Domenico Sergi BSc, MSc, PhD Human Nutrition

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Research interests

I am an enthusiastic, ambitious, highly self-motivated and fast learning molecular nutrition scientist with a genuine interest in the molecular mechanisms underpinning the effect of nutritional interventions on the development of obesity, type 2 diabetes mellitus, neurodegenerative disease, immunometabolism and aging. I currently hold a tenure-track position as an Assistant Professor in Nutrition and Dietetics at University of Ferrara (Italy). At present, my research focuses on evaluating the impact and the potential mechanisms of action of nutrient, bioactive molecules and dietary patterns on cardio-metabolic health, with a particular focus on obesity and type 2 diabetes.

Education

October 2012-November 2016

PhD in Human Nutrition at the University of Aberdeen, Rowett Institute of Nutrition and Health (RINH Aberdeen, Scotland, UK)

Awarded a 4 year fully funded PhD studentship to investigate the patho-physiological role of dietary nutrients, particularly long-chain saturated fatty acids, on hypothalamic inflammation and the pathogenesis of obesity as well as metabolic dysfunctions and to decode the signalling and the function of a G protein-coupled receptor putatively involved in metabolic health (PhD defended on the 17th November 2016).

- Investigated the molecular mechanisms underpinning long-chain saturated fatty acid-induced upregulation of pro-inflammatory cytokines in cultured hypothalamic neurons and primary hypothalamic cultures and how this could be prevented by modulating fatty acid metabolism
- Demonstrated and marked students' reports for undergraduate laboratory practicals
- Supervised both an undergraduate as well as a postgraduate student
- Collaborated with researchers in New Zealand, Canada and Australia
- Presented my research both nationally (Scotland) and internationally (New Zealand, China)

PhD thesis title: **"Hypothalamic energy balance: the impact of fatty acids and a novel G protein-coupled receptor"**

Supervisors: Prof. Lynda M. Williams, Dr Janice Drew, Dr Iain Greig, Dr James Hislop

January 2014

Eligible to work as a registered Nutritionist in Italy. Final exam to obtain full qualification undertaken and passed at University of Calabria (Arcavacata di Rende (CS) Italy)

October 2010 – September 2012

MSc in Science of Nutrition. Final result: 110/110 cum laude (First-class)

University of Calabria (Arcavacata di Rende (CS) Italy)

Thesis title: "Does inflammation due to high-fat feeding precede non-alcoholic fatty liver disease (NAFLD) development?" **Thesis project carried out at the Rowett Institute of Nutrition and Health (University of Aberdeen, Scotland UK)**

October 2007-September 2010

BSc in Science of Nutrition. Final result: 110/110 cum laude (First-class)

University of Calabria (Arcavacata di Rende (CS) Italy)

Thesis title: "Tea antioxidants"

- Fields of study covered include: nutrient digestion, absorption and metabolism; effect of nutrients on health with particular focus on metabolic diseases; sport nutrition; nutrition in relation to

different physiological states; biochemistry; nutritional biochemistry; anatomy; biology; food formulations; organic and inorganic chemistry; food chemistry; endocrinology; physiology; microbiology

Professional affiliations, past and present

- Nutrition Society of Australia
- Nutrition Society (UK)

Work experience

01 July 2021

Assistant Professor in Nutrition and Dietetics in the Department of Translational Medicine at the University of Ferrara (Italy).

After many years abroad, I was successful in obtaining a tenure-track position in my home country (Italy). This is a research and teaching-based position which will allow me to carry out both clinical and basic research in the filed of nutrition and metabolic health as well as teach a variety of nutrition-related subjects to students enrolled in the degree in dietetics.

February 2021-June 2021

"Professeur régulier" in Nutrition and Metabolism in the Department of Medical Biology at the University of Quebec a Trois-Rivieres (Canada)

I obtained a tenure-track position in Canada which I had to terminate to move back to my home country.

10 February-28 March 2020

Visiting Scientist at in the Department of Medical Biology at the University of Quebec a Trois-Rivieres (Canada)

I have been invited to spend 6 weeks in the lab of Professor Maria Grazia Martinoli to investigate the effect of diabetic hyperglycemia on central nervous system neuronal mitochondria. Furthermore, I worked on a project aimed at investigating the pro- or anti-inflammatory effects of fatty acids on a microglia cell line and the impact of fatty acid-induced microglial activation on dopaminergic neurons using an in vitro co-culture system.

July 2018-Present

Affiliate Lecturer at University of Adelaide, Adelaide Medical School, Faculty of Health and Medical Sciences (Adelaide, South Australia) https://researchers.adelaide.edu.au/profile/domenico.sergi

Main activities and responsibilities:

- Collaborate with the University of Adelaide on a project looking at the effect of nutrients and food bioactive derivatives on human skeletal muscle mitochondrial function, pathways involved in energy metabolism and mitochondrial biogenesis (i.e. AMPK, PGC1α) and insulin sensitivity
- Supervise undergraduate and postgraduate student research projects.
    - Student projects supervised to date:
    1. "The impact of short-chain fatty acids on skeletal muscle mitochondrial function and insulin sensitivity" (Undergraduate)
    2. "In Vitro fermentative capacity and baseline difference of faecal microbiota between sedentary and active elderly individuals: a pilot study" (Postgraduate).
    3. "Ethical implication in research involving human samples" / "The role of acetate on insulin signaling and mitochondrial markers in human primary myotubes" (Undegraduate).

September 2017- September 2020
Postdoctoral research fellow at CSIRO Nutrition and Health Substantiation group, Nutrition and Health program, Health and Biosecurity (South Australian Health and Medical Research Institute, Adelaide, South Australia)

- Awarded a three-year fellowship to carry out research focusing on the molecular mechanisms underpinning insulin resistance and impaired energy metabolism in skeletal muscle

Main activities and responsibilities:

- Investigate novel approaches in nutrition for health and evaluate the effect of nutrients and dietary patterns on metabolic health at the molecular level focusing on pathways which have been shown to be pivotal in both energy metabolism and insulin sensitivity
- Secured $120.000 from the CSIRO Future Science Platform (Precision Health) and established a new research line aimed at investigating the molecular mechanisms and the molecular mediators linking mitochondrial dysfunction, impaired oxidative metabolism, inflammatory responses and lipotoxicity with skeletal muscle insulin resistance
- Established a human skeletal muscle cell model as a physiologically relevant model to investigate the effect of nutrients and food bioactive derivatives on molecular pathways known to be pivotal in modulating mitochondrial function, biogenesis and insulin sensitivity
- Established collaborations with international experts in the filed mitochondrial biology from Italy and the UK
- Contributed, as a co-investigator, to projects looking at the effect of diet and specific dietary constituents, such as lipids, on metabolic health, low-grade chronic inflammation, insulin sensitivity and adiposity in both humans as well as rodents
- Contributed to the CSIRO Healthy Gut Diet Book
- Supervised both undergraduate and postgraduate students
- Continued collaborating with Professor Maria Grazia Martinoli (Université du Quebéc à Trois-Rivières) and will be spending 6 weeks in Professor Martinoli's lab in 2020 to work on a project aimed at investigating the role of diabetic hyperglycemia on neuronal mitochondrial electron transport chain complexes and dynamics and their implication in the pathogenesis of Parkinson's Disease
- Served as an external thesis examiner for a student enrolled in a bachelor's degree in human nutrition (Honours) at University of Canberra.

June 2017- June 2017
Laboratory skills assessor at University of Maastricht (Maastricht, The Netherlands)
Main activities and responsibilities:

- Assessment and supervision of biomedical sciences students while performing their practical exams involving the determination of either glucose or protein concentration in test samples with physiologically relevant concentrations of these analytes.

April 2017- May 2017
Visiting scientist at University of Stockholm (Stockholm, Sweden)
Main activities and responsibilities:

- Investigated the effect of different pharmacological compounds on glucose uptake by human primary myotubes and muscle cell lines in order to identify and validate new putative drugs for the treatment of type 2 diabetes.

February 2017- July 2017
Postdoctoral researcher at University of Maastricht, Department Human Biology-Movement Sciences, Faculty of Health, Medicine and Life Sciences (Maastricht, The Netherlands)
Main activities and responsibilities:

- Investigated the effect of different pharmacological compounds on insulin sensitivity, glucose uptake, substrate metabolism and mitochondrial function in human primary myotubes
- Analysed neutral lipid and glycogen content in mouse liver and skeletal muscle tissues, respectively. Samples were obtained from mice fed a high-fat diet supplemented with or without a pharmacological compound hypothesised to ameliorate glucose and lipid metabolism and counteract the deleterious effects of a high-fat diet on metabolic health.

November 2013 - November 2015
Laboratory Demonstrator at University of Aberdeen (UK)
Main activities and responsibilities:

- Demonstrated and marked students' reports for two undergraduate laboratory practicals: genes and evolution and energy for life.

Placements

March 2012 - June 2012
Trainee (Erasmus Placement) at Rowett Institute of Nutrition and Health (University of Aberdeen)
Awarded a competitive Erasmus studentship (Erasmus placement) to carry out a research project abroad.
Main activities and responsibilities:

- Investigated the development of non-alcoholic fatty liver disease (NAFLD) and macrophage recruitment into white adipose tissue in a mouse model of high-fat diet-induced obesity
- Performed image analysis of *in situ* hybridization experiments looking at the effect of inflammation on the hypothalamic expression of genes involved in the regulation of energy homeostasis, including Neuropeptide Y (NPY) and Proopiomelanocortin (POMC).

Supervisor: Prof. Lynda M. Williams

October 2011 - February 2012
Trainee (Nutritionist) at Annunziata Hospital of Cosenza (CS) Italy
Main activities and responsibilities:

- Assessed patients' nutritional status in a gastroenterology unit and put in place nutritional interventions in order to prevent malnutrition.

March 2010 - June 2010
Trainee (Nutritionist) at Civil Hospital of Locri (RC) Italy
Main activities and responsibilities:

- Evaluated dietary requirements of intensive care unit patients and planned their diet to meet energy and nutrients needs.

Conferences and symposia activities

July 2014
Local helper for the Nutrition Society

- Helped coordinate venue setup and provided assistance to the delegates at the Nutrition Society summer meeting 2014 in Glasgow: "Carbohydrates in health: friends or foes".

June 2016
Chair and judge at the University of Aberdeen

- Chaired the postgraduate student research symposium and judged student's oral presentations.

November 2017
Chair at the 10th Asia Pacific Conference on Clinical Nutrition (Adelaide)

- Chaired concurrent session 9: cardiovascular nutrition, at the 10th Asia Pacific Conference on Clinical Nutrition.

February 2021
Judge at Quebec Society For Lipid, Nutrition And Metabolism 2021 Scientific meeting

- I judged the posters of the students competing for the best presentation at the meeting.

Publications

Peer reviewed papers

1. **D. Sergi**, N. Luscombe-Marsh, N. Naumovski, M. Abeywardena, N. O'Callaghan. Palmitic, but not lauric acid, induces metabolic inflammation, mitochondrial fragmentation and a drop in mitochondrial membrane potential in human primary myotubes. **Frontiers in Nutrition.** DOI: fnut.2021.663838. **Journal impact factor: 6.576.**

2. N. Naumovski, **D. Sergi.** Editorial: Food Bioactives: Impact on Brain and Cardiometabolic Health – Findings from In Vitro to Human Studies. **Foods (MDPI).** DOI: foods10051045. **Journal impact factor: 4.350.**

3. **D. Sergi**, A. Gélinas, J. Beaulieu, J. Renaud, E. Tardif-Pellerin, J. Guillard, M.-G. Martinoli. Anti-Apoptotic and Anti-Inflammatory Role of Trans ε-Viniferin in a Neuron–Glia Co-Culture Cellular Model of Parkinson's Disease. **Foods (MDPI)**, DOI: 10.3390/foods9030371. **Journal Impact factor: 4.350.**

4. J. Beaulieu, G. Costa, J. Renaud, A. Moitie, H. Glemet, D. Sergi, M.-G. Martinoli. The neuroinflammatory and neurotoxic potential of palmitic acid is mitigated by oleic acid in microglial cells and microglial-neuronal co-cultures. **Molecular Neurobiology.** DOI: 10.1007/s12035-021-02328-7. **Journal Impact factor: 4.5.**

5. W. Stonehouse, **D. Sergi**, B. Benassi-Evans, G. James-Martin, N. Johnson, C. Thompson, M. Abeywardena. Eucaloric diets enriched in palm olein, cocoa butter, and soybean oil did not differentially affect liver fat concentration in healthy participants: a 16-week randomized controlled trial. **The American Journal of Clinical Nutrition.** DOI: 10.1093/ajcn/nqaa347**. Journal Impact factor: 6.766.**

6. **D. Sergi**, Natalie Luscombe-Marsh, L. K. Heilbronn, Nenad Naumovski, Christopher Proud, Mark Birch-Machin, M. Abeywardena, N. O'Callaghan. The inhibition of metabolic inflammation by eicosapentaenoic acid is associated with enhanced mitochondrial fusion and insulin signaling in human primary myotubes. **Accepted in the Journal of Nutrition. Journal Impact factor: 4.281.**

7. **D. Sergi**, H. Boulestin, F. M. Campbell, Lynda M. Williams. The Role of Dietary Advanced Glycation End Products (AGEs) in Metabolic Dysfunction. **Molecular Nutrition and Food Research**, DOI: 10.1002/mnfr.201900934. **Journal Impact factor: 4.653.**

8. J. Williams, A. J. McKune, E. N. Georgousopoulou, J. Kellett, N. M. D'Cunha, **D. Sergi**, D. Mellor and Nenad Naumovski. The Effect of L-Theanine Incorporated in a Functional Food Product (Mango Sorbet) on Physiological Responses in Healthy Males: A Pilot Randomised Controlled Trial. **Foods (MDPI)**, DOI: 10.1002/mnfr.201900934. **Journal Impact factor: 4.350.**

9. J. M. Everett, J. Williams, N. M. D'Cunha, **D. Sergi**, E. N Georgousopoulou, R. Keegan, A. J. McKune, D. D. Mellor, N. Anstice, N. Naumovski (2019). The effects of green tea amino acid L-theanine consumption on stress and anxiety levels: a systematic review. **Plant Foods for Human Nutrition**, DOI: 10.1007/s11130-019-00771-5. **Journal Impact factor: 2.59.**

10. H. Speer, N. M. D'Cunha, M. Botek, A. J. McKune, **D. Sergi**, E. Georgousopoulou, D. D. Mellor, N. Naumovski (2019). The effects of dietary polyphenols on iron status and CVD risk markers: a systematic review. **Nutrition and Metabolic Insights**, DOI: 10.1177/1178638819882739. **Journal Impact factor: 2.44.**

11. **D. Sergi**, J. Renaud, N. Simola and M.-G. Martinoli (2019). Diabetes, a contemporary risk for Parkinson's disease: epidemiological and cellular evidences. **Frontiers in Aging Neuroscience**, DOI: 10.3389/fnagi.2019.00302. **Journal Impact factor: 3.63.**

12. F. H. McLean, R. F. Langston, **D. Sergi**, C. Grant, A. C. Morris, E. A. Hay, A. Polanski, A. MacKenzie, F. M. Campbell, L. M. Williams (2019). Early and reversible changes to the hippocampal proteome in mice on a high-fat diet. **Nutrition and Metabolism**, DOI: 10.1186/s12986-019-0387-y. **Journal Impact factor: 3.59**

13. **D. Sergi**, L. M. Williams (2019). Potential association between dietary long-chain saturated fatty acids and hypothalamic dysfunction in obesity. **Nutrition Reviews**, DOI: 10.1093/nutrit/nuz056. **Journal Impact factor: 5.78.**

14. **D. Sergi,** N. Naumovski, L. K. Heilbronn, N. O'Callaghan, M. Abeywardena, L. Lionetti, N. Luscombe-Marsh (2019). Mitochondrial (dys)function and insulin resistance: from pathophysiological molecular mechanisms to the impact of diet. **Frontiers in Physiology**, DOI: 10.3389/fphys.2019.00532 . **Journal Impact factor: 3.39.**

15. F. H. McLean, F. M. Campbell, R. Langston, **D. Sergi**, C. Resch, C. Grant, A. C. Morris, C. D. Mayer, L. M. Williams. A high-fat diet induces rapid changes in the mouse hypothalamic proteome (2019). **Nutrition and Metabolism**, DOI: 10.1186/s12986-019-0352-9. **Journal Impact factor: 3.48.**

16. C. Muniale, N. Naumovski, **D. Sergi**, D. Stewart, D. Mellor (2019). Critical evaluation of the extrapolation of data relative to antioxidant function from the lab and their implications on food production and human health. A Review. **International Journal of Food Science and Technology**, DOI:10.1111/ijfs.14135. **Journal Impact factor: 2.38**

17. J. Williams, **D. Sergi**, A. McKune, E. Georgousopoulou, D. Mellor, N. Naumovski (2019). The beneficial health effects of green tea amino acid L-Theanine in animal models; promises and prospects for human trials. **Phytotherapy Research**, DOI: 10.1002/ptr.6277. **Journal Impact factor: 3.34.**

18. **D. Sergi**, F. M. Campbell, C. Grant, , A. C. Morris, E. M. Bachmair, C. Koch, F. H. McLean, A. Muller, N. Hoggard, B. de Roos, B. Porteiro, M. V. Boekschoten, F. C. McGillicuddy, D. Kahn, P. Nicol, J. Benzler, C. D. Mayer, J. Drew, H. M. Roche, M. Muller, R. Nogueiras, C.Dieguez, A. Tups, L. M. Williams (2018). SerpinA3N is a novel hypothalamic gene upregulated by a high-fat diet and leptin. **Genes and Nutrition**, DOI: 10.1186/s12263-018-0619-1. **Journal Impact Factor: 3.21.**

19. **D. Sergi**, A. C. Morris, D. E. Kahn, F. H. McLean, P. Kubitz, M.G. Martinoli, J. E. Drew and L. M. Williams (2018). Palmitic acid triggers inflammatory responses in hypothalamic neurons partially via ceramide synthesis but not via TLR4. **Nutritional Neuroscience**, DOI: 10.1080/1028415X.2018.1501533. **Journal Impact Factor: 3.31.**

20. A. Tups, J. Benzler, **D. Sergi**, S. Ladyman, L. M. Williams (2017). Central regulation of glucose homeostasis. **Comprehensive Physiology**, DOI: 10.1002/cphy.c160015. **Journal Impact Factor: 5.79.**

21. **D. Sergi**, D. E. Kahn, A. C. Morris, and L. M. Williams (2016). Palmitic acid induces inflammation in hypothalamic neurons via ceramide synthesis. **Proceedings of the Nutrition Society**, DOI: 10.1017/S0029665116000367. **Peer-reviewed conference proceedings. Journal Impact Factor: 5.34.**

22. **D. Sergi**, A. C. Morris, J. E. Drew, F. M. Campbell, P. Nicol and L. M. Williams (2015). A novel hypothalamic protein regulated by high fat diet and leptin. **Proceedings of the Nutrition Society**, DOI: 10.1017/S0029665115002165. **Peer-reviewed conference proceedings. Journal Impact Factor: 5.34.**

23. F.C. McGillicuddy, C.M. Reynolds, O. Finucane, E. Coleman, K.A. Harford, C. Grant, **D. Sergi**, L.M. Williams, K.H. Mills, H.M. Roche (2013). Long-term exposure to a high-fat diet results in the development of glucose intolerance and insulin resistance in interleukin-1 receptor I-deficient mice. **American Journal of Physiology Endocrinology and Metabolism**, DOI: 10.1152/ajpendo.00297.2013. **Journal Impact factor: 4.01.**

Contribution to books and book chapters

1. S. Grantham-McGregor, S. Osendarp, **D. Sergi**, L. M. Williams (2017). Nutrition and the nervous system. Human Nutrition thirteenth edition, Oxford University press, Chapter 24: 472-493. ISBN: 9780198768029

2. Contributor on the CSIRO Healthy Gut Diet Book. Imprint: Macmillan Australia. ISBN: 9781925481501.

Conference abstracts

1. **D. Sergi**, N. Luscombe-Marsh, N. Naumovski, M. Abeywardena, N. O'Callaghan. Palmitic and Lauric acid differently modulated skeletal muscle mitochondrial dynamics, membrane potential and metabolic inflammation in human primary myotubes. Abstract presented at Nutrition Society of Australia Virtual Conference 2020. Abstract presented virtually, due to the Covid-19 pandemic.

2. **D. Sergi**, N. Luscombe-Marsh, L. K. Heilbronn, M. Birch-Machin, C. Proud, M. Abeywardena, N. O'Callaghan. Eicosapentaenoic Acid-Induced Inhibition of Metabolic Inflammation Is Associated with Preserved Mitochondrial Function and Insulin Sensitivity in Human Primary Myotubes. Abstract presented at Nutrition 2020. Abstract presented virtually, due to the Covid-19 pandemic.

3. W. Stonehouse, **D. Sergi**, B. Benassi-Evans, G. James-Martin, N. Johnson, C. Thompson, M. Abeywardena. Effects of diets high in palm olein, soybean oil, and cocoa butter on traditional and emerging lipid markers of cardiovascular disease risk. Abstract presented by W. Stonehouse at the World Congress on Oils & Fats & ISF Lectureship Series, 9 - 12 February 2020, Sydney, Australia **(Oral).**

4. J. Williams, N. D'Cunha, **D. Sergi**, J. Kellett, D. Mellor, E. Georgousopoulou, A. McKune, N. Naumovski. The Physiological effects of L-Theanine Incorporated in a Functional Food Product (Mango Sorbet) Consumption in Males: A Pilot Randomised Controlled Trial. Abstract presented by J. Williams at the **Annual Scientific Meeting of the Nutrition Society of Australia**, Novembre 2019, Newcastle **(Poster)**.

5. **D. Sergi**, M. François, M. Abeywardena, L. K. Heilbronn, N. O'Callaghan, N. Luscombe-Marsh. The impact of palmitic acid on human skeletal muscle mitochondria and insulin signalling in response to hyperglycaemia-induced inhibition of mitochondrial respiration: the importance of AMPK signaling. Abstract presented at **ASMR SA Annual Scientific Meeting,** 5 June 2019, Adelaide. **(Oral presentation)**.

6. H. Speer, S. Cottin, M Botek, **D. Sergi**, A. McKeune, E. Georgousopoulou, D. D. Mellor, N. Naumovski. The effects of dietary polyphenols on iron status and CVD risk markers – a systematic review. Abstract presented by H. Speer at the **Annual Scientific Meeting of the Nutrition Society of Australia**, November 2018, Canberra **(Poster)**.

7. **D. Sergi**, N. Naumovski, N. Luscombe-Marsh, L. Heilbronn, N. O'Callaghan, M. Abeywardena. An in vitro approach to identify novel dietary constituents able to boost mitochondrial function and improve skeletal muscle insulin sensitivity. Abstract presented at **NuGo week**, Mitochondria, Nutrition and Health, September 2018, Newcastle (UK). **(Poster)**.

8. **D.Sergi**, P. Kubitz, A. Morris, L.M. Williams. Eicosapentaenoic acid and oleic acid protect cultured hypothalamic neurons against palmitic acid-induced lipotoxicity via separate mechanisms. Abstract presented at the **10th Asia Pacific Conference on Clinical Nutrition,** 26-29 November 2017, Adelaide. **(Poster)**.

9. P. Kubitz, **D. Sergi**, L.M. Williams. EPA promotes mitochondrial fusion in cultured mHypoE-N42 hypothalamic neurons. Abstract presented by P. Kubitz at the **Healthy Ageing Conference,** 16 March 2017, Hochschule Fulda (Germany) **(Poster)**.

10. **D. Sergi**, L.M. Williams, J. Thomas, D.D. Mellor, N. Naumovski. The effects of L-theanine and EGCG on palmitic acid-induced inflammation in mouse hypothalamic neuronal cell lines (mHypoE-N42). Abstract presented by N. Naumovski at the **Nutrition Society of Australia 2016 Annual Scientific Meeting**, 29 November 2016, Melbourne **(Poster)**.

11. **D. Sergi**, L. M. Williams. Mechanism linking dietary long-chain saturated fatty acids and hypothalamic inflammation. Abstract presented at the International Student Research Forum 2016, **University of Chinese Academy of Sciences**, June 2016, Beijing (China). **(Oral presentation)**.

12. **D. Sergi**, D. E. Kahn, A. C. Morris, and L. M. Williams. Palmitic acid induces inflammation in hypothalamic neurons via ceramide synthesis. Proceedings of the Nutrition Society, 75, E46 DOI: http://dx.doi.org/10.1017/S0029665116000367. **(Peer-reviewed conference proceedings) (Oral presentation)**.

13. L. Williams, D. E. Kahn, **D. Sergi**, J. E. Drew. The effect of different fatty acids on markers of inflammation in hypothalamic neurons. Abstract presented at the **Joint Annual Scientific Meeting of the Nutrition Society of NZ and the Nutrition Society of Australia**, December 2015, Wellington (New Zealand). **(Oral presentation)**.

14. **D. Sergi**, A. C. Morris, M. G. Martinoli, L. Williams. High-fat diet promotes inflammation via two separate mechanisms in hypothalamic neurons and microglia. Abstract presented at the **Joint Annual Scientific Meeting of the Nutrition Society of NZ and the Nutrition Society of Australia**, December 2015, Wellington (New Zealand). **(Poster)**.

15. **D. Sergi**, A. C. Morris, J. E. Drew, F. M. Campbell, P. Nicol and L. M. Williams (2015). A novel hypothalamic protein regulated by high fat diet and leptin. Proceedings of the Nutrition Society, 74, E190 DOI:

http://dx.doi.org/10.1017/S0029665115002165. **(Peer-reviewed conference proceedings) (Oral presentation)**.

16. **D. Sergi**, J. Hislop, I.R. Greig, J. Drew, and L. M. Williams. Do LTC4 or UDP-galactose activate GPR17? (SULSA RESEARCH SYMPOSIUM Optical Imaging of Cells: From Single Molecules to Organelles; Royal College of Physicians, September 2014, Edinburgh (Scotland). **(Poster)**.

Awards

- **Erasmus Placement studentship (2012)**
  - Awarded a 3-month Erasmus Placement studentship **(Euros 1.500)** from the University of Calabria to carry out my Master's thesis project at the Rowett Institute of Nutrition and Health (University of Aberdeen)
- **Obtained a four-year fully funded PhD scholarship, £100.097.** PhD funded by MSD/SULSA and the University of Aberdeen

- Awarded two travel grants to attend a conference in New Zealand in 2015
  - **Principal's Excellence Fund**, £500 (Univeristy of Aberdeen)
  - **International conference travel fund**, £500 (British Society of Neuroendocrinology)

- **University of Aberdeen representative at the International Student Research Forum 2016**
  - Selected as one of ten PhD students to represent the University of Aberdeen at the International Student Research Forum 2016 held at the University of Chinese Academy of Sciences (Beijing) where I also presented some of the data collected throughout my PhD. Presentation title: "Mechanism linking dietary long-chain saturated fatty acids and hypothalamic inflammation". The Forum was organised to attract the world's brightest upcoming scientists, brought together from some of the world's most prestigious institutions, to discuss their research.

Grants

- **Emerging mitochondrial targets in metabolic diseases ($120.000): Project leader**
  Project funded by CSIRO, Future Science Platform, Precision Health.

- **Nuts as a novel prebiotic: can they target the gut microbiota to improve metabolic health? (Euros 258.000): Co-investigator**
  Project shortlisted by the INC International Nut and Dried Fruit Council Foundation. Full application submitted. Call suspended due to COVID-19 pandemic.

Laboratory skills

- Enzyme-linked immunosorbent assay (ELISA)
- Investigation of G protein-coupled receptor internalisation and signalling
- Immunocytochemistry
- Cell cultures: HEK293, 1321N1 (human cell lines); Human primary myoblasts and differentiated myotubes; N42, A-2/30 (mouse hypothalamic cell lines), N9 (mouse microglia cell line); L6 (rat myoblast cell line) and primary hypothalamic cultures (rat primary hypothalamic cultures)
- Lipid extraction (Bligh and Dyer)

- Western blot
- Oil red O staining
- Mitochondria staining and assessment of mitochondria dynamics (fusion and fission) by image analysis
- Transient transfection of mammalian cells
- DNA cloning, primers design, restriction enzyme digestion, DNA ligation and bacterial transformation
- RNA extraction, cDNA synthesis, real-time and conventional PCR
- Light and fluorescence microscopy
- Hypothalamic dissection from rat brain
- Mice handling and assessment of body composition via EchoMRI
- Assessment of glycogen content in rodent and human tissues
- [3H] 2-Deoxy-D-glucose uptake in L6 cells and human primary myotubes
- Assessment of mitochondrial respiration in human primary myotubes using a high-throughput screening assay
- Fluorescence and luminescence plate reader-based assays

Skills in clinical nutrition

During both my undergraduate and postgraduate degrees as well as my placements, I acquired the following skills in clinical nutrition:

- Nutritional intervention aimed at preventing malnutrition in hospitalised patients
- Nutritional treatment for pathological condition affecting the gastrointestinal tract and liver
- Nutritional treatment for diabetes and dyslipidemia
- Nutritional intervention for the prevention and treatment of obesity
- Dietary recommendations to modulate body weight and composition
- Dietary recommendations during pregnancy and breastfeeding
- Nutritional treatment for celiac disease
- Design of clinical and preclinical nutritional studies

Information Technology (IT) Skills

- Excellent IT skills and a very good knowledge of standard MS Office applications including Microsoft Word, Excel, PowerPoint, Outlook
- SPSS (statistics)
- GraphPad Prism
- ImageJ (Image analysis)
- Adobe Photoshop
- QCapture (capturing of scientific images)
- EVOS Cell Imaging Systems

Editorial activities

Membership of editorial boards:

- **Medicina MDPI (Endocrinology Section)**
- **BMC Nutrition (Basic science)**

- **Guest Editor**, Medicina (Former or Present)

1. Special issue on **"Type 2 Diabetes and Insulin Resistance"**
2. Special issue on **"Low-Grade Chronic Inflammation and Metabolic Health"**
3. Special Issue on **"Advance in Type 2 Diabetes and Insulin Resistance"**

- **Co-Gest Editor**, Foods, 2019. Special Issue on "**Food Bioactives and Cardiometabolic Implications – Findings from *In Vitro* to Human Studies".** https://www.mdpi.com/journal/foods/special_issues/Food_Bioactives_Cardiometabolic_Implications

Peer Review Activities

- BMJ Open (BMJ Journals)
- Biomolecules (MDPI)
- Cells (MDPI)
- Experimental Gerontology (Elsevier)
- Food and Function (Royal Society of Chemistry)
- Frontiers in Endocrinology (Frontiers)
- International journal of food science and technology (Wiley)
- Journal of Functional Foods (Elsevier)
- Journal of Immunology Research (Hindawi)
- Medicina (MDPI)
- Metabolites (MDPI)
- Molecular Biology Reports (Springer)
- Molecular nutrition and Food Research (Wiley)
- Neurobiology of Aging (Elsevier)
- Nutrients (MDPI)
- Nutrition research reviews (Cambridge University Press)
- Obesity Research and Clinical Practice (Elsevier)
- PLOS ONE
- Rejuvenation Research (Mary Ann Liebert, Inc.)
- Scientific reports (Nature)