I) About us:

Welcome to the Lebanese American University “Inflammation Research Group” (IRG)

Disorders of inflammatory origin are a major health problem worldwide. Accordingly, chronic inflammation leads to organ damage and adverse organ dysfunctional consequences. The broad research area of inflammation continues to involve wide range of diseases including cancer, cardiovascular and kidney diseases, diabetes and arthritis. Strengthening biomedical research in the area of inflammation is a key step toward identifying novel therapeutic molecular target and new clinical diagnostic tools.

Established in 2009 at the LAU School of Medicine, the IRG is a multidisciplinary research group in which clinical and basic scientists conduct internationally recognized research to identify molecular targets and to deliver translational research benefits in the field of inflammation. Additionally, the IRG is working to establish an outstanding research environment to foster qualified scientists and to train science and medical graduates in different areas of inflammation biology. In addition to their research activities, members of the IRG are strongly involved in teaching and provide the School of Medicine with a wide range of teaching services including teaching clinical and basic science, pharmacology and physiology

II) Research profile:

1) Research activities:

The research activities of IRG are currently focused on two key research areas.

a. At the clinical level:
   - Clinical biomarker and translational research

b) At the molecular and cellular level:
   - Cellular and molecular medicine of inflammation
   - Genetics and genomic medicine of inflammation

The research activities are conducted at several research sites including, LAU School of Medicine, School of Arts and Sciences and multiple collaborating clinical centers.
Financing of IRG research proposals is made possible through grants from donations and several funding agencies including LAU University Research Council and collaborating centers

2) Ongoing research projects:

Increased incidence of kidney disease correlates significantly with increased incidence of chronic cardiovascular and diabetic disorders. Damage to the glomerular filtration barrier (GFB) characterized by microalbuminuria is the earliest established renal disease marker. Interventions aimed at reducing albuminuria can slow the progression to end stage renal disease (ESRD) and lower the risk for hypertension and cardiovascular events. While the underlying mechanisms of albuminuria are complex and remain incompletely resolved, one of the key players in the etiology of GFB damage is the highly differentiated podocyte cell. Loss of podocytes is a known contributor to the development of glomerulosclerosis, and podocyte detachment is a known mechanism of podocyte loss. Podocyte detachment, as evidenced by podocyturia (presence of podocytes in urine), follows different courses in animal models of transient glomerular injury than in those of continuous glomerular injury. Such discrepancies offer a potential way of differentiating these two conditions at the clinical levels. Although research findings have documented that podocyturia correlates with preeclampsia and cardiovascular diseases, to date, little is known about the underlying molecular mechanism of podocyturia and its prevalence at the clinical level.

**Project 1:**

Title: Podocyturia as an early marker of kidney damage secondary to chronic cardiovascular diseases.

**Project 2:**

Title: Molecular biology of inflammatory prostanoids and their effect on podocyte in In vitro and In vivo model of chronic kidney injury (diabetic nephropathy)
III) Scientists

Dr. Kamal Badr, MD
Founding Dean, LAUSOM

Dr. Hussain Isma’eeel, MD
Cardiology
Faculty, LAUSOM

Dr. Wissam Faour, Ph.D.
Molecular Biology
Faculty, LAUSOM

Dr. Pierre Zalloua, Ph.D.
Molecular Genetics
Faculty, LAUSOM

Sonia Youhanna, M.Sc.
Molecular Biology
School of Arts & Sciences

Dr. Sola Bahous, MD PhD
Nephrology
Faculty, LAUSOM

Dr. Maya Khairallah, Ph.D.
Biochemistry
Faculty, LAUSOM

Dr. Mary E. Deeb, MPH, PhD
Epidemiology and Biostatistics
Faculty, LAUSOM

Dr. Selim Nasser, MD
Histology/Pathology
Faculty, LAUSOM

Dr. George Ghanem, MD
IV) **Collaborating centers**

LAU School of medicine  
Byblos, Lebanon

Beirut Cardiac Institute  
Beirut, Lebanon

The Institute of Human Genetics  
LAUSOM  
Byblos, Lebanon

Kidney Research Center  
Ottawa Hospital Research Institute  
University of Ottawa  
Ottawa (Ontario), Canada
V) Publications

1) Mechanical stretch and prostaglandin E2 modulate critical signaling pathways in mouse Podocytes. Wissam H. Faour, Jean-François Thibodeau and Christopher R.J. Kennedy. School of Medicine, Lebanese American University, Byblos, Lebanon. Kidney Research Centre, Division of Nephrology, Department of Medicine, the Ottawa Hospital, Ottawa, Canada. Ottawa Hospital Research Institute, Ottawa, Canada. Department of Cellular and Molecular Medicine, University of Ottawa, Ottawa, Canada. Accepted manuscript in press, Cellular Signalling, March 2010

2) Podocyte EP4 receptors contribute to filtration barrier dysfunction in a model of chronic kidney disease. Erin Stitt-Cavanagh*, Wissam Faour*, Barbara Vanderhyden, Andre Schneider, Youfei Guan, Matthew Breyer and Chris Kennedy Ottawa Health Research Institute, Ottawa, ON, Canada; University of Ottawa, Ottawa, ON, Canada; Vanderbilt University, Nashville, TN; University of Fribourg, Fribourg, Switzerland. Accepted manuscript, The Journal of American society of Nephrology, 2010


VI) **Contact us**

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