

# Report of the President 2007/2008

Sep 2007 - Aug 2008

Research Publications for the School of Biomolecular &  
Biomedical Science

## **Dr Orina Belton**

### **Peer Reviewed Journals**

Belton O, McClelland S, Gawaz M, Kennerknecht E, Konrad CS, Sauer S, Schuerzinger K, Massberg S, Fitzgerald DJ, (2008) 'Contribution of cyclooxygenase-1 to thromboxane formation, platelet-vessel wall interactions and atherosclerosis in the ApoE null mouse'. *Atherosclerosis. (In Press)*

### **Conference Publications**

Belton O, McClelland S, Gawaz M, Kennerknecht E, Konrad CS, Sauer S, Schuerzinger K, Massberg S, Fitzgerald DJ, (2008) Atherosclerosis *Contribution of cyclooxygenase-1 to thromboxane formation, platelet-vessel wall interactions and atherosclerosis in the ApoE null mouse.*

## **Dr Oliver Blacque**

### **Peer Reviewed Journals**

Blacque OE, Cevik S, Kaplan OI (2008) 'Intraflagellar transport: from molecular characterisation to mechanism'. *Frontiers in Bioscience*, 13: 2633-2652.

## **Professor Geraldine Butler**

### **Peer Reviewed Journals**

Butler G, Fitzpatrick DA, Logue ME, (2008) 'Evidence of recent interkingdom horizontal gene transfer between bacteria and *Candida parapsilosis*'. *BMC Evolutionary Biology*, 8 (1).

Roetzer A, Gregori C, Jennings AM, Quintin J, Ferrandon D, Butler G, Kuchler K, Ammerer G, Schüller C. (2008) 'Candida glabrata environmental stress response involves *Saccharomyces cerevisiae* Msn2/4 orthologous transcription factors'. *Molecular Microbiology*, 69: 603-620.

## **Dr Patrick Caffrey**

### **Peer Reviewed Journals**

Lara Soler, Patrick Caffrey, Hilary McMahon (2008) 'Effects of new amphotericin analogues on the scrapie isoform of the prion protein'. *Biochimica et Biophysica Acta*, 1780: 1162-1167.

Caffrey, P., Aparicio, J. F., Malpartida, F., Zotchev, S. B. (2008) 'Biosynthetic engineering of polyene macrolides for generation of improved antifungal and antiparasitic agents'. *Current Topics in Medicinal Chemistry*, 8(8): 639-653.

Power, P., Dunne, T., Murphy, B., Nic Lochlainn, L., Rai, D., Borissow, C., Rawlings, B., Caffrey, P. (2008) 'Engineered synthesis of 7-oxo- and 15-deoxy-15-oxo-amphotericins: insights into structure-activity relationships in polyene antibiotics'. *Chemistry & Biology*, 15: 78-86.

## **Dr Antonio Campos Torres**

### **Conference Publications**

Campos-Torres A. (2008) Building a link between innate immunity and post-lesional neuron-glia plasticity in the CNS *International Neuroimmunology Symposium, Marie Curie Molecular Neuroimmunology Programme, University College Dublin*, *Journal of Neuroimmunology*, 197: 2 (159-176).

Corbett D, Campos-Torres A, Haase J (2008) 'The effects of pro-inflammatory cytokines on the serotonin transporter and interacting proteins in a neuronal cell line' *Neuroscience Ireland Conference, Galway*.

J. Martin, A. Campos-Torres (2008) Complement Anaphylatoxin C5a alters D-[3H]aspartate uptake by Na<sup>+</sup>-dependent glutamate transporter EAAC1 in rat C6 Glioma cells *International Neuroimmunology Symposium, Marie Curie Molecular Neuroimmunology Programme, University College Dublin, Journal of Neuroimmunology*, 197: 2 (159-176).

Malynn S., Grudzinska J., Campos Torres A. and Haase J. Stress and cytokine regulated neuronal membrane glycoprotein M6A interacts with and regulates the serotonin transporter (SERT). *Neuroscience Ireland Conference, Galway* (August 2008).

## **Dr Ben Clark**

### **Peer Reviewed Journals**

Simmons TL, Coates RC, Clark BR, Engene N, Gonzalez D, Esquenazi E, Dorrestein PC, Gerwick WH (2008) 'Biosynthetic origin of natural products isolated from marine microorganism-invertebrate assemblages'. *Proceedings of the National Academy of Sciences of the United States of America*, 105 (12): 4587-4594.

## **Professor Paul Engel**

### **Peer Reviewed Journals**

Muaawia Hamza, Paul C. Engel (2008) 'Homotropic allosteric control in clostridial glutamate dehydrogenase: different mechanisms for glutamate and NAD<sup>+</sup>'. *FEBS Letters*, 582: 1816-1820.

Yuxiang Huang, Mei Yee Choi, Shannon Wing Ngor Au, Deborah Man Yee Au, Veronica Min Sien Lam, Paul C Engel. (2008) 'Defective protein folding, a mechanism underlying two clinically different human glucose 6-phosphate dehydrogenase variants, G6PD<sup>Plymouth</sup> and G6PD<sup>Mahidol</sup>'. *Molecular Genetics and Metabolism*. (In Press)

Michael A Sharkey and Paul C Engel (2008) 'Apparent negative cooperativity and substrate inhibition in overexpressed glutamate dehydrogenase from *Escherichia coli*'. *FEMS Microbiol Letters*, 281: 132-139.

Hamza MA, Martin SR, Engel PC (2007) 'The contribution of tryptophan residues to conformational changes in clostridial glutamate dehydrogenase - W64 and W449 as mediators of the cooperative response to glutamate'. *FEBS Journal*, 27: 4126-4134.

Carrigan JB and Engel PC (2007) 'Probing the determinants of coenzyme specificity in *Peptostreptococcus asaccharolyticus* glutamate dehydrogenase by site-directed mutagenesis'. *FEBS Journal*, 274: 5167-5174.

Hamza MA, Engel, PC (2007) 'Enhancing long-term stability in mesophilic glutamate dehydrogenase from *Clostridium symbiosum* by eliminating cysteine residues'. *Enzyme and Microbial Technology*, 41: 706-710.

## **Dr Neil Ferguson**

### **Peer Reviewed Journals**

Sharpe, T.D., Ferguson, N., Johnson, C. M. & Fersht, A.R. (2008) 'Conservation of Transition State Structure in Fast Folding Peripheral Subunit Binding Domains'. *Journal of Molecular Biology*, 383: 224-237.

Becker, J., Ferguson, N., Flinders, J., Rossum, B-J., Fersht, A. R., Oschkinat, H. (2008) "A sequential assignment procedure for proteins that have intermediate line widths in MAS NMR spectra: Amyloid fibrils of human CA150.WW2", *Chem Bio Chem* 9: 1946-1952.

## **Dr David Fitzpatrick**

### **Peer Reviewed Journals**

Butler G, Fitzpatrick DA, Logue ME, (2008) 'Evidence of recent interkingdom horizontal gene transfer between bacteria and *Candida parapsilosis*'. *BMC Evolutionary Biology*, 8 (1).

## **Professor William Gallagher**

### **Book Chapters**

Foley, R., DiFranco, M., Bryan, K., Rexhepaj, E., Mulrane, L., Watson R. W., Cunningham, P., Gallagher, W. M. (2008) 'Automated image analysis approaches in histopathology'. Chapter XLV, pp. 826-849. *Handbook of Research on Systems Biology Applications in Medicine*. Medical Information Science Reference/IGI Global (Editor: Andriani Daskalaki, Max Planck Institute for Molecular Genetics, Berlin, Germany).

Kelly, C. M. A., Ryan, D., Penny, S., Gallagher, W. M. (2008) 'Systematic validation of breast cancer biomarkers using tissue microarrays: from construction to image analysis'. Chapter 1, pp. 235-250. *Volume 1 of Cancer Diagnosis, Therapy, and Prognosis* (Editor: M. A. Hayat).

Whelan, L. C., Cooney, H. C., Gallagher, W. M. (2008) 'Fibulins'. *Encyclopedia of Cancer*, 2<sup>nd</sup> Edition, Springer-Verlag Berlin and Heidelberg GmbH & Co. (Editor: M. Schwab).

### **Peer Reviewed Journals**

Brennan, D. J., Gallagher, W. M., (2008) 'Prognostic ability of a panel of immunohistochemistry markers - retailoring of an old solution'. *Breast Cancer Research*, 10 (102): 1-3.

Mulrane, L., Rexhepaj, E., Smart, V., Callanan, J. J., Orhan, D., Eldem, T., Mally, A., Schroeder, S., Meyer, K., Wendt, M., O'Shea, D., Gallagher, W. M., (2008) 'Creation of a digital slide and tissue microarray resource from a multi-institutional predictive toxicology study in the rat: An initial report from the PredTox group'. *Experimental and Toxicologic Pathology*, 60 (4-5): 235-245.

Gallagher WM, Brennan DJ, Rexhepaj E, O'Brien SL, McSherry E, O'Connor DP, Fagan A, Culhane AC, Higgins DG, Jirstrom K, Millikan RC, Landberg G, Duffy MJ, Hewitt SM, (2008) 'Altered cytoplasmic-to-nuclear ratio of survivin is a prognostic indicator in breast cancer'. *Clinical Cancer Research*, 9: 2681-2689.

Gallagher WM, Duffy MJ, McGowan PM, (2008) 'Cancer invasion and metastasis: changing views'. *The Journal of pathology*, 3: 283-293.

Whelan LC, Power KA, McDowell DT, Kennedy PJ, Gallagher WM. (2008) 'Applications Of Seldi Technology In Oncology'. *Journal of cellular and molecular medicine*. 12 (5A): 1535-1547

Lanigan, F., O'Connor D., Martin, F., Gallagher, W. M. (2008) 'Molecular links between mammary gland development and breast cancer'. *Cellular and Molecular Life Sciences*, 64 (24): 3159-3184.

Dervan PA, Mc Sherry EA, Mc Goldrick A, Kay EW, Hopkins AM, Gallagher WM, (2007) 'Formalin-fixed paraffin-embedded clinical tissues show spurious copy number changes in array-CGH profiles'. *Clinical genetics*, 5: 441-447.

Pennington SR, Collins BC, Clarke A, Kitteringham NR, Gallagher WM, (2007) 'Use of proteomics for the discovery of early markers of drug toxicity'. *Expert opinion on drug metabolism & toxicology*, 5: 689-704.

## **Professor Stephen Gordon**

### **Book Chapters:**

Gordon, SV, Pym, AS (2008) 'Genomics of the Mycobacterium tuberculosis complex' In: Kaufmann, SHE and Rubin, E (eds). *Hanbook of Tuberculosis*. Weinheim: Wiley-VCH.

### **Peer Reviewed Journals:**

Garcia Pelayo MC, Garcia JN, Golby P, Pirson C, Ewer K, Vordermeier M, Hewinson RG, Gordon SV (2008) 'Gene expression profiling and antigen mining of the tuberculin production strain Mycobacterium bovis AN5'. *Veterinary microbiology*, (In Press)

Golby P, Nunez J, Cockle PJ, Ewer K, Logan K, Hogarth P, Vordermeier HM, Hinds J, Hewinson RG, Gordon SV (2008) 'Characterization of two in vivo-expressed methyltransferases of the Mycobacterium tuberculosis complex: antigenicity and genetic regulation'. *Microbiology (Reading, England)*, 154 (Pt 4):1059-1067.

Ameni G, Aseffa A, Sirak A, Engers H, Young DB, Hewinson RG, Vordermeier MH, Gordon SV (2007) 'Effect of skin testing and segregation on the prevalence of bovine tuberculosis, and molecular typing of Mycobacterium bovis, in Ethiopia'. *Veterinary Record*, 161 (23): 782-786.

Golby P, Hatch KA, Bacon J, Cooney R, Riley P, Allnutt J, Hinds J, Nunez J, Marsh PD, Hewinson RG, Gordon SV (2007) 'Comparative transcriptomics reveals key gene expression differences between the human and bovine pathogens of the Mycobacterium tuberculosis complex'. *Microbiology (Reading, England)*, 153 (Pt 10): 3323-3336.

Brosch R, Gordon SV, Garnier T, Eiglmeier K, Frigui W, Valenti P, Dos Santos S, Duthoy S, Lacroix C, Garcia-Pelayo C, Inwald JK, Golby P, Garcia JN, Hewinson RG, Behr MA, Quail MA, Churcher C, Barrell BG, Parkhill J, Cole ST (2007) 'Genome plasticity of BCG and impact on vaccine efficacy'. *Proceedings of the National Academy of Sciences of the United States of America*, 104 (13): 5596-5601.

Ameni G, Aseffa A, Engers H, Young D, Gordon S, Hewinson G, Vordermeier M (2007) 'High prevalence and increased severity of pathology of bovine tuberculosis in Holsteins compared to zebu breeds under field cattle husbandry in central Ethiopia'. *Vaccine*, 14 (10): 1356-1361.

## **Dr Jana Haase**

### **Peer Reviewed Journals**

Malynn, S., Corbett, D., Campos-Torres, A., Haase, J., (2008) 'Pro-Inflammatory cytokines IL-1 beta anti TNF-alpha regulate the expression of the Serotonin transporter gene and interacting protein genes in vitro'. *Journal of Neuroimmunology*, 197 (2):169-169.

### **Conference Publications**

Corbett D, Campos-Torres A, Haase J (2008) 'The effects of pro-inflammatory cytokines on the serotonin transporter and interacting proteins in a neuronal cell line' *Neuroscience Ireland Conference, Galway*.

Malynn S., Grudzinska J., Campos Torres A. and Haase J. Stress and cytokine regulated neuronal membrane glycoprotein M6A interacts with and regulates the serotonin transporter (SERT). *Neuroscience Ireland Conference, Galway* (August 2008).

## **Dr Caroline Herron**

### **Peer Reviewed Journals**

Da Silva, N., Herron, C. E., Stevens, K., Jollimore, C. A. B., Barnes, S., Kelly, M. E. M., (2008) 'Metabotropic receptor-activated calcium increases and store-operated calcium influx in mouse Muller cells'. *Investigative Ophthalmology; Visual Science*, 49 (7): 3065-3073.

Welzel, A. T., Smith, I. M., Herron, C., Selkoe, D. J., Walsh, D. M., (2008) 'Purification of distinct assembly forms of cell-derived Alzheimer amyloid-beta protein'. *Journal of Neuroimmunology*, 197 (2):164-164.

Schmid AW, Freir, DB & Herron CE (2008) 'Schmid, A.W., Freir, D.B and Herron, C.E (2008) Inhibition of LTP in vivo by beta-amyloid peptide in different conformational states. *Brain Res* 1197, 135-42'. *Brain Research*, 1197: 135-42.

Minogue A, Lynch A, Loane D, Herron C and Lynch M. (2007) 'Modulation of amyloid-beta-induced and age-associated changes in rat hippocampus by eicosapentaenoic acid'. *Journal of Neurochemistry*, 103: 914-926.

## **Dr Chandralal Hewage**

### **Peer Reviewed Journals**

Subasinghage, A. R., Conlon, J. M., Hewage, C. M., (2008) 'Conformational analysis of the broad-spectrum antibacterial peptide, ranatuerin-2CSa: Identification of a full length helix-turn-helix motif'. *Biochimica Et Biophysica Acta-Proteins and Proteomics*, 1784 (6): 924-929.

Cosgrove S, Rogers L, Hewage CM, Malthouse JP. (2007) 'NMR Study of the Inhibition of Pepsin by Glyoxal Inhibitors: Mechanism of Tetrahedral Intermediate Stabilization by the Aspartyl Proteases'. *Biochemistry*, 46 (39): 11205-11215.

Brennan L, Scullion SM, Mion B, Hewage C, Malthouse JG, Flatt PR, Newsholme P, McClenaghan NH. (2007) 'Prolonged alanine exposure induces changes in metabolism, Ca<sup>2+</sup> handling and desensitization of insulin secretion in clonal pancreatic beta cells'. *Diabetologia*, 50 (1): 0509-0509.

Hewage CM, Alana I, O'Harte FPM (2007) 'Structural studies of glucose-dependent insulinotropic polypeptide (GIP) in micellar media'. *Diabetologia*, 50 (1): 0593-0593.

## **Dr Breandán Kennedy**

### **Peer Reviewed Journals**

Kennedy BN, Collery R, McLoughlin S, Vendrell V, Finnegan J, Crabb JW, Saari JC, (2008) 'Duplication and Divergence of Zebrafish CRALBP genes uncovers a novel role for RPE- and Mueller-CRALBP in cone vision'. *Invest Ophthalmol Vis Sci (In Press)*.

Smyth VA, Di Lorenzo D, Kennedy BN. (2008) 'A novel, evolutionary conserved enhancer of cone photoreceptor-specific expression'. *Journal of Biological Chemistry (In Press)*.

Alvarez Y, Cederlund ML, Cottell DC, Bill BR, Ekker SC, Torres-Vazquez J, Weinstein BM, Hyde DR, Vihtelic TS, Kennedy BN (2007) 'Genetic determinants of hyaloid and retinal vasculature in zebrafish'. *BMC Developmental Biology*, 7 (1).

## **Professor Therese Kinsella**

### **Peer Reviewed Journals**

AnneMarie M.Gannon, B. Therese Kinsella (2008) 'Regulation of the Human Thromboxane A2 Receptor Gene by Sp1, Egr1, NF-E2, GATA-1 and Ets-1 in Megakaryocytes'. *Journal of Lipid Research*, 48 (12): 2590-2604.

AnneMarie M.Gannon, B. Therese Kinsella. (2008) 'The Wilms Tumour suppressor protein WT1 acts as a key Transcriptional Repressor of the Human Thromboxane A2 Receptor Gene in Megakaryocytes'. *Journal of Molecular Medicine-Jmm* (In Press).

Katarina E. Wikström, David J. Kavanagh, Helen M. Reid, B. Therese Kinsella. (2008) Differential Regulation of RhoA-mediated Signaling by the TPa and TPb isoforms of the human Thromboxane A2 Receptor; Independent modulation of TPa signaling by Prostacyclin and Nitric Oxide'. *Cellular Signalling*, 20 (8):1497-512.

Martina B. O'Keeffe, Helen M. Reid, B. Therese Kinsella. (2008) 'Agonist-dependent Internalization and Trafficking of the human Prostacyclin Receptor A Direct Role for Rab5a GTPase'. *Biochimica Et Biophysica Acta - Molecular Cell Research*, 1783: 1914-1928.

Katarina Wikström, Helen M. Reid, Maria Hill, Karol. A. English, Martina B. O'Keeffe, Cisca C. Kimbembe, B. Therese Kinsella (2008) 'Recycling of the human prostacyclinreceptor is Regulated through a Direct interaction with RAB11a GTPase'. *Cellular Signalling*, 20 (12): 2332-2346.

## **Dr Patricia Maguire**

### **Peer Reviewed Journals**

Feighery, R., Maguire, P., Ryan, M. R., McMorrough, T., (2008) 'A proteomic approach to immune-mediated epithelial-mesenchymal transition'. *Proteomics Clinical Applications*, 2 (7-8): 1110-1117.

Behan AT, Foy M, Wynne K, Clarke M, Sullivan M, Cotter DR, Maguire PB (2007) 'Analysis of membrane microdomains-associated proteins in the insular cortex of human brain'. *Proteomics Clinical Applications*. 1: 1324-1331.

Kerrigan SW, Jakubovics NS, Keane C, Maguire P, Wynne K, Jenkinson HF, Cox D. (2007) 'Role of Streptococcus gordonii surface proteins SspA/SspB and Hsa in platelet function'. *Infection and Immunity*, 75 (12): 5740-5747.

### **Conference Publications**

Atzei, P., Maguire, P. B., Kennedy, B. N., Moynagh, P. N., (2008) Journal of Neuroimmunology *Cactin, a novel regulator of TLR signalling pathways*, 162 – 162.

## **Professor Jonathan Malthouse**

### **Peer Reviewed Journals**

Brennan L, McClenaghan NH, Scullion SM, Mion B, Hewage C, Malthouse JP, Flatt PR, Newsholme P, (2008) 'Prolonged L-alanine exposure induces changes in metabolism, Ca<sup>2+</sup> handling and desensitization of insulin secretion in clonal pancreatic beta-cells'. *Clinical science (London, England: 1979)*, (In press)

Spink, E., Hewage, C.M., Malthouse, J.P.G. (2007) 'Determination of the structure of tetrahedral transition state analogues bound at the active site of chymotrypsin using <sup>18</sup>O and <sup>2</sup>H isotope shifts in the <sup>13</sup>C-NMR spectra of glyoxal inhibitors'. *Biochemistry*, 46:12868-12874.

Cosgrove S, Rogers L, Hewage CM, Malthouse JP. (2007) 'NMR study of the inhibition of pepsin by glyoxal inhibitors: mechanism of tetrahedral intermediate stabilization by the aspartyl proteases'. *Biochemistry*, 46 (39): 11205-11215.

## **Professor Finian Martin**

### **Peer Reviewed Journals**

Gallagher WM, Lanigan F, O'Connor D, Martin F, (2007) 'Molecular links between mammary gland development and breast cancer'. *Life Sciences*, 64 (24): 3159-3184.

Martin F, McBryan J, Howlin J, Kenny PA, Shioda T, (2007) 'ERalpha-CITED1 co-regulated genes expressed during pubertal mammary gland development: implications for breast cancer prognosis'. *Oncogene*, 26 (44): 6406-6419.

## **Dr Gethin McBean**

### **Peer Reviewed Journals**

Matthaes, S., McBean, G., (2008) 'The cystine-glutamate exchanger in 1321N1 astrocytoma cells'. *Journal of Neuroimmunology*, 197 (2):168-168.

Vines, A., McBean, G., (2008) 'Calcium-mediated regulation of glutamate uptake in rat primary astrocytes'. *Journal of Neuroimmunology*, 197 (2):169-169.

Kandil, S., Brennan, L., McBean, G., (2008) 'Differential effects of two gliotoxins on glutathione content in rat C6 glioma cells'. *Journal of Neuroimmunology*, 197 (2):169-169.

McBean GJ, Montgomery T, Buon C, Eibauer S, Guiry PJ, Keenan AK, (2007) 'Comparative potencies of 3,4-methylenedioxymethamphetamine (MDMA) analogues as inhibitors of [3H]noradrenaline and [3H]5-HT transport in mammalian cell lines'. *British Journal of Pharmacology*, 7 (NA): 1121-1130.

## **Dr Margaret McGee**

### **Peer Reviewed Journals**

Bannon JH, Fichtner I, O'Neill A, Pampillón C, Sweeney NJ, Strohfeltd K, Watson RW, Tacke M, Mc Gee MM. 'Substituted titanocenes induce caspase-dependent apoptosis in human epidermoid carcinoma cells in vitro and exhibit antitumour activity in vivo.' *Br J Cancer*. 5;97(9): 1234-41.

## **Dr Hilary McMahan**

### **Peer Reviewed Journals**

Soler L., Caffrey P. and McMahan H.E.M. (2008) 'Effects of new amphotericin analogues on the scrapie isoform of the prion protein'. *Biochimica Et Biophysica Acta* (In Press).

Prior, M., Lehmann, S., Sy, MS., Molloy, B., McMahan, H.E. (2007) 'Cyclodextrins inhibit replication of scrapie prion protein in cell culture'. *Journal of Virology*, 81 (20):11195-11207.

## **Dr Tara McMorrow**

### **Peer Reviewed Journals**

Feighery, R., Maguire, P., Ryan, M. R., McMorrow, T., (2008) 'A proteomic approach to immune-mediated epithelial-mesenchymal transition'. *Proteomics Clinical Applications*, 2 (7-8): 1110-1117.

Slattery, C., Ryan, M. P., McMorrow, T., (2008) 'Protein kinase C beta overexpression induces fibrotic effects in human proximal tubular epithelial cells'. *International Journal of Biochemistry & Cell Biology*, 40 (10): 2218-2229.

### **Conference Publications**

Bennett, J., Ryan, M.P., McMorrow, T. (2007) Differential effects of Immunosuppressive agents in human renal proximal tubular cells . In: J.Am. Soc. Nephrol eds. *American Society of Nephrology* , 400A

Feighery, R., Ryan, M.P., McMorrow, T. (2007) Proteomic Approaches to Immune-Mediated Epithelial Mesenchymal Transition (EMT) in Renal Disease. In: J. Am. Soc. Nephrol eds. *American Society of Nephrology*, 373A

## **Professor Wim Meijer**

### **Peer Reviewed Journals**

Letek, M. Ocampo-Sosa, A., Sanders, M., Fogarty, U., Buckley, T., Leadon, D., Gonzalez, P., Scortii, M., Meijer, W.G., Parkhill, J., Bentley, S., Vazquez-Boland, J.A. (2008) 'Evolution of the *Rhodococcus equi* vap pathogenicity island seen through comparison of host associated vapA and vapB virulence plasmids'. *Journal of Bacteriology*, 190 (17): 5797-5805.

Wilson, B., B.S. Danilowicz, W.G. Meijer (2008) 'The diversity of bacterial communities associated with Atlantic cod *Gadus morhua*'. *Microbial Ecology*, 55 (3): 425-434.

Miranda-CasoLuengo, R., Prescott, J.F., Vazquez-Boland, J.A., Meijer, W.G. (2008) 'The intracellular pathogen *Rhodococcus equi* produces a catechol siderophore required for saprophytic growth'. *Journal of Bacteriology*, 190 (5): 1631-1637.

Byrne, G.A., C.A. Boland, E.P. O'Connell, W.G. Meijer (2008) 'Differential mRNA stability of the vapAICD operon of the facultative intracellular pathogen *Rhodococcus equi*'. *FEMS Microbiology Letters*, 280 (1): 89-94.

### **Conference Publications**

Miranda-CasoLuengo, R. and W.G. Meijer. (2007) 160th Meeting of the Society for General Microbiology, Manchester. p CCS 09 *Iron acquisition by Rhodococcus equi*.

Finn, C.E., X. Chen & W.G. Meijer. (2007) 160th Meeting of the Society for General Microbiology P MI 34 *Protein networks of Rhodococcus equi*.

## **Dr Cormac Declan Murphy**

### **Peer Reviewed Journals**

Donnelly C, Murphy C (2007) 'Bacterial defluorination of 4-fluoroglutamic acid'. *Applied Microbiology and Biotechnology*, 77: 699-703.

### **Conference Publications**

BR Clark, S Tennant, JH Gill, E Lacey, RJ Capon and CD Murphy (2008) 'Pyrrolylpolyenes from fungi: biosynthesis and analogue production'. In: Leandros Skaltsounis, Prokopios Magiatis eds. *7th Joint Meeting of GA, AFERP, ASP, PSE and SIF*, Athens, Greece.

## **Dr Keith Murphy**

### **Peer Reviewed Journals**

Ter Horst JP, Loscher JS, Pickering M, Regan CM, Murphy KJ. (2008) 'Learning-associated regulation of polysialylated neural cell adhesion molecule expression in the rat prefrontal cortex is region-, cell type- and paradigm-specific.' *Eur J Neurosci*. 28, 419-427.

Pickering M, Pickering BW, Murphy KJ, O'Connor JJ. (2008) 'Discrimination of cell types in mixed cortical culture using calcium imaging: a comparison to immunocytochemical labeling.' *J Neurosci Methods*. 173, 27-33.

Moran RJ, Stephan KE, Kiebel SJ, Rombach N, O'Connor WT, Murphy KJ, Reilly RB, Friston KJ. (2008) 'Bayesian estimation of synaptic physiology from the spectral responses of neural masses.' *Neuroimage* 42, 272-284.

Conboy L, Seymour CM, Monopoli MP, O'Sullivan NC, Murphy (2007) 'Notch signalling becomes transiently attenuated during long-term memory consolidation in adult Wistar rats.' *Neurobiol Learn Mem*. 88, 342-351.

Frasca A, Fumagalli F, Ter Horst J, Racagni G, Murphy KJ, Riva MA. (2008) 'Olanzapine, but not haloperidol, enhances PSA-NCAM immunoreactivity in rat prefrontal cortex.' *Int J Neuropsychopharmacol.* 11, 591-595.

### **Conference Publications**

O'Sullivan NC, McGettigan PA, Croydon L, Sheridan GK, Pickering M, Ring RH, von Schack D, Higgins DG, Regan CM, Murphy KJ (2007). 'Cell type- and region-specific regulation of nuclear factor kappa-B p65 activity in the hippocampus during consolidation of an avoidance conditioning task.' *Soc. Neurosci. Abstr.* 33.

von Schack D, Connole L, Halley P, O'Sullivan NC, Li C, Rombach N, Hill AA, Ford R, Marquis KL, Brown EL, Pangalos MN, Regan CM, Ring RH, Murphy KJ (2007). 'Characterization of temporal transcriptional programs accompanying memory consolidation in the hippocampus.' *Soc. Neurosci. Abstr.* 33.

Nic Raghnaill, Monopoli MP, O'Sullivan NC, Loscher JS, Pennington S, Dunn MJ, Regan CM, Murphy KJ (2007). 'Hippocampal protein expression changes associated with consolidation of spatial memory characterised using two dimensional electrophoresis.' *Soc. Neurosci. Abstr.* 33.

Halley P, Connole LM, O'Sullivan NC, Loscher JS, Rombach N, Ford R, Ring RH, von Schack D, Pangalos MN, Regan CM, Murphy KJ (2007). 'Alzheimer's disease-associated proteins are regulated at a transcriptional level in the hippocampus during spatial memory consolidation.' *Soc. Neurosci. Abstr.* 33.

Sheridan G, Pickering M, Moynagh PN, O'Connor JJ, Murphy KJ (2007). 'Temporal changes in nuclear factor kappa-B activity in distinct neuronal subpopulations of the rat hippocampus following spatial learning.' *Soc. Neurosci. Abstr.* 33.

Connole L, O'Sullivan NC, Connellan J, Regan CM, Marquis KL, Menelas N, Pangalos MN, Bates B, von Schack D, Beyna M, Murphy KJ, Ring RH (2007). 'Midkine is a learning-associated peptide with potent effects on hippocampal neurite outgrowth and synaptogenesis.' *Soc. Neurosci. Abstr.* 33.

Loscher JS, Pickering B, Pickering M, Murphy KJ (2007). 'The nootropic nefiracetam prevents isoflurane-induced post-operative cognitive dysfunction (POCD) in aged wistar rats.' *Soc. Neurosci. Abstr.* 33.

O'Connor JJ, Watters O, Sheridan GK, Murphy KJ, Pickering M (2007). 'Modulation of glutamate excitotoxicity and ischemic preconditioning by TNF $\alpha$  depends on time and the order of TNF $\alpha$  and glutamate exposure.' *Soc. Neurosci. Abstr.* 33.

## **Professor Philip Newsholme**

### **Peer Reviewed Journals**

O'Gorman DJ, Yousif O, Dixon G, McQuaid S, Murphy E, Rahman Y, Gasparro D, Pacini G, Newsholme P, Nolan JJ (2008) 'In vivo and in vitro studies of GAD-antibody positive subjects with Type 2 diabetes: a distinct sub-phenotype'. *Diabetes Research and Clinical Practice*, 80 (3): 365-370.

Newsholme P, Bender K, Kiely A, Brennan (2007) 'Amino acid metabolism, insulin secretion and diabetes'. *Biochemical Society Transactions*, 35: 1180-1186.

Kiely A, McClenaghan NH, Flatt PR, Newsholme P. (2007) 'Pro-inflammatory cytokines increase glucose, alanine and triacylglycerol utilization but inhibit insulin secretion in a clonal pancreatic {beta}-cell line.' *J. Endocrinol.* 195:113-23

### **Conference Publications**

Mullooly N, Newsholme P, Smith D (2008) 'Assessment of the AstraZeneca glucokinase activator GKA50 on pancreatic beta cell function and viability in the clonal beta cell line BRIN BD11.' *Diabetologia* Vol 51: [Suppl 1] S201

Michalska M, Newsholme P, Wolf G, Walther R (2008) 'The role of oxidants and anti-oxidants in b cell function and integrity.' *Diabetologia* Vol 51: [Suppl 1] S222

Kiely A, Newsholme P (2008) 'TLR agonist induced changes in BRIN BD11 clonal beta cell metabolism, signal transduction and insulin secretion.' *Diabetologia* Vol 51: [Suppl 1] S263

### **Dr Jens Erik Nielsen**

#### **Peer Reviewed Journals**

Søndergaard, C. R., McIntosh, L. P., Pollastri, G., Nielsen, J. E., (2008) 'Determination of electrostatic interaction energies and protonation state populations in enzyme active sites'. *Journal of Molecular Biology*, 376 (1): 269-287.

Søndergaard CR, McIntosh LP, Pollastri G, Nielsen JE (2008) 'Determination of electrostatic interaction energies and protonation state populations in enzyme active sites'. *Journal of Molecular Biology*, 376 (1): 269-287.

### **Dr Jasmina Nikodinovic**

#### **Peer Reviewed Journals**

Nikodinovic, J., Pereira, T., Nakazono, C., Dennis, G. R., Barrow, K. D., Chuck, J.-A. (2008) 'Community structure and antibiotic production of *Streptomyces nodosus* bioreactors cultured in liquid environments'. *Microbial Biotechnology*, 1 (5): 373-381.

Martin, L. B., Nikodinovic, J., Mc Mahon, A. M., Vijgenboom, E., O'Connor, K. E. (2008) 'Assessing the catalytic activity of three different sources of tyrosinase: A study of the oxidation of mono- and difluorinated monophenols'. *Enzyme and Microbial Technology*, 43: 297-301.

### **Dr Kathy O'Boyle**

#### **Peer Reviewed Journals**

Murphy PV, Zhao Y, Zhou Y, O'Boyle KM, (2008) 'Hybrids of 1-deoxynojirimycin and aryl-1,2,3-triazoles and biological studies related to angiogenesis'. *Bioorganic & medicinal chemistry*, 16 (12): 6333-6337.

Hogan N, O'Boyle KM, Hinkle PM, Kelly JA. (2008) 'A novel TRH analog, Glp-Asn-Pro-d-Tyr-d-TrpNH(2), binds to [(3)H][3-Me-His(2)]TRH-labelled sites in rat hippocampus and cortex but not pituitary or heterologous cells expressing TRHR1 or TRHR2'. *Neuroscience Letters* (In Press).

Zhou, Y., Zhao, Y., O'Boyle K.M., Murphu, P.V. (2008) 'Hybrid angiogenesis inhibitors: synthesis and biological evaluation of bifunctional compounds based on 1-deoxynojirimycin and aryl-1,2,3-triazole.' *Bioorganic & Medicinal Chemistry Letters* (In Press).

O'Connor JJ, O'Neill C, Nolan BJ, Macari A, O'Boyle KM, (2007) 'Adenosine A1 receptor-mediated inhibition of dopamine release from rat striatal slices is modulated by D1 dopamine receptors'. *European Journal of Neuroscience*, 26 (12): 3421-3428.

### **Conference Publications**

Downey C, O'Boyle K.M. (2007) 'Effects of MDMA and caffeine on renal cells and drug metabolising enzymes' *British Pharmacological Society*.

Nolan, B., O'Boyle K.M. (2007) 'The effects of caffeine on adenosine and dopamine receptor density in rat striatum' *British Pharmacological Society*,

## **Dr Darran O'Connor**

### **Peer Reviewed Journals**

Gallagher WM, Lanigan F, O'Connor D, Martin F, (2007) 'Molecular links between mammary gland development and breast cancer'. *Life Sciences*, 64 (24): 3159-3184.

## **Dr John O'Connor**

### **Book Chapters**

Pickering, M. & O'Connor J.J (2007) 'Cytokines and their effects in the dentate gyrus' In: Scharfman, H (eds). *The Dentate Gyrus: A Comprehensive Guide to Structure, Function, and Clinical Implications*. USA: Springer.

### **Peer Reviewed Journals**

Pickering M., Pickering, B.W., Murphy K.J., O'Connor J.J. (2008) 'Discrimination of cell types in mixed cortical culture using calcium imaging: a comparison to immunohistochemical labelling'. *Journal of Neuroscience Methods*, 173 (1): 27-33.

Fanning R.A., Campion D.P., Collins C.B., Keely S., Briggs L.P., O'Connor J.J., Carey M.F (2008) 'The effects of bupivacaine and levobupivacaine on isolated human pregnant myometrial contractility'. *Anesthesia and Analgesia*, 107 (4): 1303-1307.

O'Neill C., Nolan B., Macari A., O'Boyle K.M. and O'Connor J.J. (2007). Adenosine A<sub>1</sub> receptor-mediated inhibition of dopamine release from rat striatal slices is modulated by D<sub>1</sub> dopamine receptors. *European Journal of Neuroscience*, 26, 3421-3428.

### **Conference Publications**

Watters O., O'Connor J.J., Sheridan G.K., Murphy K.J., Pickering M. (2008) 'Modulation of glutamate excitotoxicity and ischemic pre-conditioning by TNF; depends on time and order of TNF and glutamate exposure' *J. Neuroimmunology*, Vol. 197, page 171,

O'Connor JJ, Watters O, Sheridan GK, Murphy KJ, Pickering M. (2007) 'Modulation of glutamate excitotoxicity and ischemic preconditioning by TNF depends on time and order of TNF and glutamate exposure' *Society for Neuroscience*.

Sheridan, G. K., Pickering, M., Moynagh, P. N., O'Connor, J. J., Murphy, K. J. (2007) 'Temporal changes in nuclear factor-kappa B activity in distinct neuronal subpopulations of the rat hippocampus following spatial learning' *Society for Neuroscience*, 207.5

## **Dr Kevin O'Connor**

### **Peer Reviewed Journals**

O'Connor KE, Nikodinovic J, Kenny ST, Babu RP, Woods T, Blau WJ, (2008) 'The conversion of BTEX compounds by single and defined mixed cultures to medium-chain-length polyhydroxyalkanoate'. *Applied Microbiology and Biotechnology*, 4: 665-673.

Martin, L. B., Nikodinovic, J., Mc Mahon, A. M., Vijgenboom, E., O'Connor, K. E. (2008) 'Assessing the catalytic activity of three different sources of tyrosinase: A study of the oxidation of mono- and difluorinated monophenols'. *Enzyme and Microbial Technology*, 43: 297-301.

## **Dr Tadhg Ó'Cróinín**

### **Peer Reviewed Journals**

O'Cróinín T, Dorman C.J. (2007) 'Expression of the Fis protein is sustained in late-exponential- and stationary-phase cultures of *Salmonella enterica* serovar Typhimurium grown in the absence of aeration'. *Molecular Microbiology*, 66 (1): 237-251.

## **Dr James O'Gara**

### **Peer Reviewed Journals**

Stevens, N., Tharmabala, M., Dillane, T., Greene, C., O'Gara, J. P., Humphreys, H. (2008) 'Biofilm and the role of the ica operon and aap in Staphylococcus epidermidis isolates causing neurosurgical meningitis'. *Clinical Microbiology and Infection*, 14: 719-722.

Holland, L. M., O'Donnell, S. T., Ryjenkov, D.A., Gomelsky, L., Slater, S.R., Fey, P.D., Gomelsky, M., O'Gara, J.P. (2008) 'A staphylococcal GGDEF domain protein regulates biofilm formation independently of c-di-GMP'. *Journal of Bacteriology*, 190: 5178-5189.

O'Neill, E., Pozzi, C., Houston, P., Humphreys, H., Robinson, D.A., Loughman, A., Foster, T.J., O'Gara J.P. (2008) 'A novel Staphylococcus aureus biofilm phenotype mediated by the fibronectin-binding proteins, FnBPA and FnBPB'. *Journal of Bacteriology*, 190 (11): 3835-3850.

## **Professor Ciaran Regan**

### **Peer Reviewed Journals**

ter Horst, J. P. F., Loscher, J. S., Pickering, M., Regan, C. M., Murphy, K. J., (2008) 'Learning-associated regulation of polysialylated neural cell adhesion molecule expression in the rat prefrontal cortex is region-, cell type- and paradigm-specific'. *European Journal of Neuroscience*, 28 (3): 419-427.

Shankar, G. M., Li, S. M., Mehta, T. H., Garcia-Munoz, A., Shepardson, N. E., Smith, I., Brett, F. M., Farrell, M. A., Rowan, M. J., Lemere, C. A., Regan, C. M., Walsh, D. M., Sabatini, B. L., Selkoe, D. J., (2008) 'Amyloid-beta protein dimers isolated directly from Alzheimer's brains impair synaptic plasticity and memory'. *Nature Medicine*, 14 (8): 837-842.

Foley AG, Hirst WD, Gallagher HC, Barry C, Hagan JJ, Upton N, Hunter AJ, Walsh FS, Regan CM (2008) 'The selective 5-HT(6) receptor antagonists SB-271046 and SB-399885 potentiate NCAM PSA immunolabeling of dentate granule cells, but not neurogenesis, in the hippocampal formation of mature Wistar rats'. *Neuropharmacology*, 54 (8) :1166-1174.

## **Dr Helen Reid**

### **Peer Reviewed Journals**

Wikstrom, K.,Kavanagh, D. J.,Reid, H. M.,Kinsella, B. T. (2008) 'Differential regulation of RhoA-mediated signaling by the TP alpha and TP beta isoforms of the human thromboxane A2 receptor: Independent modulation of TP alpha signaling by prostacyclin and nitric oxide'. *Cellular Signalling*, 20 (8):1497-1512.

## **Professor Dominic Walsh**

### **Peer Reviewed Journals**

Irvine, G. B., El-Agnaf, O. M., Shankar, G. M., Walsh, D. M., (2008) 'Protein aggregation in the brain: The molecular basis for Alzheimer's and Parkinson's diseases'. *Molecular Medicine*, 14 (7-8): 451-464.

Shankar, G. M., Li, S. M., Mehta, T. H., Garcia-Munoz, A., Shepardson, N. E., Smith, I., Brett, F. M., Farrell, M. A., Rowan, M. J., Lemere, C. A., Regan, C. M., Walsh, D. M., Sabatini, B. L., Selkoe, D. J., (2008) 'Amyloid-beta protein dimers isolated directly from Alzheimer's brains impair synaptic plasticity and memory'. *Nature*, 14 (8): 837-842.

Frigerio, C. S., Kukar, T., Osenkowski, P., Wolfe, M. S., Golde, T., Engel, P. C., Walsh, D. M., (2008) 'Selective modulation of the gamma cleavage of Alzheimer's disease amyloid precursor proteins'. *Immunology*, 197 (2): 165-165.

Welzel, A. T., Smith, I. M., Herron, C., Selkoe, D. J., Walsh, D. M., (2008) 'Purification of distinct assembly forms of cell-derived Alzheimer amyloid-beta protein'. *Immunology*, 197 (2): 164-164.

Neng-Wei Hu, Imelda M. Smith, Dominic M. Walsh, Michael J. Rowan (2008), 'Soluble amyloid- $\beta$  peptides potentially disrupt hippocampal synaptic plasticity in the absence of cerebrovascular dysfunction *in vivo*.' *Brain* 131: 2414-24

Sean D. O'Shea, Imelda M. Smith, Olive M. McCabe, Michelle M. Cronin, Dominic M. Walsh, William T. O'Connor (2008) ,Intracerebroventricular administration of amyloid  $\beta$ -protein oligomers selectively increases dorsal hippocampal dialysate glutamate levels in the awake rat.' *Sensors* 8: 7428-7437.

Vicki Betts, Malcolm A. Leissring, Susi Keck, Georgia Dolios, Rong Wang, Dennis J. Selkoe, Dominic M. Walsh (2008) ,Aggregation and catabolism of disease-associated intra-A $\beta$  mutations: reduced proteolysis of A $\beta$ A21G by neprilysin.' *Neurobiology of Disease* 31: 442-450.

Thomas L. Kukar, Thomas B. Ladd, Maralyssa A. Bann, Patrick C. Fraering, Raj Narlawar, Alfred Welzel, Robert W. Price, Jason Eriksen, Karen Jansen-West, Barbara A. Cottrell, Christophe Verbeeck, Boris Schmidt, Michael S. Wolfe, Abdul Fauq, Dominic M. Walsh, Edward H. Koo, Todd E Golde (2008) 'Substrate targeting by  $\gamma$ -Secretase Modulators.' *Nature* 453: 925-929.

Ganesh M. Shankar, Shaomin Li, Tapan H. Mehta, Amaya Garcia-Munoz, Nina E. Shepardson, Imelda M. Smith, Francesca M. Brett, Michael A. Farrell, Michael J. Rowan, Cindy A. Lemere, Ciaran M. Regan, Dominic M. Walsh, Bernardo L. Sabatini and Dennis J. Selkoe (2008) 'Amyloid- $\beta$  oligomers isolated directly from the brains of Alzheimer disease patients potentially impair synaptic structure and plasticity and learned behavior.' *Nature Medicine* 14: 837-42.

Igor Klyubin, Vicki Betts, Alfred Welzel, Kaj Blennow, Henrik Zetterberg, Anders Wallin, Cynthia A. Lemere, William K. Cullen, Ying Peng, Thomas Wisniewski, Dennis J. Selkoe, Roger Anwyl, Dominic M. Walsh, Michael J. Rowan (2008) 'A $\beta$  dimers in human cerebrospinal fluid disrupt synaptic plasticity: prevention by systemic passive immunization.' *Journal of Neuroscience* 28: 4231-7.

G. Brent Irvine, Omar M. El Agnaf, Ganesh M. Shankar, Dominic M. Walsh (2008) 'Protein Aggregation in the Brain.' *Molecular Medicine* 14: 451-64.

### Conference Publications

Kukar, T. L., Ladd, T. B., Bann, M. A., Fraering, P. C., Narlawar, R., Maharvi, G. M., Healy, B., Chapman, R., Welzel, A. T., Price, R. W., Moore, B., Rangachari, V., Cusack, B., Eriksen, J., Jansen-West, K., Verbeeck, C., Yager, D., Eckman, C., Ye, W. J., Sagi, S., Cottrell, B. A., Torpey, J., Rosenberry, T. L., Fauq, A., Wolfe, M. S., Schmidt, B., Walsh, D. M., Koo, E. H., Golde, T. E., (2008) *Nature* 'Substrate-targeting gamma-secretase modulators', 925 – 62

Klyubin, I., Betts, V., Welzel, A. T., Blennow, K., Zetterberg, H., Wallin, A., Lemere, C. A., Cullen, W. K., Peng, Y., Wisniewski, T., Selkoe, D. J., Anwyl, R., Walsh, D. M., Rowan, M. J., (2008) *Journal of Neuroscience* 'Amyloid beta protein dimer-containing human CSF disrupts synaptic plasticity: Prevention by systemic passive immunization', 4231 – 4237

Martin F, Walsh DW, Roxburgh SA, McGettigan P, Berthier CC, Higgins DG, Kretzler M, Cohen CD, Mezzano S, Brazil DP, (2008) *Biochimica et biophysica acta* 'Co-regulation of Gremlin and Notch signalling in diabetic nephropathy', 10 – 21

Martin F, Walsh DW, Roxburgh SA, McGettigan P, Berthier CC, Higgins DG, Kretzler M, Cohen CD, Mezzano S, Brazil DP, (2008) *Biochimica et biophysica acta* 'Co-regulation of Gremlin and Notch signalling in diabetic nephropathy', 10 – 21

**Dr Xiao-Tao Wang**

**Peer Reviewed Journals**

Wang, X. T., Chan, T. F., Lam, V. M. S., Engel, P. C. (2008) 'What is the role of the second NADP(+)-binding site in human glucose 6-phosphate dehydrogenase?'. *Protein Science*, 17 (8): 1403-1411.