

Michael John Deane Daniels

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Personal Statement:

I am a postdoctoral research fellow working for Dr Barry McColl in the UK Dementia Research Institute at the University of Edinburgh. My research focuses on the role played by microglial cells and the immune system in the progression and pathogenesis of dementias such as Alzheimer's disease. I completed my PhD at The University of Manchester where I was awarded the 2017 President's Distinguished Achievement Award - given to the best postgraduate student in the Faculty of Biology, Medicine and Health, a faculty currently containing over 1200 students. I am passionate about public engagement and science communication, co-founding a project aiming to increase public understanding of science called 'Have You Heard?' whilst also getting involved in the outreach event Pint of Science and winning the 2017 North-West regional final of the Famelab competition. Outside of my work I am a keen hiker/fell runner/mountaineer and (if I get the time) I like to get myself on a squash or badminton court!

Education and Qualifications:

2014-2018 - Postgraduate

PhD Cellular and molecular neuroscience – University of Manchester

Thesis title – *Regulation of interleukin-1*

Supervisors – Dr. David Brough, Dr. Herve Boutin, Dr. James Galea, Prof. Douglas Kell

2012-2013 - Undergraduate

Industrial placement – MedImmune

Project title – *Target validation for chronic pain*

Supervisors – Dr. Pete Thornton, Dr. Colin Glover

2010-2014 - Undergraduate

BSc Pharmacology (with Industrial Placement) – University of Leeds

Degree result – 1st class Hons (final avg 77%)

Research project title – Evaluating HDAC inhibitors as a potential treatment for stroke using *in vitro* models

Publications:

Rivers-Auty J, **Daniels MJD**, Colliver I, Robertson D, Brough D. *Redefining the ancestral origins of the interleukin-1 superfamily*. **Nature Communications**. 2018.

Daniels MJD, Adamson AD, Humphreys N, Brough D. *CRISPR/Cas9 mediated mutation of mouse IL-1 α nuclear localisation sequence abolishes expression*. **Scientific Reports**. 2017.

Baldwin AG, Rivers-Auty J, **Daniels MJD**, White CS, Schwalbe CH, Schilling T, Hammadi H, Jaiyong P, Spencer N, England H, Luheshi N, Kadirvel M, Lawrence CB, Rothwell NJ, Harte MK, Bryce RA, Allan SM, Eder C, Freeman S, Brough D. *New boron based inhibitors of the NLRP3 inflammasome*. **Cell Chemical Biology**. 2017.

Daniels MJD, Brough D. *Unconventional Pathways of Secretion Contribute to Inflammation*. **Int J Mol Sci**. 2017. 5;18

Huang SW, Walker C, Pennock J, Else K, Muller W, **Daniels MJD**, Pellegrini C, Brough D, Lopez-Castejon G, Cruickshank SM. *P2X7 receptor-dependent tuning of gut epithelial responses to infection*. **Immunol. Cell Biol**. 2017. 95:178-88

Daniels MJD*, Rivers-Auty J*, Schilling T, Spencer NG, Watremez W, Fasolino V, Booth S, White CS, Baldwin AG, Freeman S, Wong R, Latta C, Yu S, Jackson J, Fischer N, Koziel V, Pillot T, Bagnall J, Allan SM, Paszek P, Galea J, Harte MK, Eder C, Lawrence CB, Brough D. *Fenamate NSAIDs inhibit the NLRP3 inflammasome and protect against Alzheimer's disease in rodent models*. **Nature Communications**. 2016. 7:12504

Martín-Sánchez F, Diamond C, Zeitler M, Gomez-Sanchez A, Baroja-Mazo A, Bagnall J, Spiller D, White M, Mortellaro A, Peñalver M, **Daniels MJD**, Paszek P, Steringer JP, Nickel W, Brough D, Pelegrín P. *Inflammasome-dependent IL-1 β release depends upon membrane permeabilisation*. **Cell Death and Differentiation**. 2016. 23:1219-31

*Equal contribution

Grants/Awards:

- **2018 – Selected as one of 600 top young scientists in the world to attend the Lindau Nobel Laureate meetings (£5000)**
- 2018 – University of Manchester Doctoral Academy Conference Support Fund (£360)
- 2018 – British Society for Immunology Travel Award (£700)
- 2017 – Wellcome Trust ISSF Public Engagement grant – co-applicant (£500)
- 2017 – UoM Engaging our Communities grant – co-applicant (£500)
- 2017 – MRC Flexible Training Supplement to attend international training course (£1150)
- 2017 – **President's Distinguished Achievement Award – Postgraduate Student of the Year**
- 2017 - Outstanding Research Output (Manchester Doctoral Academy)
- 2017- FBMH Outstanding Contribution to Patient and Public Involvement and Engagement 2017 (Highly Commended)

- 2017 - University of Manchester 3-Minute Thesis (Runner up)
- 2017 – Audience vote winner of NW region ‘Famelab’ competition
- 2017 - **Famelab North-West Region (Winner)**
- 2016 - University of Manchester 3-Minute Thesis (Finalist)
- 2015 - F1000-sponsored 'Flash Talk' competition (Winner)
- 2015 - Neurobiology Research Theme Travel Grant (£300)
- 2014 - Student Contribution to Pharmacology Prize (University of Leeds)
- 2010 - Faculty of Biological Sciences Achievement Scholarship (£1000)

Skills/Techniques:

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| <ul style="list-style-type: none"> • Cell culture • Primary cell isolations • Mouse and Rat <i>in vivo</i> techniques (Personal HO Licence) • Live cell imaging • Immunocytochemistry • Flow cytometry • qPCR • Immunoblotting | <ul style="list-style-type: none"> • siRNA knockdown • Singulex™ single molecule counting technology • Chemotaxis assays • HTRF assays • FLIPR calcium imaging • Oxygen-glucose deprivation • Mouse colony management |
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Conferences:

- 5th *Venusberg meeting on Neuroinflammation*, Bonn (Germany), May 2017. Poster. “Understanding the processing of the proinflammatory cytokine interleukin-1 alpha”.
- *Unconventional Proteins and Membrane Trafficking (UPMT)*, Lecce (Italy), October 2016. Oral presentation. “The nuclear localisation sequence of IL-1 α is critical for function: An evolutionary perspective”.
- *Alzheimer’s Research UK (ARUK)*, Manchester (UK), March 2016. Poster and oral presentation (PhD day). “Fenamate non-steroidal anti-inflammatory drugs (NSAIDs) are inhibitors of the NLRP3 inflammasome and could be repurposed to treat Alzheimer’s Disease”
- *Innate Immune Memory*, Cambridge (UK), March 2015. Poster. “Non-steroidal anti-inflammatory drugs (NSAIDs) as inhibitors of the NLRP3 inflammasome”.

Relevant other employment and responsibilities:

- 2017-present –Paid role to teach fellow PhD students in public engagement and science communication. I have also been invited to run workshops at external venues.
- 2016-present - I am actively involved in writing and contributing to grants.
- 2015-present - **MRC DTP Student Rep**. Contributed to application and sat on interview panel successful in obtaining 9 fully funded studentships from the MRC. I founded and now chair a

committee of students and oversee numerous highly successful cohort-led events including workshops, seminar series, keynotes and socials.

- *2014-present* - Mentoring numerous MSc and BSc project students many of whom have had their work published.
- *2014-present* - Demonstrating for undergraduate students on a broad range of biomedical techniques.
- *2014-2015* – Coordinated departmental seminar series.

Invited talks & public engagement:

- *2018* – Invited speaker at Institute of Molecular Bioscience, University of Queensland, Australia
- *2018* – Invited speaker at Walter and Eliza Hall Institute, Australia
- *2018* - Invited to give a workshop on Science Communication at YSJ conference
- *2017* - Invited speaker for the UoM Clinical Neurology Society
- *2017* - Skype lab practical session to Mosborough Primary School
- *2016* - The Brain Box
- *2016 & 2017* - Outreach talks at Dean Oaks Primary School and Wilmslow Grange Primary School
- *2015 & 2016* - Pint of Science, Manchester. Sub-team Leader.
- *2015 & 2017* - Body Experience, Manchester

Science communication & media:

- *2017* – Co-founded a project aimed at improving public perception of science, Have You Heard? <https://haveyouhearduk.com/>
- *2017* – Press release on our latest paper - <https://goo.gl/G7iWkW>
- *2017* – Youtube video series – The science behind zombies - <https://goo.gl/1CQYdz>
- *2017* – Feature on my PhD at Manchester - <https://goo.gl/GBJ5X1>
- *2017* – Blog on our latest paper - <https://goo.gl/w11c4a>
- *2017* - Famelab UK final - <https://goo.gl/uZzjus>
- *2016* - Reddit AMA - <https://goo.gl/rnGv5w>
- *2016* - Faculty ‘Minute lecture’ – ‘Old drugs for new treatments’ - <https://goo.gl/fX1vGa>
- *2016* - *Manchester TV* interview - <https://goo.gl/vwAh37>
- *2016* - Daniels *et. al.* press release - <https://goo.gl/tgzGuR>
- *2016* - KCBS Radio San Francisco Live Interview
- *2016* - Faculty advent feature - ‘Christmas Dinners’ - <https://goo.gl/ZT00OH>
- *2015* - Faculty blog – Tuesday feature - <https://goo.gl/QwR5Wf>

Referees:

- Dr. David Brough, Supervisor, Faculty of Biology Medicine and Health, University of Manchester, Manchester, M13 9PL Email: david.brough@manchester.ac.uk
- Prof. Stuart Allan, Head of Domain, Faculty of Biology Medicine and Health, University of Manchester, Manchester, M13 9PL Email: stuart.allan@manchester.ac.uk
- Dr. Pete Thornton, Line Manager, MedImmune, AKB Building, Granta Park, Cambridge, CB21 6GH, UK.
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