University of Birmingham

Dr Nguyet-Thin Luu

Research Fellow

Cardiovascular and Respiratory Sciences

Contact details

Telephone +44 (0)121 414 4131 (tel:+44 121 414 4131)

Email n.luu@bham.ac.uk (mailto:n.luu@bham.ac.uk)

School of Clinical and Experimental Medicine
College of Medical and Dental Sciences
University of Birmingham
Edgbaston
Birmingham
B15 2TT
UK

About

Thin Luu originally trained as a Pharmacologist and is interested in inflammation and atherosclerosis. She is an expert in setting up complex mono- and multi-cellular models of cell culture in understanding the processes of cell adhesion and migration, and the effects of blood flow on these processes, by application of well-defined, quantitative, in vitro models.

Thin is a member of British Microcirculation Society and British Cardiovascular Society.

Qualifications

Ph.D. Pharmacology, University of London, 1995

B.Sc. Pharmacology (2:1 Class Honors), University of Portsmouth, 1989

Biography

Thin did her PhD at Harefield Hospital under the supervision of Professor Sir. Magdi Yacoub. As one of his first PhD students she demonstrated that arterial vessels used for bypass had greater vasodilatation than saphenous vein in response to acetylcholine/ substance P, which may explain why arterial bypass has better patency when arterial rather than venous grafts are used. The differential response between arteries and veins was due to their endothelial cell function, vessel structure, and also receptor localisation.

The intriguing results led her to take different approaches in studying how each component of a blood vessel wall (smooth muscle cells and endothelial cells) behaved in culture. she joined the cardiovascular rheology group led by Professor Gerard Nash, which specialises in using flow-based models to study molecular mechanisms of leukocyte recruitment through endothelium in specific tissues. Here, she developed an interest in the molecular control of leukocyte adhesion and migration through the endothelium, and how disruption of these processes occurs in vascular inflammatory diseases. Thin has special skills in setting up complex mono- and multi-cellular models using isolated primary endothelial cells from human umbilical cords, mouse hearts and lungs, with leukocytes and/or stem cells. She has adapted a number of new molecular approaches to study the molecular control of leukocyte adhesion and migration through the endothelium, and how disruption of these processes occurs in vascular inflammatory diseases.

At the present Thin is taking day-to-day lead in a new collaborative project on investigating the immunomodulatory effect of mesenchymal stem cells between Gerard Nash, Jon Frampton (Professor in Molecular Stem Cell Biology), Chris Buckley (Professor in Rheumatoid Arthritis), Phil Newsome (Professor in Liver Transplant Unit) & Ed Rainger (Reader in Inflammation), funded by BHF and started last year. She has developed new culture models which is a new initiative requiring advanced culture skill for multi-cellular models using primary human cells. It also requires incorporation of co-cultures into flow models of leukocyte recruitment.

Teaching

- Facilitator for Integrated Problem to MBChB, BDS and Biomedical Sciences
- Supervises laboratory projects for Yr 3 BmedSc
- Supervises Post-graduate students
- Tutorials on cell recruitment from the circulation for MRes taught modules

Postgraduate supervision

Thin is interested in supervising under- and post-graduate students in the following areas:

- Mechanisms of leukocyte recruitment from the blood and migration into the vessel wall, and the effects of the local haemodynamic and stromal micro-environments on these processes
- The role of disrupted leukocyte recruitment in vascular inflammatory disease
- Mechanisms by which stem cells move from the vascular compartment into tissue and subsequently modulate leukocyte recruitment.

Research

Research Themes

- Cardiovascular science and endothelial cell biology
- Leukocyte adhesion and migration

- Stem cell recruitment
- Vascular pathology linked to abnormal leukocyte recruitment.

Cardiovascular rheology seeks to understand the physiological regulation of leukocyte adhesion and migration through endothelium, and to define how disruption of these processes occurs in vascular inflammatory diseases. There is emphasis on realistic in vitro modelling of leukocyte-endothelial interaction, using flow-based models which mimic the circulation, and on the physical environmental factors that influence leukocyte recruitment.

Publications

NT. Luu, Madden J, Calder PC, Grimble RF, Shearman CP, Chan T, Dastur N, Rainger GE, Nash GB. Dietary supplementation with fish oil modifies the ability of human monocytes to induce an inflammatory response. **J of Nutrition.** 137:1-6, 2007

Mura M, Swain RK, Zhuang X, Vorschmitt H, Reynolds G, Durant S, Beesley JF, Herbert JM, Sheldon H, Andre M, Sanderson S, Glen K, Luu NT, McGettrick HM, Antczak P, Falciani F, Nash GB, Nagy ZS, Bicknell R. **Identification and angiogenic role of the novel tumor endothelial marker CLEC14A. (http://www.ncbi.nlm.nih.gov/pubmed/21706054)** **Oncogene**. 2011 Jun 27

NT. Luu, Madden J, Calder PC, Grimble RF, Shearman CP, Chan T, Rainger GE, Nash GB. Comparison of the pro-inflammatory potential of monocytes from healthy adults and those with peripheral vascular disease using an in vitro culture model. **Atherosclerosis.** 193, 235-468, 2006

Luu NT. Rainger GE. Buckley CD. Nash GB. Cd31 regulates direction and rate of neutrophil migration over and under endothelial cells. **Journal of Vascular Research.** *40*:467-479, 2003.

Radford DJ. Luu NT. Hewins P. Nash GB. Savage CO. Anti-neutrophil cytoplasmic antibodies stabilise adhesion and promote migration of flowing neutrophils on endothelial cells. **Arthritis & Rheumatism**. 44:2851-61, 2001 Dec.

Luu NT**.** Rainger GE. Nash GB. Differential ability of exogenous chemotactic agents to disrupt transendothelial migration of flowing neutrophils. **Journal of Immunology**. 164:5961-9, 2000 Jun 1

Luu NT. Dashwood MR. Chester AH. Tadjkarimi S. Yacoub MH. Action of vasoactive intestinal peptide and distribution of its binding sites in vessels used for coronary artery bypass grafts. **American Journal of Cardiology**. 71:1278-82, 1993 Jun 1.

Luu NT. Chester AH. O'Neil GS. Tadjkarimi S. Pepper JR. Yacoub MH. Different responses of the human gastroepiploic and internal mammary arteries to vasoactive peptides. **American Journal of Physiology**. 264:H583-7, 1993 Feb.

© University of Birmingham 2014