

# *Recent Publications – Faculty of Engineering, Mathematics and Science*

*BY MEMBERS OF THE STAFF AND BY RESEARCH STUDENTS WORKING UNDER THEIR SUPERVISION*

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## **School of Biochemistry and Immunology**

### BIOCHEMISTRY

*Budanov, Andrei*, 'Distinct role of Sestrin2 in response to UVB-induced DNA damage and UVA-induced oxidative stress in melanocytes', *Photochemistry and Photobiology*, 93, 1 (2017), 375-381 [B. Zhao, P. Shah, L. Qiang, T.C. He, A. Budanov, Y.Y. He]

'Sestrin2 is significantly increased in malignant pleural effusions due to lung cancer and is potentially secreted by pleural mesothelial cells', *Clinical Biochemistry*, 49, 9 (2016), 726-728 [I. Tsilioni, A.S. Filippidis, T. Kerenidi, A. Budanov, S.G. Zarogiannis, K.I. Gourgoulianis]

'Sestrin2 promotes LKB1-mediated AMPK activation in the ischemic heart', *FASEB Journal*, 29, 2 (2015), 408-417 [A. Morrison, L. Chen, J. Wang, M. Zhang, H. Yang, Y. Ma, A. Budanov, J.H. Lee, M. Karin, J. Li]

'Sestrins regulate mTORC1 via RRAGs: the riddle of GATOR', *Molecular and Cellular Oncology*, 2, 3 (2015), 3

'Sensing the environment through sestrins: implications for cellular metabolism', *International review of cell and molecular biology*, eds Kwan W. Jeon and Lorenzo Galluzzi, Elsevier (2016), 1-24 [A. Parmigiani, A. Budanov]

'Sestrin2 is induced by glucose starvation via the unfolded protein response and protects cells from non-canonical necrototic cell death', *Scientific Reports*, 6, 22538 (2016), 14 [B. Ding, A. Parmigiani, A.S. Divakaruni, K. Archer, A.N. Murphy, A. Budanov]

'Sestrin2 facilitates death receptor-induced apoptosis in lung adenocarcinoma cells through regulation of XIAP degradation', *Cell Cycle*, 14, 20 (2015), 3231-3241 [B. Ding, A. Parmigiani, C. Yang, A. Budanov]

'Sestrin2 positively regulates AKT signaling and survival in human squamous cell carcinoma and melanoma cells', *Journal of Investigative Dermatology, Annual Meeting of the Society for Investigative Dermatology*, Atlanta, GA (2015), S18-S18 [B. Zhao, P. Shah, A. Budanov, L. Qiang, M. Ming, A. Aplin, D. Sims, Y. He]

*Caffrey, Martin*, 'Structural basis of lipoprotein signal peptidase II action and inhibition by the antibiotic globomycin', *Science*, 351, 6275 (2016), 876-880 [L. Vogeley, T. El Arnaout, J. Bailey, P.J. Stansfeld, C. Boland, M. Caffrey]

'Cell-free production of membrane proteins in *Escherichia coli* lysates for functional and structural studies', *Protocol Heterologous Expression of Membrane Proteins*, 1432 (2016), 1-21 [R.B. Rues, E. Henrich, C. Boland, M. Caffrey, F. Bernhard]

'Ternary structure reveals mechanism of a membrane diacylglycerol kinase', *Nature Communications*, 6 (2015), 10140 [D. Li, P.J. Stansfeld, M.S.P. Sansom (...), M.M. Seibert, M. Caffrey]

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- 'In-meso in-situ serial x-ray crystallography of soluble and membrane proteins at cryogenic temperatures', *Acta Crystallographica, Section D, Structural Biology*, 72 (2016), 93-112 [C.Y. Huan, V. Olieric, P. Ma (...), M. Wang, M. Caffrey]
- 'Fast two-dimensional grid and transmission x-ray microscopy scanning methods for visualizing and characterizing protein crystals', *Journal of Applied Crystallography*, 49 (2016), 944-952 [J.A. Wojdyla, E. Panepucci, I. Martiel, S. Ebner, C.Y. Huang, M. Caffrey, O. Bunk, M. Wang]
- 'X-ray laser diffraction for structure determination of the rhodopsin-arrestin complex', *Scientific Data*, 3 (2016), 21 [X.E. Zhou, X. Gao, A. Barty (...), M. Caffrey et al.]
- 'Data-collection strategy for challenging native SAD phasing', *Acta Crystallographica, Section D, Structural Biology*, 72, 3 (2016), 421-429 [V. Olieric, T. Weinert, A.D. Finke (...), M. Caffrey et al.]
- 'Crystal structure and biochemical characterization of the transmembrane PAP2 type phosphatidylglycerol phosphate phosphatase from *Bacillus subtilis*', *Cellular and Molecular Life Sciences* (2017), 1-14 [M.E. Ghachi, N. Howe, R. Auger (...), M. Caffrey, F. Kerff]
- Creagh, Emma**, 'Protective role for caspase-11 during acute experimental murine colitis', *Journal of Immunology*, 194, 3 (2015), 1252-60 [K. Oficjalska, M. Raverdeau, G. Aviello (...), K.H. Mills, E.M. Creagh]
- 'Epithelial expression of inflammatory caspases-4 and -5 is specific to malignancy in colorectal cancer patients', *Gasteroenterology, Digestive Diseases Week (DDW)*, San Diego, CA, American Gastroenterology Association (AGA) (2016), S616-S617 [B. Flood, K. Oficjalska, J. Fay (...), E. Kay, E.M. Creagh]
- 'Suppression of human alloreactive T cells by linear tetrapyrroles; relevance for transplantation', *Translational Research*, 178 (2016), 81-94.e2 [S.A. Basdeo, N.K. Campbell, L.M. Sullivan (...), E.M. Creagh et al.]
- Cunningham, Colm**, 'The vaccine adjuvant chitosan promotes cellular immunity via DNA sensor cGAS-STING-dependent induction of type I interferons', *Immunity*, 44, 3 (2016), 597-608 [E.C. Carroll, L. Jin, A. Mori (...), C. Cunningham et al.]
- 'Systemic TNF- $\alpha$  produces acute cognitive dysfunction and exaggerated sickness behavior when superimposed upon progressive neurodegeneration', *Brain, Behavior, and Immunity*, 59 (2017), 233-244 [E. Hennessy, S. Gormley, A.B. Lopez-Rodriguez, C. Murray, C. Cunningham]
- 'In vivo modification of tRNA with an artificial nucleobase leads to full disease remission in an animal model of multiple sclerosis', *Nucleic Acids Research*, 45, 4 (2017), 2029-2039 [S. Varghese, M. Cotter, F. Chevot (...), C. Cunningham et al.]
- 'Association of delirium with cognitive decline in late life: a neuropathologic study of 3 population-based cohort studies', *JAMA Psychiatry*, 74, 3 (2017), 244-251 [D.H. Davis, G. Muniz-Terrera, H.A. Keage (...), C. Cunningham et al.]
- 'The American Geriatrics Society/National Institute on Aging bedside-to-bench conference: research agenda on delirium in older adults', *J Am Geriatr Soc*, 63, 5 (2015), 843-852
- Davey, Gavin**, 'A knowledge-based system for display and prediction of O-glycosylation network behaviour in response to enzyme knockouts', *PLoS Computational Biology*, 12, 4 (2016), e1004844 [A.G. McDonald, K.F. Tipton, G.P. Davey]
- 'Amyloid oligomers and mature fibrils prepared from an innocuous protein cause diverging cellular death mechanisms', *The Journal of Biological Chemistry*, 290, 47 (2015), 28343-28352 [N.P. Harte, I. Klyubin, E.K. McCarthy (...), G.P. Davey et al.]
- 'Metabolic flux control in glycosylation', *Current Opinion in Structural Biology*, 40 (2016), 97-103 [A.G. McDonald, J.M. Hayes, G.P. Davey]
- 'Fc gamma receptors: glycobiology and therapeutic prospects', *Journal of Inflammation Research*, 9 (2016), 209-219 [J.M. Hayes, M.R. Wormald, P.M. Rudd, G.P. Davey]

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- Finlay, David*, 'Immunometabolism; cellular metabolism turns immune regulator', *Journal of Biological Chemistry*, 291, 1 (2016), 1-10 [R.M. Loftus, D.K. Finlay]
- 'Metabolic regulation of immune responses: therapeutic opportunities', *Journal of Clinical Investigation*, 126, 6 (2016), 2031-2039 [N. Assmann, D.K. Finlay]
- 'TGF- $\beta$  inhibits the activation and functions of NK cells by repressing the mTOR pathway', *Science Signalling*, 9 (2016), 19 [S. Viel, A. Marçais, F.S. Guimaraes (...), D.K. Finlay *et al.*]
- 'Metabolic reprogramming supports IFN- $\gamma$  production by CD56<sup>bright</sup> NK cells', *Journal of Immunology*, 196, 6 (2016), 2552-2560 [S.E. Keating, V. Zaiatz-Bittencourt, R.M. Loftus, C. Keane, K. Brennan, D.K. Finlay, C.M. Gardiner]
- 'Nutrient sensing, signal transduction and immune responses', *Seminars in Immunology*, 28, 5 (2016), 396–407 [J. Walls, L. Sinclair, D.K. Finlay]
- 'What fuels natural killers? Metabolism and NK cell responses', *Frontiers in Immunology*, 8 (2017), <https://doi.org/10.3389/fimmu.2017.00367> [C.M. Gardiner, D.K. Finlay]
- Kelly, Vincent*, 'In vivo modification of tRNA with an artificial nucleobase leads to full disease remission in an animal model of multiple sclerosis', *Nucleic Acids Research*, 45, 4 (2017), 2029-2039 [S. Varghese, M. Cotter, F. Chevot (...), J.M. Southern, V.P. Kelly]
- 'Psg22-null mouse embryos develop normally under normoxic and hypoxic conditions of pregnancy', *Science Matters*, 10, 19185 (2016), <http://dx.doi.org/10.19185/matters.20161000023> [J.M. Williams, T. Bezak, M. Das (...), V.P. Kelly *et al.*]
- Khan, Amir*, 'Structure-function analyses of the interactions between Rab11 and Rab14 small GTPases with their shared effector Rab Coupling Protein (RCP)', *Journal of Biological Chemistry*, 290, 30 (2015), 18817-18832 [P. Lall, A.J. Lindsay, S. Hanscom (...), M.W. McCaffrey, A.R. Khan]
- 'Crystal structure of a chimaeric bacterial glutamate dehydrogenase', *Acta Crystallographica, Section F, Structural Biology Communications*, 72 (2016), 462-466 [T. Oliveira, M.A. Sharkey, P.C. Engel, A.R. Khan]
- McDonald, Andrew*, 'A knowledge-based system for display and prediction of O-glycosylation network behaviour in response to enzyme knockouts', *PLoS Computational Biology*, 12, 4 (2016), e1004844 [A.G. McDonald, K.F. Tipton, G.P. Davey]
- Murray, James*, 'Heat inactivation of garlic (*Allium sativum*) extract abrogates growth inhibition of HeLa cells', *Nutrition and Cancer* (2016), 1-9 [R. Chintapalli, M.J. Murray, J.T. Murray]
- Nolan, Derek*, 'Detailed biological profiling of a photoactivated and apoptosis inducing pdppz ruthenium(II) polypyridyl complex in cancer cells', *Journal of Medicinal Chemistry*, 58, 11 (2015), 4494-4505 [S.M. Cloonan, R.B.P. Elmes, M. Erby (...), D.E. Nolan *et al.*]
- '*Trypanosoma brucei* metabolite indolepyruvate decreases HIF-1 $\alpha$  and glycolysis in macrophages as a mechanism of innate immune evasion', *Proc Natl Acad Sci USA*, 113, 48 (2016), E7778-E7787 [A.F. McGettrick, S.E. Corcoran, P.J. Barry (...), L.A. O'Neill, D.P. Nolan]
- 'Synthesis and evaluation of 1,2,3-triazole-containing vinyl and allyl sulfones as anti-trypanosomal agents', *European Journal of Organic Chemistry*, 2017, 1 (2017), 175-185 [W. Doherty, N. Adler, A. Knox (...), D. Nolan *et al.*]
- O'Neill, Luke*, 'A small-molecule inhibitor of the NLRP3 inflammasome for the treatment of inflammatory diseases', *Nature Medicine*, 21, 3 (2015), 248-257 [R.C. Coll, A.A.B. Robertson, J.J. Chae (...), M.A. Cooper, L.A. O'Neill]
- 'Circadian control of innate immunity in macrophages by miR-155 targeting Bmal1', *Proceedings of the National Academy of Sciences of the United States of America*, 112, 23 (2015), 7231-6 [A.M. Curtis, C.T. Fagundes, G. Yang (...), G.A. Fitzgerald, L.A. O'Neill]

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- 'Cutting edge: *Mycobacterium tuberculosis* induces aerobic glycolysis in human alveolar macrophages that is required for control of intracellular bacillary replication', *Journal of Immunology*, 196, 6 (2016), 2444-2449 [L.E. Gleeson, F.J. Sheedy, E.M. Palsson-McDermott (...), L.A. O'Neill, J. Keane]
- 'A common variant in the adaptor mal regulates interferon gamma signaling', *Immunity*, 44, 2 (2016), 368-79 [C. Ni Cheallaigh, F.J. Sheedy, J. Harris (...), L.A. O'Neill *et al.*]
- 'A comparison of catabolic pathways induced in primary macrophages by pristine single walled carbon nanotubes and pristine graphene', *RSC Advances*, 6, 70 (2016), 65299-65310 [J. McIntyre, N.K. Verma, R.J. Smith (...), L.A. O'Neill *et al.*]
- 'Trained immunity: a program of innate immune memory in health and disease', *Science*, 352, 6284 (2016), 427 [M.G. Netea, L.A.B. Joosten, E. Latz (...), L.A. O'Neill *et al.*]
- 'Innate immune memory: a paradigm shift in understanding host defense', *Nature Immunology*, 16, 7 (2015), 675-679 [M.G. Netea, E. Latz, K.H. Mills, L.A. O'Neill]
- 'Toll-like receptors and chronic inflammation in rheumatic diseases: new developments', *Nature Reviews Rheumatology*, 12, 6 (2016), 344-357 [L.A.B. Joosten, S. Abdollahi-Roodsaz, C.A. Dinarello, L.A. O'Neill, M.G. Netea]
- 'Metformin inhibits the production of reactive oxygen species from NADH: ubiquinone oxidoreductase to limit induction of interleukin-1 $\beta$  (IL-1 $\beta$ ) and boosts interleukin-10 (IL-10) in lipopolysaccharide (LPS)-activated macrophages', *Journal of Biological Chemistry*, 290, 33 (2015), 20348-20359 [B. Kelly, G.M. Tannahill, M.P. Murphy, L.A. O'Neill]
- 'Immunometabolism governs dendritic cell and macrophage function', *Journal of Experimental Medicine*, 213, 1 (2016), 15-23 [L.A. O'Neill, E.J. Pearce]
- 'Reprogramming mitochondrial metabolism in macrophages as an anti-inflammatory signal', *European Journal of Immunology*, 46, 1 (2016), 13-21 [E.L. Mills, L.A. O'Neill]
- 'Metabolic reprogramming in macrophages and dendritic cells in innate immunity', *Cell Research*, 25, 7 (2015), 771-784 [B. Kelly, L.A. O'Neill]
- 'The cellular and molecular basis of translational immunometabolism', *Immunity*, 43, 3 (2015), 421-434 [G.D. Norata, G. Caliguri, T. Chavakis (...), L.A. O'Neill and F.M. Marelli-Berg]
- 'How low cholesterol is good for anti-viral immunity', *Cell*, 163, 7 (2015), 1572-1574
- 'T helper 1 immunity requires complement-driven NLRP3 inflammasome activity in CD4 $^{+}$  T cells', *Science*, 352, 6292 (2016), <http://dx.doi.org/10.1126/science.aad1210> [G. Arbore, E.E. West, R. Spolski (...), L.A. O'Neill *et al.*]
- 'Monounsaturated fatty acid-enriched high-fat diets impede adipose NLRP3 inflammasome-mediated IL-1 $\beta$  secretion and insulin resistance despite obesity', *Diabetes*, 64, 6 (2015), 2116-2128 [O.M. Finucane, C.L. Lyons, A.M. Murphy (...), L.A. O'Neill *et al.*]
- '*Trypanosoma brucei* metabolite indolepyruvate decreases HIF-1 $\alpha$  and glycolysis in macrophages as a mechanism of innate immune evasion', *Proc Natl Acad Sci USA*, 113, 48 (2016), E7778-E7787 [A.F. McGettrick, S.E. Corcoran, P.J. Barry (...), L.A. O'Neill *et al.*]
- 'Inhibiting the NLRP3 inflammasome with MCC950 promotes non-phlogistic clearance of amyloid- $\beta$  and cognitive function in APP/PS1 mice', *Brain, Behaviour and Immunity* (2016), 306 [C. Dempsey, A. Rubio Araiz, K.J. Bryson (...), L.A. O'Neill, M.A. Lynch]
- Porter, Richard**, 'Novel mitochondrial complex I inhibitors restore glucose-handling abilities of high-fat fed mice', *J Mol Endocrinol*, 56, 3 (2016), 261-271 [D.S. Martin, S. Leonard, R. Devine (...), R.K. Porter *et al.*]
- Tipton, Keith**, 'A knowledge-based system for display and prediction of O-glycosylation network behaviour in response to enzyme knockouts', *PLoS Computational Biology*, 12, 4 (2016), e1004844 [A.G. McDonald, K.F. Tipton, G.P. Davey]

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- Williams, D. Clive**, 'The novel pyrrolo-1,5-benzoxazepine, PBOX-15, synergistically enhances the apoptotic efficacy of imatinib in gastrointestinal stromal tumours; suggested mechanism of action of PBOX-15', *Investigational New Drugs*, 34, 2 (2016), 159-167 [P. Kinsella, L.M. Greene, S.A. Bright (...), D.C. Williams, D.M. Zisterer]
- 'Synthesis, antiproliferative and pro-apoptotic activity of 2-phenylindoles', *Bioorganic and Medicinal Chemistry*, 24, 18 (2016), 4075-99 [P.M. Kelly, S.A. Bright, D. Payne (...), D.C. Williams, M.J. Meegan]
- 'Involvement of AMP-activated protein kinase in mediating pyrrolo-1,5-benzoxazepine-induced apoptosis in neuroblastoma cells', *Investigational New Drugs*, 34, 5 (2016), 663-76 [J.C. Lennon, S. Butini, G. Campiani, A. O'Meara, D.C. Williams, D.M. Zisterer]
- 'The pyrrolo-1,5-benzoxazepine, PBOX-15, enhances TRAIL-induced apoptosis by upregulation of DR5 and downregulation of core cell survival proteins in acute lymphoblastic leukaemia cells', *International Journal of Oncology*, 49, 1 (2016), 74-88 [S.M. Nathwani, L.M. Greene, S. Butini (...), D.C. Williams et al.]
- Zisterer, Daniela**, 'The novel pyrrolo-1,5-benzoxazepine, PBOX-15, synergistically enhances the apoptotic efficacy of imatinib in gastrointestinal stromal tumours; suggested mechanism of action of PBOX-15', *Investigational New Drugs*, 34, 2 (2016), 159-167 [P. Kinsella, L.M. Greene, S.A. Bright (...), D.C. Williams, D.M. Zisterer]
- 'Synthesis, antiproliferative and pro-apoptotic activity of 2-phenylindoles', *Bioorganic and Medicinal Chemistry*, 24, 18 (2016), 4075-99 [P.M. Kelly, S.A. Bright, D. Payne (...), D.M. Zisterer et al.]
- 'Involvement of AMP-activated protein kinase in mediating pyrrolo-1,5-benzoxazepine-induced apoptosis in neuroblastoma cells', *Investigational New Drugs*, 34, 5 (2016), 663-76 [J.C. Lennon, S. Butini, G. Campiani, A. O'Meara, D.C. Williams, D.M. Zisterer]
- 'The pyrrolo-1,5-benzoxazepine, PBOX-15, enhances TRAIL-induced apoptosis by upregulation of DR5 and downregulation of core cell survival proteins in acute lymphoblastic leukaemia cells', *International Journal of Oncology*, 49, 1 (2016), 74-88 [S.M. Nathwani, L.M. Greene, S. Butini (...), E. Szegezdi, D.M. Zisterer]
- 'Isouronium and N-hydroxyguanidinium derivatives as cell growth inhibitors: a comparative study', *European Journal of Medicinal Chemistry*, 117 (2016), 269-282 [A. Kahvedzic-Seljubac, S.M. Nathwani, D.M. Zisterer, I. Rozas]
- 'Synthesis and biochemical evaluation of 3-phenoxy-1,4-diarylazetidin-2-ones as tubulin-targeting antitumor agents', *Journal of Medicinal Chemistry*, 59, 1 (2016), 90-113 [T.F. Greene, S. Wang, L.M. Greene (...), D.M. Zisterer, M.J. Meegan]
- 'Development of novel cyclic peptides as pro-apoptotic agents', *European Journal of Medicinal Chemistry*, 117 (2016), 301-320 [M. Brindisi, S. Maramai, S. Brogi (...), D.M. Zisterer et al.]
- 'Development of the  $\beta$ -lactam type molecular scaffold for selective estrogen receptor  $\alpha$  modulator action: synthesis and cytotoxic effects in MCF-7 breast cancer cells', *Journal of Enzyme Inhibition and Medicinal Chemistry*, 31 (2016), 117-130 [M. Carr, A.J. Knox, D.G. Lloyd, D.M. Zisterer, M.J. Meegan]
- 'Piperlongumine (piplartine) and analogues: antiproliferative microtubule-destabilising agents', *European Journal of Medicinal Chemistry*, 125 (2017), 453-463 [M.J. Meegan, S. Nathwani, B. Twamley, D.M. Zisterer, N.M. O'Boyle]
- 'Inhibition of  $\gamma$ -secretase activity synergistically enhances tumour necrosis factor-related apoptosis-inducing ligand induced apoptosis in T-cell acute lymphoblastic leukemia cells via upregulation of death receptor 5', *Oncology Letters*, 12, 4 (2016), 2900-2905 [L.M. Greene, S.M. Nathwani, D.M. Zisterer]
- 'Pre-clinical evaluation of a novel class of anti-cancer agents, the pyrrolo-1, 5-benzoxazepines', *Journal of Cancer*, 7, 15 (2016), 2367-2377 [L.M. Greene, S. Butini, G. Campiani, D.C. Williams, D.M. Zisterer]

## Recent publications – Faculty of Engineering, Mathematics and Science

### IMMUNOLOGY

- Bowie, Andrew**, 'The vaccine adjuvant chitosan promotes cellular immunity via DNA sensor cGAS-STING-dependent induction of type I interferons', *Immunity*, 44, 3 (2016), 597-608 [E.C. Carroll, L. Jin, A. Mori (...), A.G. Bowie, E.C. Lavelle]
- 'Novel strategies for targeting innate immune responses to influenza', *Mucosal Immunology*, 9 (2016), 1173-1182 [K.A. Shirey, W. Lai, L.M. Pletneva (...), A.G. Bowie et al.]
- Dunne, Aisling**, 'Cholesterol crystals activate Syk and PI3 kinase in human macrophages and dendritic cells', *Atherosclerosis*, 251 (2016), 197-205 [E.M. Corr, C.C. Cunningham, A. Dunne]
- 'Suppression of human alloreactive T cells by linear tetrapyrroles; relevance for transplantation', *Translational Research*, 178 (2016), 81-94.e2 [S.A. Basdeo, N.K. Campbell, L.M. Sullivan (...), J.M. Fletcher, A. Dunne]
- Fletcher, Jean**, 'Enrichment of inflammatory IL-17 and TNF- $\alpha$  secreting CD4 $^{+}$  T cells within colorectal tumours despite the presence of elevated CD39 $^{+}$  T regulatory cells and increased expression of the immune checkpoint molecule, PD-1', *Frontiers in Oncology*, 6 (2016), 50 [M. Dunne, C. Ryan, M. Tosetto (...), E.J. Ryan, J.M. Fletcher]
- 'Increased expression of Tbet in CD4 $^{+}$  T cells from clinically isolated syndrome patients at high risk of conversion to clinically definite MS', *Springer Plus*, 5 (2016), 779 [S.A. Basdeo, S. Kelly, K. O'Connell, N. Tubridy, C. McGuigan, J.M. Fletcher]
- 'Neuroinflammatory disorders', *Neurodegenerative disorders*, eds Orla Hardiman, Colin P. Doherty, Marwa Elami and Peter Bede, Springer International Publishing (2016), 269-287 [C. Costelloe, J.M. Fletcher, D. Fitzgerald]
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- 'Ex-Th17 (nonclassical Th1) cells are functionally distinct from classical Th1 and Th17 cells and are not constrained by regulatory T cells', *Journal of Immunology*, 198, 2 (2017), 2249-2259 [S.A. Basdeo, D. Cluxton, J. Sulaimani (...), U. Fearon, J.M. Fletcher]
- Gardiner, Clair**, 'Human natural killer cell expression of ULBP2 is associated with a mature functional phenotype', *Human Immunology*, 77, 10 (2016), 876-885 [K. Brennan, B.P. McSharry, S. Keating (...), D.G. Doherty, C.M. Gardiner]
- 'The cells that mediate innate immune memory and their functional significance in inflammatory and infectious diseases', *Seminars in Immunology*, 28, 4 (2016), 343-350 [C.M. Gardiner, K.H. Mills]
- 'What fuels natural killers? Metabolism and NK cell responses', *Frontiers in Immunology*, 8 (2017), <https://doi.org/10.3389/fimmu.2017.00367> [C.M. Gardiner, D.K. Finlay]
- 'Sex-specific effects of TLR9 promoter variants on spontaneous clearance of HCV infection', *Gut* (2016), doi:10.1136/gutjnl-2015-31023 [J. Fischer, A.N. Weber, S. Böhm (...), C.M. Gardiner et al.]
- 'Serum immune system biomarkers neopterin and interleukin-10 are strongly related to tryptophan metabolism in healthy young adults', *Journal of Nutrition*, 146, 9 (2016), 1801-1806 [O.M. Deac, J.L. Mills, C.M. Gardiner (...), L.C. Brody, A.M. Molloy]
- Lavelle, Edward**, 'Helminth products protect against autoimmunity via innate type 2 cytokines IL-5 and IL-33, which promote eosinophilia', *Journal of Immunology*, 196, 2 (2016), 703-714 [C.M. Finlay, A.M. Stefanska, K.P. Walsh (...), E.C. Lavelle et al.]
- 'A common variant in the adaptor mal regulates interferon gamma signaling', *Immunity*, 44, 2 (2016), 368-79 [C. Ni Cheallaigh, F.J. Sheedy, J. Harris (...), E.C. Lavelle, J. Keane]
- 'IL-1 $\alpha$  and inflammasome-independent IL-1 $\beta$  promote neutrophil infiltration following alum vaccination', *FEBS Journal*, 283, 1 (2016), 9-24 [E. Oleszycka, H.B.T. Moran, G.A. Tynan (...), C.J. Scott, E.C. Lavelle]

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'Modulation of immune responses by particulate materials', *Advanced Materials* (2016), 5525-5541 [F. Lebre, C.H. Hearnden, E.C. Lavelle]

'Extracellular cathepsin S and intracellular caspase 1 activation are surrogate biomarkers of particulate-induced lysosomal disruption in macrophages', *Particle and Fibre Toxicology*, 13, 1 (2016), 19 [C.S. Hughes, L.M. Colhoun, B.K. Bains (...), E.C. Lavelle et al.]

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'Interleukin-33: an innate alarm for adaptive responses beyond Th2 immunity-emerging roles in obesity, intestinal inflammation, and cancer', *European Journal of Immunology*, 46, 5 (2016), 1091-1100 [C. Schwartz, K. O'Grady, E.C. Lavelle, P.G. Fallon]

'Advances in immunotherapy for the treatment of glioblastoma', *Journal of Neuro-Oncology*, 131, 1 (2017), 1-9 [A. Tivnan, T. Heilinger, E.C. Lavelle, J.H.M. Prehn]

'Innate immune receptors', *Methods Mol Biol*, 1417 (2016), 1-43 [N. Muñoz-Wolf, E.C. Lavelle]

'Editorial: immune cells in the mucosa', *Frontiers in Immunology*, 7, Dec (2016), 657 [P. Pandiyan, E.C. Lavelle]

**McLoughlin, Rachel**, 'The role of *Staphylococcus aureus* virulence factors in skin infection and their potential as vaccine antigens', *Pathogens* (Basel, Switzerland), 5, 1 (2016), <http://dx.doi:10.3390/pathogens5010022>. [K.A. Lacey, J.A. Geoghegan, R.M. McLoughlin]

'Interleukin-22 regulates antimicrobial peptide expression and keratinocyte differentiation to control *Staphylococcus aureus* colonization of the nasal mucosa', *Mucosal Immunology*, 9, 6 (2016), 1429-1441 [M.E. Mulcahy, J.M. Leech, J.C. Renaud, K.H. Mills, R.M. McLoughlin]

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## School of Natural Sciences

### BOTANY

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