**CURRICULUM VITAE KIMBERLEY DAVINA BRUCE, PHD**

**CURRENT AFFILIATION**: Associate Professor, Division of Endocrinology, Metabolism, and Diabetes, University of Colorado Anschutz Medical Campus, Aurora, CO 80045

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**SUMMARY OF RESEARCH AND EXPERIENCE**

I am an NIH-funded Associate Professor of Medicine at the University of Colorado Anschutz Medical Campus (AMC). With extensive training in molecular biology and metabolism, my research program is focused on identifying the molecular mechanisms underlying lipid metabolism in the central nervous system and developing novel strategies that target lipid processing in the brain to treat neurodegenerative disease.

**EDUCATION**

1999-2002 1st Class BSc (Hons) Biology, Portsmouth University, UK

2002-2006 PhD in Epigenetics and Biochemistry, Portsmouth University, UK

**POSTDOCTORAL TRAINING**

2006-2012 Post-Doctoral Research Fellow, Endocrinology and Metabolism, University of Southampton, UK

2012-2015 Senior Research Associate, Metabolism and Aging, The Scripps Research Institute, USA

**ACADEMIC APPOINTMENTS**

2015-2018 Assistant Research Professor - University of Colorado Anschutz Medical Campus, Division of Endocrinology, Diabetes and Metabolism, Aurora, CO

2018- Assistant Professor (Tenure Track) - University of Colorado Anschutz Medical Campus, Department of Endocrinology, Diabetes and Metabolism, Aurora, CO

2023 - Associate Professor (from July 2023)

**HONORS/AWARDS**

2008 Southampton Faculty of Medicine Poster Award, UK

2009 Welcome Trust, Value In People (VIP) Fellowship Award, UK

2010 SET for BRITAIN National Early Career Researcher in Biosciences, UK

2011 DOHaD Society, Junior Investigator Research Excellence Award, UK

2016 Early Career Researcher Travel Award, Kern Lipid Conference, USA

2018 NIH, NCATS KL2 Scholar

2020 Center for Women’s Health Research Junior Faculty Development Award

2021 Ludeman Center for Women’s Health COVID supplement award

2022 University of Colorado, Department of Medicine, Rising Star Award

**PROFESSIONAL SOCIETIES**

2007 - The Physiological Society

2010 - Endocrinology Society

2016 - American Diabetes Association

2021- International Society of Neuroimmunology

2023- American Society of Neurochemistry

**TEACHING EXPERIENCE**

2003-2005 Biochemistry Instructor, Portsmouth University, UK

2007-2012 Research Project Supervisor, University of Southampton, UK

2007-2012 Bachelor of Medicine Graduate program small group teaching Facilitator, Southampton, UK

2011-2012 Molecular Endocrinology Lecture, 1st year Bachelor of Medicine Program, Southampton, UK

2015- Medical Student Principal Investigator, MD Research Track, University of Colorado Anschutz Medical School

2018- Guest Lecturer – ‘Lipid Metabolism in Neurodegenerative disease’ – Undergraduate Neuroscience Program, University of Colorado Denver.

2020- Gut-Brain Axis Lecture, Neuroscience Post-graduate program, University of Colorado, USA

2021- Lecturer, ‘Introduction to the brain’, (IDPT 7646, Tissue Biology and Disease Mechanisms) University of Colorado Anschutz Medical Campus, USA

2021- Lecturer, ‘Overview of the Nervous System’, Integrated Physiology Graduate Program (IPHY 7800, Comprehensive Physiology), University of Colorado Anschutz Medical Campus, USA

2021- Lecturer, ‘Endocrine pancreas and metabolism, insulin resistance and diabetes’, Integrated Physiology Graduate Program (IPHY 7800, Comprehensive Physiology), University of Colorado, USA

**COMMITTEES**

2017- Program to Advance Gender Equity (PAGE) Communications Co-Director, University of Colorado Anschutz, CO

2018- CU Innovations Faculty Liaison for Endocrinology, Metabolism and Diabetes, University of Colorado Anschutz, CO

2019- Co-Director, Endocrine Research Conference, University of Colorado Anschutz, CO

2020- Director, Writing accountability Groups (WAGs) (CCTSI KL2 program, and Division of Endocrinology, Metabolism, and Diabetes).

2022- Neuroscience Graduate Program Admissions Committee, University of Colorado Anschutz, CO

2023- Neuroscience Graduate Program – Graduate Training Core Mentor Committee

**REVIEWER**

***Journals:***

2008- British Journal of Nutrition, Hepatology, Liver International, Journal of Physiology, Journal of Nutrition, Experimental Gerontology, Aging, Scientific Reports, BBA lipids, European Journal of Nutrition, Frontiers in Physiology, Frontiers in Neuroscience, Journal of Neuroinflammation, Lipids in Health and Disease, Physiology Reports, Progress in Lipid Research, Cell Reports, Journal of Integrative Neuroscience, Brain Research.

***Grants:***

2017- Rasopathies Pilot Grant, National Orphan Disease Centre, U Penn

2017 CCTSI CO-Pilot Grants, University of Colorado Anschutz, CO

2017 Diabetes UK, Project Grants

2018 Ad-Hoc member of Integrated Physiology Study Section.

2019 CCTSI Pre-K Program, University of Colorado Anschutz, CO

2019 Ad-Hoc member of Cellular and Molecular Biology of Glia Study Section

2020 Ad-Hoc member of NIA special emphasis panel

2020 Diabetes UK – RD Lawrence Fellowship review panel

2021 Ad-Hoc member of NIA special emphasis panel

2021 ABNEXUS – University of Colorado Boulder

2022 CCTSI K to R reviewer panel, University of Colorado Anschutz Medical Campus

2022 Ad-hoc member NIDDK SBIR review panel

2022 MS Australia - Project Grant Review panel

2022 Ad-hoc member ADRD NIA special emphasis panel (summer)

2022 Ad-hoc member ADRD NIA special emphasis panel (fall)

2023Ad-hoc member NIDDK SBIR

2023 Ad-hoc member NIA ADRD special emphasis panel (fall)

***Editorial:***

2019- Associate Editor – Frontiers in Lipid and Fatty Acid Research

**CONSULTANCY AND INDUSTRY COLLABORATION**

2009-2012 Business Fellow, London Technology Network and Southampton University, UK

2014-2015 Consultant, Sancillio and Company, Florida, USA

2013-2014 Consultant, Little Dog Communication, CA, USA

2016-2017 UniQure: Contract Research Collaboration

2018-2020 NDC-1308: Contract Research Collaboration

**LECTURES/PRESENTATION**

2010 Invited Speaker - Neuroendocrine Programming of Obesity, Rouen, France.

2013 Invited Speaker - IUPS 2013, Birmingham UK

2017 Invited Speaker – EB17, ’Central and peripheral mechanisms of regulating body weight and glucose homeostasis’. Chicago, USA.

2018 Invited Lecture– Integrated Physiology, University Colorado Anschutz, CO

2019 Invited Speaker – Neuroscience Program, University of Denver, CO

2019 Visiting Professor – Colorado State University, CO

2019 Endocrine Research Conference, University of Colorado Anschutz, CO

2020 Invited Speaker, Ludeman Center for Women’s Health, VIP Reception, Online.

2020 Visiting Professor - Washington University in St Louis, MO

2021 Invited Speaker, “Lipids in the brain” NIH Workshop, Online, International

2021 Invited Speaker, Kern Lipid Conference, Online, International

2021 Neuroscience Graduate Program, Annual Retreat Presenter, CO

2021 Endocrine Research Conference, University of Colorado Anschutz, CO

2022 Department of Medicine Research and Innovation Seminar, University of Colorado Anschutz, CO

2022 Visiting Professor – University of Kentucky, Lexington, KY

2022 Visiting Professor – University of Georgetown Biochemistry Seminar Series, Online

2022 Invited Speaker – Department of Medicine Research and Innovation conferences, University of Colorado Anschutz, CO

2022 Session Chair and Invited Speaker - AAIC22, “ApoE and AD”, San Diego, CA

2022 Invited Speaker and Visiting Professor, Institute of Human Nutrition (IHN) at Columbia University Irving Medical Center, New York, New York.

2023 Invited Speaker and ‘featured researcher’, Colorado NORC (Nutrition and Obesity Research Center) retreat.

2023 Invited Speaker, Neurovirology and Neuroimmune seminar series, University of Colorado Anschutz, CO

**TRAINEES**  **CURRENT POSITION**

2007-2011 Dyan Sellayah (PhD) Assistant Professor, Reading, UK

2012 Kiran Sihota (MD) General Practitioner, Southampton UK

2012 Manoj Rivandaanandan (MD) Urology Registrar, UK

2013 Tania Rodriguez (pre-Med) Albany Medical College, NY

2015-2018 Ivan Rudenko (MD) Resident, LA county, CA

2015-2019 Sachi Gorkhali (PRA) Senior Scientist, Allergan, CA

2016 Claire Gillette (PhD rotation, NSP) Graduate Student, AMC

2017-2020 Bailey Loving (MD) Radiation Oncology Resident, MI

2019-2021 Maoping Tang (Post-doc Mentor) Assistant Professor, China

2019 Rachel Urquhart Graduate Student, Creighton University

2019-2021 Mikaela Neal (PRA) Data Scientist, Portland

2020- Nicholas Cleland (MD) Research Track Medical Student, CO

2021-2021 Courtney Buck (MSc Advisor) Medical Laboratory Scientist, New Mexico

2021- Juliet Mullen (Co-mentor PhD) Graduate Student, Skaggs School of Pharmacy

2021- Dean Oldham (PRA) Research Professional, AMC

2021- Breanna Dooling (PhD committee) Graduate Student, Anschutz, CO

2022- Garrett Potter (PRA) Research Professional, AMC

2022- Emma Lietzke (Co-mentor PhD) Graduate Student, Chemical Engineering

2022- Katie Ranard (Post-doc committee) Post-doc Apple Lab, Pediatrics, AMC

2022- Lisa Golden (Post-doc committee) Post-doc Macklin Lab, CMB, AMC

2022- Rosemary Macdonald (PhD committee) Graduate Student, Human Genetics, AMC

2022- William Brown (Summer Student) Research Scientist, Harvard.

2022- Kiara Griffin (STRP student) Medical Laboratory Scientist, UC Denver, CO

2023- Emma Aldrich (Co-mentor PhD) Graduate Student, Chemical Engineering, UCB

2022-2023 Nour Tobeh (MSc Advisor) Research Specialist, University of Wisconsin

2023- Lucas Guerrero (STRP student) Colorado State University

2023 - Tsion Shiferaw (MSc Advisor) Research Professional, University of Colorado.

2023- Graham Peet (PhD committee) Graduate Student, NSP, AMC

2023- Yuzhu (Judy) Cheng Graduate Student, CSD, AMC

2023- Christy Niemeyer (K award mentor) Assistant Research Professor, AMC

**RESEARCH PROJECTS**

***Active support:***

**1 R01 AG079217-01 $2,600,000 Bruce (PI) 08/01/2022-08/01/2027**

NIH/NIA. Targeting Microglial Lipoprotein Lipase in Alzheimer's Disease

Goal: To develop new imaging techniques to understand microglial metabolism in the native environment

Role: PI

**ABNEXUS $125,000 Sprenger and Bruce (M-PI) 06/01/2021-01/01/2024**

Combining simulations and experiments to determine protein/ligand-mediated microglial activation in Alzheimer's Disease

Goal: To use computational and wet-lab approaches to understand microglial complexity in Alzheimer's Disease

Role Co-PI

**Ludeman Center for Women’s Health Research $50,000 Bruce (PI) 08/10/2023-08/10/2024**

The role of GLUT5 mediated fructose metabolism in Alzheimer’s disease risk in women.

**Goal:** To determine whether GLUT5 edited fructose uptake contributes to exacerbated microglial dysfunction observed in women with aging.

Role: PI

**1 R01 AG079217 – Supplement $45,000 Bruce (PI) 08/01/2023-08/01/202**

Diversity Career Development Supplement in Aging Research (NIA)

Goal: Supplement to provide additional training for Dean Oldham (PRA in Bruce lab) prior not graduate school application.

**SCORE PILOT $20,000 Keller and Bruce (M-PIs) 10/1/2023-10/1/2024**

The role of Estrogen and FSH in microglial metabolism and Alzheimer's disease risk

Goal: To build on the SCORE PO1 program at AMC, and a unique model of ovariectomy and sex-hormone add back to empirically define the role of Estrogen and FSH on microglial metabolism and function, highlighting mechanisms relating to AD pathology.

***Recently completed Support:***

**Ludeman Center for Women’s Health Research Bruce (PI) 08/10/2020-08/10/2022**

Sex differences in microglial lipid and lipoprotein Metabolism and AD risk.

Goal: To understand how sex differences in microglial metabolism relate to AD pathogenesis.

Role: PI

**1R03NS118230-01 Bruce (PI) 08/01/2020-08/01/2022**

NIH/NINDS. Developing Fluorescence Lifetime Imaging Microscopy (FLIM) as a novel method

to measure microglial metabolism in situ.

Goal: To develop new imaging techniques to understand microglial metabolism in the native environment

Role: PI

**NIH REACH/CU SPARK Bruce (PI) 07/01/2020-06/30/2022**

NIH/State of Colorado

LPL activators as novel therapeutics for AD

Goal: This medicinal chemistry grant aims to develop novel activators for Lipoprotein Lipase (LPL), to perform preliminary feasibility and proof of concept studies.

Role: PI

**KL2TR002534 Bruce (PI) 05/01/2018-04/30/2023**

NIH/NCATS/CCTSI KL2

Targeting microglial Lipoprotein Lipase in neurodegenerative disease

Goal: To explore the effect of the LPL activator NO-1886 on microglial function and AD neuropathogenesis.

Role: Scholar (Appointment: 11/15/2018-11/12/2021)

**R21AG061549 Bruce/Eckel (M-PI) 01/15/2019-11/30/2020**

NIH/NIA

Microglial Lipoprotein Lipase; a novel therapeutic Target for Alzheimer's disease

Goals: To explore the mechanism by which LPL is involved in AD, involving in vitro and in vivo approaches.

Role: Multiple PI Investigator

**CNS-Pilot Grant Eckel and Macklin (PIs) 03/01/2016-03/01/2017**

CCTSI

Lipid metabolism in the Brain during Injury and Repair

Goals: The goal of this project is to understand the role of Lipoprotein lipase during demyelination and remyelination

Role: Co-Investigator

**R21NS102506 Eckel (PI) 02/01/2018-01/31/2020**

NIH/NINDS

Exploring the role of microglial lipoprotein lipase in remyelination and repair

Goals: The goal of this project is to explore the role of microglial lipoprotein lipase in the clearance of myelin-derived lipids and de- and remyelination.

Role: Co-Investigator

**PEER REVIEWED PUBLICATIONS**

I have published 50 articles in peer-reviewed journals and 21 in the last 5 years. *Listed with the most recent first*:

1. Cleland NR, Potter GJ, Buck C, Quang Q, , Oldham D, Neal M, Niemeyer CS, Dobrinskikh, E, **Bruce KD**. Altered Metabolism and DAM-signatures in Female Brains and Microglia with Aging? bioRxiv 2023 Nov 30:2023.11.28.569104. doi: 10.1101/2023.11.28.569104. Preprint. PMID: 38076915
2. Tobeh NS**, Bruce KD.** Emerging Alzheimer’s Disease Therapeutics: Promising Insights from Lipid Metabolism and Microglia-Focused Interventions. Front Aging Neuro. Volume 15 - 2023 | doi: 10.3389/fnagi.2023.1259012
3. Merrill NJ, McDermott JE, Monroe ME, Ludovico ID, Sarkar SS, Van Eldik L, Nelson P, Wilcock D, Swertfeger D, Bruce KD, Davison SW, Melchior JT. Human cerebrospinal fluid contains diverse lipoprotein subspecies important for neurometabolic health. Science Advances. 2023. Sci Adv. 2023 Sep;9(35)
4. Bruce KD and Eckel RH. Can DNA methylation predict the lipid response to dietary intervention? There’s a fat chance. 2023. J Clin Endocrinol Metab. 2023. May 16. doi: 10.1210/clinem/dgad274
5. Eckel RH, Bruce KD. Statins, Gut Microbiome, LDL-C, Glucose Intolerance: Personalized Medicine Timely? Med (N Y). 2022 Jun 10;3(6):355-357
6. Cleland N, Bruce KD. Fatty Acid Sensing in the Brain: The Role of Glia-Neuronal Metabolic Crosstalk and Horizontal Lipid Flux. Biochimie. 2022 Aug 20:S0300-9084(22)00216-4
7. Wang H, Oldham D, Mullen J, Leitzke E, Sprenger K, Reigan P, Eckel RH, Bruce KD. Using synthetic ApoC-II peptides and nAngptl4 fragments to measure Lipoprotein Lipase activity in radiometric and fluorescent assays. Front Cardiovasc Med. 2022 Jul 14;9:926631
8. Lightbourne M, Startzell M , Bruce KD, Brite B , Muniyappa1 R , Monica M, Shamburek R, Gharib AM, Ouwerkerk R, Walter M , Eckel RH, Brown RJ. Inhibition of apolipoprotein C-III increases lipoprotein lipase activity and lowers triglycerides in partial lipodystrophy. J Clin Lipidol. 2022 Nov-Dec;16(6):850-
9. Guttenplan K, Weigel M, Prakash P, Wijwardhane P, Machanda P, Neal M, Bruce KD, Chopra G, Liddelow S, Barres B. Neurotoxic reactive astrocytes induce cell death via saturated lipids. Nature. 2021. Nature. 2021 Nov;599(7883):102-107.
10. Clelend N, Al-Juboori SI, Dobrinskikh E, Bruce KD. Altered Substrate Metabolism in Neurodegenerative disease: New insights from Metabolic Imaging. Journal of Neuroinflammation. 2021. J Neuroinflammation. 2021 Oct 28;18(1):248. ***(Review)***
11. Bruce KD, Yassine, HN, Fonteh AN. Editorial for the Research Topic; Lipid Metabolism and Transport in CNS Health and Disease. Front Physiol. 2021 Oct 13;12:768417. ***(Editorial)***
12. Loving BA, Neal MC, Gorkhali S, Tang M, Murphy R, Eckel RH, Bruce KD. Lipoprotein Lipase regulates Microglial Lipid Droplet Accumulation. Cells. 2021 Jan 20;10(2).
13. Bruce KD, Tang M, Philip Reigan, Eckel RH. Genetic Variants of Lipoprotein Lipase and Regulatory Factors Associated with Alzheimer's Disease Risk. Int J Mol Sci. 2020. Nov 6;21(21):8338. ***(Review)***
14. Joshi M, Kim J, D’Alessandro A, Monk E, Bruce KD, Elajaili H, Nozik-Grayck E, Goodspeed A, Costello JC, Schlaepfer IR. CPT1A Over-Expression Increases Reactive Oxygen Species in the Mitochondria and Promotes Antioxidant Defenses in Prostate Cancer. Cancers. 2020. Nov 18;12(11):3431.
15. Bruce KD, Hong W, Dobrinskikh E, Rudenko I, Goa H, Libby AE, Gorkhali S, Yu T, Zsombok A, Eckel RH. Neuronal Lipoprotein Lipase Deficiency alters Neuronal Function and Hepatic Metabolism. Metabolites. 2020. Sep 28;10(10):385.
16. Coughlan C, Bruce KD, Burgy O, et al. Exosome Isolation by Ultracentrifugation and Precipitation and Techniques for Downstream Analyses. Curr Protoc Cell Biol. 2020;88(1).
17. Loving BA, Bruce KD. Lipid and Lipoprotein Metabolism in Microglia. Front Physiol. 2020;11:393. ***(Review)***
18. Cleal JK\*, Bruce KD\*, Shearer JL, et al. Maternal Obesity during Pregnancy Alters Daily Activity and Feeding Cycles, and Hypothalamic Clock Gene Expression in Adult Male Mouse Offspring. Int J Mol Sci. 2019;20(21):5408.
19. Jonscher KR, Bruce KD. Current Models of Fatty Liver Disease; New Insights, Therapeutic Targets, and Interventions. Adv Exp Med Biol. 2019;1134:33-58. ***(Review)***
20. Bruce KD, Gorkhali G, Given K, Coates AM, Boyle KE, Macklin WB, Eckel RH. Lipoprotein Lipase is a feature of alternatively activated microglia and may facilitate lipid uptake in the CNS during demyelination. Front Mol Neurosci. 2018; 11:57.
21. Bruce KD, Jonscher KR. Assessment of fatty liver in models of disease programming. Methods Mol Biol. 2018;1735:251-266. ***(Review)***
22. Carvalho GB, Drago I, Hoxha S, Yamada R, Mahneva O, Bruce KD, Soto Obando A, Conti B, Ja WW. The 4E-BP growth pathway regulates the effect of ambient temperature on Drosophila metabolism and lifespan. Proc Natl Acad Sci U S A. 2017 Sep 5;114(36):9737-9742.
23. Laperrousaz E, Moullé VS, Denis RG, Kassis N, Berland C, Colsch B, Fioramonti X, Philippe E, Lacombe A, Vanacker C, Butin N, Bruce KD, Wang H, Wang Y, Gao Y, Garcia-Caceres C, Prévot V, Tschöp MH, Eckel RH, Le Stunff H, Luquet S, Magnan C, Cruciani-Guglielmacci C. Lipoprotein lipase in hypothalamus is a key regulator of body weight gain and glucose homeostasis in mice. Diabetologia. Jul;60(7):1314-1324.
24. Bruce KD, Zsombok A, Eckel RH. Lipid Processing in the Brain: A Key Regulator of Systemic Metabolism. Front Endocrinol (Lausanne). 2017 Apr 4;8:60. ***(Review)***
25. Taha DA, Zgair A, Lee JB, de Moor CH, Barrett DA, Bruce KD, Sungelo M, Eckel RH, Gershkovich P. Hyperlipidaemia alone and in combination with acidosis can increase the incidence and severity of statin-induced myotoxicity. Eur J Pharm Sci. 2017 Mar 30;100:163-175.
26. Bruce KD, Szczepankiewicz D, Sihota KK, Ravindraanandan MR, Lillycrop KA, Burdge GC, Hanson MA, Byrne CD, Cagampang FR. Altered cellular redox status, sirtuin abundance and clock gene expression in a mouse model of developmentally primed NASH. BBA Lipids. 2016. Apr 23;1861(7):584-593.
27. Wang H, Taussig MD, DiPatrizio NV, Bruce KD, Piomelli D, Eckel RH. Obesity development in neuron-specific lipoprotein lipase deficient mice is not responsive to increased dietary fat content or change in fat composition. Metabolism. 2016. Jul;65(7):987-97.
28. Yamada R, Deshpande SA, Bruce KD, Mak EM, Ja WW. Drosophila-associated microbes rescue longevity during malnutrition. Cell Reports. 2015: S2211-1247(15)00031-5.
29. Cheong Y, Sadek KH, Bruce KD, Macklon N, Cagampang FR. Diet-induced maternal obesity alters ovarian morphology and gene expression in the adult mouse offspring. Fertil Steril. 2014. Sep;102(3):899-907.
30. Cleal JK, Shepherd JN, Shearer JL, Bruce KD, Cagampang FR. Sensitivity of housekeeping genes in the suprachiasmatic nucleus of the mouse brain to diet and the daily light-dark cycle. Brain Res. 2014. (1575C):72-77.
31. Bruce KD. Maternal and in utero determinants of type 2 diabetes risk in the young. Current Diabetes Reports. 2014. 14(1):446. ***(Review)***
32. Sobey AJ, Townsend NC, Metcalf C, Bruce KD, Fazi FM. Incorporation of Early Career Researchers (ECRs) within multidisciplinary research at academic institutions. Research Evaluation. 2013. 22(3):169-178.
33. Bruce KD, Hoxha H, Carvalho GB, Yamada R, Wang HD, Karaya P, He S, Brummel T, Kapahi P, Ja WW. High carbohydrate-low protein consumption maximizes Drosophila lifespan Exp Gerontol. 2013. 48(10):1129-35.
34. Torrens C, Ethirajan P, Bruce KD, Cagampang FR, Siow RCM, Hanson MA, Byrne CD, Mann GE, & Clough GF. Interaction between maternal and offspring diet to impair vascular function and oxidative balance in high fat fed male mice. PLoS One. 2012. 7(12):e50671.
35. Sadek KH, Cagampang FR, Bruce KD, Macklon N, Cheong Y. Variation in stability of housekeeping genes in healthy and adhesion-related mesothelium. Fertil Steril. 2012. 98(4):1023-7.
36. Szczepankiewicz A, Sobkowiak P, Rachel M, Bręborowicz A, Schoneich N, Bruce KD, Kycler Z, Wojsyk-Banaszak I, Dmitrzak-Węglarz M. Multilocus analysis of candidate genes involved in neurogenic inflammation in pediatric asthma and related phenotypes: a case-control study. J Asthma. 2012. 49(4):329-35.
37. Bruce KD, Sihota KK, Byrne CD, Cagampang FR. The housekeeping gene YWHAZ remains stable in a model of developmentally primed Non Alcoholic Fatty Liver Disease. Liver Int. 2012. 32(8):1315-21.
38. Cagampang FR, Bruce KD. The role of the circadian clock in Nutrition and Metabolism. Br J Nutr. 2012. 8:1-12. ***(Review)***
39. Sadek KH, Cagampang FR, Bruce KD, Shreeve N, Macklon N, Cheong Y. Variation in stability of housekeeping genes in endometrium of healthy and polycystic ovarian syndrome women. Hum Reprod. 2012. 27(1):251-6.
40. Bruce KD, Stokes AJ, Patel NR, Sadek KH, Hanson MA, Byrne CD, Cagampang FR. Identification of Robust Cardiac Reference Genes in a mouse model of Cardiometabolic disease. Journal of Clinical and Experimental cardiology. 2011. [epub November 20, doi:10.4172/2155- 9880.1000161].
41. Bruce KD, Cagampang FR. Epigenetic priming of Metabolic Syndrome. Toxicol Mech Methods. 2011. 21(4):353-61. ***(Review)***
42. Sadek K, Macklon NS, Bruce KD, Cagampang FR, Cheong Y. Hypothesis: Role for the circadian Clock system and sleep in the pathogenesis of adhesions and chronic pelvic pain? Med Hypotheses. 2010. 76(3):453-6. ***(Review)***
43. Bruce KD, Hanson, MA. The developmental origins, mechanisms, and implications of the metabolic syndrome. J Nutr. 2010. 140(3):648-52. ***(Review)***
44. Bruce KD and Byrne CD. The Metabolic Syndrome. In: Horizons in medicine 21. Royal College of Physicians of London. 2009. (CODE: 15118 000(007) ISBN: 9781860163685). ***(Peer-reviewed Book Chapter).***
45. Zhang J , Zhang F, Didelot X, Bruce KD, Cagampang F, Vatish M, Hanson M, Lehnert H, Ceriello A, and Byrne CD. Maternal high fat diet during pregnancy and lactation alters hepatic expression of insulin like growth factor-2 and key microRNAs in the adult offspring. BMC Genomics. 2009. 10:478.
46. Bruce KD, Cagampang FRA, Argenton M, Zhang J, Poston L, Hanson MA, Mcconnell J, and Byrne CD. Maternal exposure to a high fat diet pre-disposes NAFLD disease progression by reducing hepatic mitochondrial complex activity and modulating hepatic gene expression. Hepatology. 2009. 50(6):1796-808.
47. Bruce KD and Byrne CD. The Metabolic syndrome; Common Origins of a multifactorial disorder. Postgrad Med J. 2009. 85(1009):614-21. ***(Review)***
48. Byrne CD, Olufadi R, Bruce KD, Cagampang F, Ahmed MH. Metabolic disturbances in non-alcoholic-fatty-liver-disease (NAFLD). Clin Sci. 2009. 116:539-64. ***(Review)***
49. Myers FA, Lefevre P, Mantouvalou E, Bruce KD, Lacroix C, Bonifer C, Thorne AW, Crane-Robinson C. Developmental activation of the lysozyme gene in chicken macrophage cells is linked to core histone acetylation at its enhancer elements. Nucleic Acids Res. 2006. 34:4025-35.
50. Bruce KD, Myers FA, Mantouvalou E, Lefevre P, Greaves I, Bonifer C, Tremethick DJ, Thorne AW, Crane-Robinson C. The replacement histone H2A.Z in a hyperacetylated form is a feature of active genes in the chicken. Nucleic Acids Res. 2005. 33:5633-9.

**CONFERENCE ABSTRACTS**

1. Guerrero, L., Potter, G.J., Oldham, D., Tobeh, N.S., Cleland, N.R., Bruce, K.D. *Glut5’s Role in Microglia Metabolism and Function*. SACNAS National Diversity in STEM Conference, Portland, Oregon, United States (Poster presentation, October 2023).
2. Lietzke E, Bruce KD, Sprenger K. Determination of the lipidated structure of ApoE through various in silico methods. (AIChE, 2023).
3. Lietzke E, Bruce KD, Sprenger K. Elucidating the role of TREM2/ApoE interactions in microglial activation and Alzheimer’s disease with molecular simulations. (AIChE, 2023).
4. Potter G, Oldham D, Lietzke E, Neal M, Tamg, M, Sprenger K, Bruce KD. Microglial lipoprotein Lipase is Trem2 Dependant. (Poster Presentation, Advancements in ApoE, AAIC, 2023, St Louis).
5. Lietzke E, Tang M, Aldrich E, Sprenger K, Bruce KD. Microglial LPL Activity is inhibited by ApoE4. Poster Presentation, Advancements in ApoE, AAIC, 2023, St Louis).
6. Lietzke E, Bruce KD, Sprenger K. Molecular simulations of activating and inhibitory protein interactions in triglyceride-rich lipoprotein metabolism. (Poster Presentation, AIChE, 2022).
7. Lietzke E, Bruce KD, Sprenger K. Molecular simulations of protein/ligand-mediated microglial activation in Alzheimer’s Disease. (Oral Presentation, AIChE, 2022).
8. Cleland N, Buck C, Griffin K, Neal M, Oldham D, Bruce KD. Sex differences in microglial metabolism and function (Poster Presentation, Ludeman Centre for Women’s Health, Sex differences Across the lifespan: A focus on Metabolism, 2022).
9. Bruce KD. Targeting Lipoprotein Lipase in Neurodegenerative disease. (Session Chair and Speaker - AAIC22, “ApoE and AD”, San Diego, CA, 2022).
10. Lightbourne M, Brite B, Startzell MS, Bruce KD, Eckel RH, Brown RJ. Volanesorsen, an Antisense Oligonucleotide to Apolipoprotein-CIII, Decreases Triglycerides and Increases Lipoprotein Lipase Activity in Partial Lipodystrophy. May 2021Journal of the Endocrine Society 5(Supplement\_1):A305-A305 Follow journal. DOI: 10.1210/jendso/bvab048.621 (Poster Presentation at the Endocrine Society, 2021).
11. Loving BA, Neal MC, Gorkhali S, Tang M, Eckel RH. The Role of Lipoprotein Lipase in Microglial Lipid Droplet Accumulation. (Poster Presentation at the Lipid Droplet FASEB 2020, online).
12. Cleland N, Neal C, Tang M, Dobrinskikh, ED, Bruce KD. Developing Flim As A Novel Method To Probe Microglial Metabolism *In Situ.* (Oral Presentation at the University of Colorado Student Capstone Conference, Carmel, 2020).
13. Neal M, Bruce KD, Gorkhali S, Given K, Macklin WB, Eckel RH. Lipoprotein Lipase as a Feature of Reparative Microglia in Multiple Sclerosis. (Poster presentation, Front range Neuroscience Group, 2019).
14. Bruce KD, Sachi S, Eckel RH. Lipoprotein Lipase as a Novel target for Neurodegenerative Disease (Poster presentation at the University of Colorado School of Medicine Research Day 2019).
15. Bruce KD, Gorkhali G, Given K, Coates AM, Boyle KE, Macklin WB, Eckel RH. Lipoprotein Lipase is a feature of alternatively activated microglia and may facilitate lipid uptake in the CNS during demyelination. (Poster presentation at Keystone Neuroinflammation conference, Keystone, 2018).
16. B Loving, KD Bruce, Gorkhali, S, Eckel RH. Lipoprotein Lipase: Exploring a novel microglial phenotype that supports remyelination in the CNS. (Poster presentation, University of Colorado School of Medicine Student Research Forum, 2017).
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18. BruceKD, WangH, YuT, GaoH, LibbyAE, ZsombokA, Eckel RH. Neuron-specific Lipoprotein Lipase Deficiency Leads to Improved Glucose Tolerance Despite Obesity (Poster presentation at ADA, New Orleans, 2016).
19. Bruce KD. Offspring of mothers on a high fat diet show altered circadian biology and fatty liver (Invited Oral Presentation at IUPS, Birmingham, UK, 2013).
20. Hoxha S, Bruce KD, Ja WW. Nutritional priming modulates *Drosophila* lifespan (Poster presentation at The Molecular Basis of Metabolism and Nutrition, Miami, USA 2013).
21. Bruce KD, Sadek KH, Macklon N, Cagampang FR, Cheong YC. Variation in stability of housekeeping genes in healthy and adhesion-related mesothelium. (Poster presentation at ESHRE, Istanbul, 2012).
22. Ravindraanandan M, Byrne CD, Cagampang FR, Bruce KD. The developmental priming of severe fatty liver disease involves alterations in core clock gene and mitochondrial Sirtuin gene expression (Poster presentation at Physiology Society, Edinburgh 2012).
23. Gunasekera S, Bruce KD, Hanson MA, Byrne CD, Cagampang FR. Maternal high fat diet disrupts circadian rhythms in the adult mouse offspring heart and induces cardiac hypertrophy. (Poster presentation at Physiology Society, Edinburgh 2012).
24. Robins SP, Cleal JK, Bruce KD, Cagampang FR, Lewis RM. A maternal high fat diet dysregulates expression of clock related and amino acid transporter genes in the mouse placenta (Poster presentation at Physiology Society, Edinburgh, 2012).
25. Bruce KD, Sihota KK, Hanson MA, Byrne CD, Cagampang FR. The developmental priming of fatty liver disease involves SIRT1 reduction, clock gene misalignment, and lipogenic transcription factor up-regulation. (Oral Presentation, and prize recipient at DOHaD, Portland Oregon, US, 2011).
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30. Sihota KK, Bruce KD, Hanson MA, Byrne CD, Cagampang FR. The role of clock genes and the clock controlled metabolic genes in the developmental priming of fatty liver disease. (Poster presentation at Physiology Society, Cambridge, 2011).
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**OUTREACH AND IMPACT**

2005-2006 Researcher in Residence. Teaching the importance of scientific research in high schools. BBSRC, UK.

2007-2012 “Lifelab” Instructor. Teaching young adults, the importance of nutrition at critical times in development. Southampton, UK.

2008-2010 Understanding Animal Research (UAR) instructor. Presentations and lectures at local schools and colleges highlighting the importance and regulations surrounding the use of animals in medical science. Southampton, UK.

2012-2015 CELLebrate Science demonstrator. Presenting research and science to the local community in south Florida.

2019- Rare Disease Advocacy.