Iannis Elias Adamopoulos, B.Sc(Hons), M.Phil., D. Phil.

Research/Academic Interests

Our laboratory studies the interface between the skeletal and immune systems, a newly emerging area of research called “osteoimmunology”. Haematopoietic stem cells in the bone marrow give rise to both T cells which are important in inflammation and osteoclasts that regulate bone resorption. Differentiation and activation of osteoclasts from their precursors is tightly regulated by cytokines and growth factors such as receptor activator of nuclear factor kappa beta (RANKL), tumor necrosis factor (TNF) and various interleukins. Receptor engagement of these molecules results in signaling cascades and transcriptional changes that give rise to medical conditions such as rheumatoid arthritis, osteoporosis and osteopetrosis. Using in vivo gene transfer of immune cytokines IL-23 and IL-17, we have established new arthritis animal models that highlight the importance of these immune cytokines in arthritis initiation and bone homeostasis. Using in vitro assays, we continue our attempts to define the cellular and molecular mechanisms that take place in this fascinating interplay of the immune and skeletal systems.

Title

Assistant Professor

Specialty

Internal Medicine, Rheumatology, Allergy and Clinical Immunology

Department

Internal Medicine

Division

Rheumatology, Allergy and Clinical Immunology

Languages

Greek

Education

M.Phil, University of London, London, UK, 2003
D.Phil., University of Oxford, Oxford, UK, 2006
B.S., University of Surrey, Guildford, Surrey, UK, 1997

Fellowships

Wolfson College, Oxford, UK, 2006

Professional Memberships

American Society of Bone and Mineral Research
British Biochemical Society
British Society for Research Into Aging
Childhood Arthritis and Rheumatology Research Alliance

Honors and Awards

Arthritis National Research Foundation Fellow, 2011
Sontag Fellow, 2011
Wolfson College, Oxford D. Phil Scholarship, 2003

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Select Recent Publications

Ross AP, Mansilla MA, Choe Y, Helminski S, Sturm R, Maute RL, May SR, Hozyasz KK, Wójcicki P, Mostowska A, Davidson B, Adamopoulos IE, Pleasure SJ, Murray JC, Zarbalis KS. A mutation in mouse Pak1ip1 causes orofacial clefting while human PAK1IP1 maps to 6p24 translocation breaking points associated with orofacial clefting. *PLoS One*. 2013 Jul 25;8(7):e69333.

Yang CY, Leung PS, Adamopoulos IE, Gershwin ME. The implication of vitamin D and autoimmunity: a comprehensive review. *Clin Rev Allergy Immunol*. 2013 Oct;45(2):217-26.

Adamopoulos IE, Pflanz S. The emerging role of Interleukin 27 in inflammatory arthritis and bone destruction. Cytokine Growth *Factor Rev*. 2013 Apr;24(2):115-21.

Adamopoulos IE, Tessmer M, Chao CC, Adda S, Gorman D, Petro M, Chou CC, Pierce RH, Yao W, Lane NE, Laface D, Bowman EP. IL-23 is critical for induction of arthritis, osteoclast formation, and maintenance of bone mass. *J Immunol*. 2011 Jul 15;187(2):951-9.

Chao CC, Chen SJ, Adamopoulos IE, Davis N, Hong K, Vu A, Kwan S, Fayadat-Dilman L, Asio A, Bowman EP. Anti-IL-17A therapy protects against bone erosion in experimental models of rheumatoid arthritis. *Autoimmunity*. 2011 May;44(3):243-52.

Joyce-Shaikh B, Bigler ME, Chao CC, Murphy EE, Blumenschein WM, Adamopoulos IE, Heyworth PG, Antonenko S, Bowman EP, McClanahan TK, Phillips JH, Cua DJ. Myeloid DAP12-associating lectin (MDL)-1 regulates synovial inflammation and bone erosion associated with autoimmune arthritis. *J Exp Med*. 2010 Mar 15;207(3):579-89.

Chao CC, Chen SJ, Adamopoulos IE, Judo M, Asio A, Ayanoglu G, Bowman EP. Structural, cellular, and molecular evaluation of bone erosion in experimental models of rheumatoid arthritis: assessment by CT, histology, and serum biomarkers. *Autoimmunity*. 2010 Dec;43(8):642-53.

TJ Dickerson, E Suzuki, C Stanecki, HS, Shin, H Qui and IE Adamopoulos* Rheumatoid and crystal arthritic synovial fibroblasts induce osteoclast formation. Journal of Autoimmunity 2012 Dec;39(4):369-76. **Paper was highlighted by Nature Reviews Rheumatology: Bone: An alternative pathway for bone destruction in inflammatory arthritis? (i)Ray K. Nat Rev Rheumatol. 2012 Oct;8(10):563.

*IE Adamopoulos, CC Chao, R Geissler, DM Laface, W Blumenschein, T McClanahan and EP Bowman. IL-17A upregulates RANK on osteoclast precursors. *Arthritis Research and Therapy* 2010 Feb 18;12(1):R29.

*IE Adamopoulos and EP Bowman. Immune regulation of bone loss by Th17 cells. *Arthritis Research and Therapy* 2008;10(5):225.

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