

Dr Andrew Filer PhD MRCP

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About

Andrew Filer is a HEFCE Senior Lecturer in Experimental Rheumatology and Honorary Consultant Rheumatologist at University Hospitals NHS Foundation Trust Birmingham.

He has published over 50 research papers and reviews in scientific journals as well as book chapters in the fields of stromal cell biology and Clinical and Experimental Rheumatology. Grant funding includes an Arthritis Research UK Clinician Scientist Fellowship and additional project and fellowship grants from AR UK, Cancer Research UK, the Wellcome Trust and the NIHR.

He is an active promoter of the Rheumatology Research Group's translational research work in very early arthritis, with a particular interest in demonstrating the impact of new imaging technology for joint examination and guided procedures.

Qualifications

- CCT 2009
- PhD Immunology 2006
- Membership of the Royal College of Physicians 1998
- MBChB (hons) 1995
- BSc (Hons) Medical Biochemistry 1992

Biography

Andrew Filer graduated from Medical School at the University of Birmingham in 1995, working in Birmingham at first, then in Australia before returning to take up an MRC clinical training fellowship and gaining his PhD in Birmingham. With Dr Karim Raza he has run the Birmingham Early Arthritis Clinic for five years, working on novel clinical, serological and imaging predictors of outcome in the very early window of arthritis. He is an experienced musculoskeletal sonographer, and uses his skills to answer clinical questions, practice a wide variety of imaging guided procedures, and also to investigate the role of musculoskeletal ultrasound as a predictive tool in early arthritis. His Arthritis Research UK clinician scientist fellowship focuses on the role of stromal cell subpopulations in the pathobiology of early rheumatoid arthritis, and the development of stromal cell based therapies for inflammatory arthritis. This interest is linked to imaging via the use of novel, minimally invasive ultrasound guided biopsy techniques to obtain samples from the joint.

Teaching

Teaching Programmes

- [BMedSci \(/undergraduate/courses/med/medical-sci.aspx\)](#)
- [Clinical Oncology MSc/PG Dip \(/postgraduate/courses/taught/med/clinical-oncology.aspx\)](#)
- [Medicine and Surgery MBChB \(/undergraduate/courses/med/medicine.aspx\)](#) year 2 immunology
- [PSIBS imaging research training and PhD programme \(http://www.psibs.bham.ac.uk/\)](http://www.psibs.bham.ac.uk/)

Postgraduate supervision

Dr Filer is interested in supervising doctoral research students in the following areas:

- The role of the synovial fibroblast in determining the switch to persistence in rheumatoid arthritis
- The significance of stromal cell subsets as determinants of outcome and novel therapeutic targets in early arthritis
- Epigenetic stromal determinants of diagnostic outcome and persistence in early synovitis
- The use of ultrasound imaging as a predictor of outcome in the earliest stages of arthritis

If you are interesting in studying any of these subject areas please contact Dr Filer on the contact details above, or for any general doctoral research enquiries, please email: [dr@contacts.bham.ac.uk \(mailto:dr@contacts.bham.ac.uk\)](mailto:dr@contacts.bham.ac.uk) or call +44 (0)121 414 5005.

For a full list of available Doctoral Research opportunities, please visit our [Doctoral Research programme listings \(http://www.bham.findaphd.com/?\)](http://www.bham.findaphd.com/)

Research

RESEARCH THEMES

Prediction of outcome in very early arthritis, stromal predictors of outcome in early arthritis, epigenetic markers as predictors of outcome and in the pathogenesis of rheumatoid arthritis, ultrasound imaging to improve predictive ability in early arthritis.

RESEARCH ACTIVITY

Prediction of outcome in very early arthritis

Along with his colleague Dr Karim Raza, Dr Filer has run the Birmingham Very Early Arthritis Clinic for the last 5 years. The focus of this clinic is to improve prediction of outcome for patients presenting in the early stages of arthritis, when disease is often undifferentiated and does not fulfil classical diagnostic or classification criteria. This clinic has produced significant research outputs over the last 10 years, benefitting particularly from a European FP6 collaborative project (AUTOCURE) which has resulted in very broad collaborations. Current activity is based upon exploring the pros and cons of the recently published ACR/EULAR 2010 rheumatoid arthritis classification criteria (Cader,Z et al 2011).

One of Dr Filer's unique contributions to the early arthritis clinic has been the introduction of minimally invasive arthroscopic biopsy techniques to obtain samples of tissue from the joints of patients with early arthritis. Examination of this tissue resource in terms of the microscopic appearances and cellular infiltrates looking at samples from patients with early RA or resolving disease is a current area of focus.

Stromal predictors of outcome in early arthritis

Stromal cells such as fibroblasts had previously been thought to be simple structural elements with no role in inflammation. However we now know them to be immune sentinels, with a major role in promoting the persistence of inflammation in the joint. Tissue samples from our early arthritis cohort are currently being analysed to investigate the relative prevalence of different stromal subsets. These different groups of cells likely play different functional roles in the inflamed joint, and may be useful therapeutic targets for novel arthritis treatments.

Epigenetic markers as predictors of outcome and in the pathogenesis of rheumatoid arthritis

The rapidly advancing field of cancer research has shown that epigenetic modifications play an important role in cancer initiation and progression which has translated into new therapeutic approaches (epigenetic therapy). Mirroring this knowledge, strong interest has emerged in the study of epigenetics in RA. We hypothesise that epigenetic modifications regulate the activated phenotype of RA synovial fibroblasts. Characterisation of such modifications will result in further understanding of disease pathogenesis and development of novel therapeutic targets. In an exciting development, the epigenetic determinants of persistent arthritis are being investigated by a new clinical Research Fellow (Dr Maria Juarez) in our laboratory in collaboration with Paul Badenhurst.

Ultrasound imaging to improve predictive ability in early arthritis.

Existing clinical algorithms which attempt to predict outcome are poor and have not succeeded in entering general clinical use.

Ultrasound is a harmless but highly effective imaging modality which is more sensitive to the presence of joint inflammation and damage than clinical examination or Xrays alone. US equipment is becoming widely available, but as yet there is little evidence base to support its use in early arthritis. With the publication of our first paper looking at US in the prediction of RA (filer et al 2011) we have opened up a new area in the pragmatic use of US in rheumatology, and are actively pursuing multicentre regional funding to develop evidence based clinical and imaging predictive algorithms.

Other activities

- Treasurer and executive committee member of the Midland Rheumatology Society since 2009
- Member of Editorial board BMC musculoskeletal disorders

Publications

Cader MZ, Filer A, Hazlehurst J, de Pablo P, Buckley CD, Karim R. Performance of the 2010 ACR/EULAR criteria for rheumatoid arthritis: comparison with 1987 ACR criteria in a very early synovitis cohort. *Ann Rheum Dis*. 2011 Feb 1. [Epub ahead of print]

Stanczyk J, Ospelt C, Karouzakis E, Filer A, Raza K, Kolling C, Gay R, Buckley CD, Tak PP, Gay S, Kyburz D. Altered expression of microRNA-203 in rheumatoid arthritis synovial fibroblasts and its role in fibroblast activation. *Arthritis Rheum*. 2011 Feb;63(2):373-81. doi: 10.1002/art.30115.

Filer A, de Pablo P, Allen G, Nightingale P, Jordan A, Jobanputra P, Bowman S, Buckley CD, Raza K. Utility of ultrasound joint counts in the prediction of rheumatoid arthritis in patients with very early synovitis. *Ann Rheum Dis*. 2011 Mar;70(3):500-7. Epub 2010 Nov 29.

Church LD, Filer AD, Hidalgo E, Howlett KA, Thomas AM, Rapecki S, Scheel-Toellner D, Buckley CD, Raza K. Rheumatoid synovial fluid interleukin-17-producing CD4 T cells have abundant tumor necrosis factor-alpha co-expression, but little interleukin-22 and interleukin-23R expression. *Arthritis Res Ther*. 2010;12(5):R184. Epub 2010 Oct 7.

Gullick NJ, Evans HG, Church LD, Jayaraj DM, Filer A, Kirkham BW, Taams LS. **Linking power Doppler ultrasound to the presence of th17 cells in the rheumatoid arthritis joint.** (<http://www.ncbi.nlm.nih.gov/pubmed/20824142>) *PLoS One*. 2010 Sep 1;5(9). pii: e12516.

Schmutz C, Cartwright A, Williams H, Haworth O, Williams JH, Filer A, Salmon M, Buckley CD, Middleton J. **Monocytes/macrophages express chemokine receptor CCR9 in rheumatoid arthritis and CCL25 stimulates their differentiation.** (<http://www.ncbi.nlm.nih.gov/pubmed/20738854>) *Arthritis Res Ther*. 2010;12(4):R161. Epub 2010 Aug 25.

Cader MZ, Filer AD, Buckley CD, Raza K. **The relationship between the presence of anti-cyclic citrullinated peptide antibodies and clinical phenotype in very early rheumatoid arthritis.** (<http://www.ncbi.nlm.nih.gov/pubmed/20731815>) *BMC Musculoskelet Disord*. 2010 Aug 23;11:187.

McGettrick HM, Buckley CD, Filer A, Ed Rainger G, Nash GB. Stromal cells differentially regulate neutrophil and lymphocyte recruitment through the endothelium. *Immunology*. 2010 Nov;131(3):357-70.

