry for metabolic fingerprinting of the plant metabolome. *Metabolomics* 2005;1(2):137-148.
30. Dunn WB, Ellis DI. Metabolomics: Current analytical platforms and methodologies. *Trac-Trends in Analytical Chemistry* 2005;24(4):285-294.
31. Dunn WB, Bailey NJC, Johnson HE. Measuring the metabolome: current analytical technologies. *Analyst* 2005;130(5):606-625.
32. Brown M, Dunn WB, Ellis DI, Goodacre R, Handl J, Knowles JD, et al. A metabolome pipeline: from concept to data to knowledge. *Metabolomics* 2005;1(1):39-51.
33. Goodacre R, Vaidyanathan S, Dunn WB, Harrigan GG, Kell DB. Metabolomics by numbers: acquiring and understanding global metabolite data. *Trends in Biotechnology* 2004;22(5):245-252.