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<i>Post-Docs (excluding Senior Staff)</i>	45
<i>PhD students</i>	35
<i>Support personnel (Technicians)</i>	27

### Current Fields of Research

The Kennedy Institute of Rheumatology is one of the world's largest centres of research in arthritis, so the ensuring description is of necessity, brief and incomplete, not all groups can be discussed. The KIR is a 'translational' research institute, with a full complement of research activities from uncovering new signalling and regulatory pathways to clinical trials.

In terms of pathogenesis of rheumatoid arthritis (RA), the regulation of TNF production is key and a number of strands have emerged. Thus the role phosphatases in the mechanism of gene regulation by corticosteroids is being analysed, the binding proteins to the AU rich regions of 3' untranslated regions of inflammatory proteins, the role of IRF in cytokine production, role of toll like receptors, the role of atypical T cells in synovial TNF production, role of NK cells, role of antigen presenting cells and their accessory molecules e.g., CD200, OX40 and so on.

From these studies potential therapeutic targets are uncovered which are tested in animal models of arthritis, chiefly collagen-induced arthritis, both in DBA/1 mice and C57BL/6. Clinical trials in RA and in ankylosing spondylitis are performed, and research is focused on new imaging and other outcome measures.

In terms of osteoarthritis research, there are a number of programs to study mechanisms of cartilage degradation and how to prevent it, and also work in pathogenesis of osteoarthritis (OA) in animal models. This is performed using the model of cutting the medial tibio-meniscal ligament. A variety of transgenic and knockout mice are being analysed. The role of matrix metalloproteinase enzymes and their inhibitors in the degradation of collagen and cartilage is being explored, as is the role of ADAM family enzymes. Complications of arthritis are being studied, atherosclerosis in particular. Here the focus is unravelling the cellular and molecular interactions to establish in more detail the mechanism of progression and thrombosis.

### Selected Publications

1. Snelgrove, RJ, Goulding, J, Didierlaurent, AM, Lyonga, D, Vekaria, S, Edwards, L, Gwyer, E, Sedgwick, JD, Barclay, AN, **Hussell, T**. A critical function for CD200 in lung immune homeostasis and the severity of influenza infection. *Nat Immunol* Sep 2008 9(9):1074-83.  
IF: 26.218
2. Abraham, SM, Lawrence, T, Kleiman, A, Warden, P, Medghalchi, M, Tuckermann, J, **Saklatvala, J, Clark, AR**. Antiinflammatory effects of dexamethasone are partly dependent on induction of dual specificity phosphatase 1. *J Exp Med* Aug 7 2006 203(8):1883-9.  
IF 15.612
3. Notley, CA, Inglis, JJ, Alzabin, S, McCann, FE, McNamee, KE, **Williams, RO**. Blockade of tumor necrosis factor in collagen-induced arthritis reveals a novel immunoregulatory pathway for Th1 and Th17 cells. *J Exp Med* Oct 27 2008 205(11):2491-7.  
IF: 15.612
4. Lymperi, S, **Horwood, N**, Marley, S, Gordon, MY, Cope, AP, **Dazzi, F**. Strontium can increase some osteoblasts without increasing hematopoietic stem cells. *Blood* Feb 1 2008 111(3):1173-81.  
IF: 10.896

5. **Monaco, C**, Andreakos, E, Kiriakidis, S, Mauri, C, Bicknell, C, **Foxwell, B**, Cheshire, N, **Paleolog, E**, **Feldmann, M**. Canonical pathway of nuclear factor  $\kappa$ B activation selectively regulates proinflammatory and prothrombotic responses in human atherosclerosis. *Proc Natl Acad Sci U S A* Apr 13 2004 101(15):5634-9.  
IF: 9.598
- 6 Inglis, JJ, McNamee, KE, Chia, SL, Essex, D, **Feldmann, M**, **Williams, RO**, Hunt, SP, **Vincent, T**. Regulation of pain sensitivity in experimental osteoarthritis by the endogenous peripheral opioid system. *Arthritis Rheum* Oct 2008 58(10):3110-9.  
IF: 7.677
7. Lundberg, K, Kinloch, A, Fisher, BA, Wegner, N, **Wait, R**, Charles, P, Mikuls, TR, **Venables, PJ**. Antibodies to citrullinated  $\alpha$ -enolase peptide 1 are specific for rheumatoid arthritis and cross-react with bacterial enolase. *Arthritis Rheum* Oct 2008 58(10):3009-19.  
IF: 7.677
8. **Maini, RN**, **Taylor, PC**, Szechinski, J, Pavelka, K, Bröll, J, Balint, G, Emery, P, Raemen, F, Petersen, J, Smolen, J, Thomson, D, Kishimoto, T. for the CHARISMA Study Group. Double-blind randomized controlled clinical trial of the interleukin-6 receptor antagonist, tocilizumab, in European patients with rheumatoid arthritis who had an incomplete response to methotrexate. *Arthritis Rheum* Aug 31 2006 54(9):2817-2829.  
IF: 7.677
9. **Taylor, PC**, Steuer, A, Gruber, J, Cosgrove, DO, Blomley, MJ, Marsters, PA, Wagner, CL, McClinton, C, **Maini, RN**. Comparison of ultrasonographic assessment of synovitis and joint vascularity with radiographic evaluation in a randomized, placebo-controlled study of infliximab therapy in early rheumatoid arthritis. *Arthritis Rheum* Apr 2004 50(4):1107-16.  
IF: 7.677
10. **Taylor, PC**, Steuer, A, Gruber, J, McClinton, C, Cosgrove, DO, Blomley, MJK, Marsters, PA, Wagner, CL, **Maini, RN**. Ultrasonographic and radiographic results from a two-year controlled trial of immediate or one-year-delayed addition of infliximab to ongoing methotrexate therapy in patients with erosive early rheumatoid arthritis. *Arthritis Rheum* Jan 2006 54(1):47-53.  
IF: 7.677

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<http://www1.imperial.ac.uk/medicine/about/divisions/kennedy/>