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Compromised regulation of the terminal complement pathway propagates both inflammatory and age-related joint degeneration

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The influence of complement-mediated innate immune responses on cartilage and bone homeostasis in the ageing joint has not been studied. Inappropriate complement-mediated cell damage is prevented by membrane regulators such as CD59. Synovial tissue expression of CD59 is altered during inflammatory arthritis; elevated CD59 levels may be necessary to protect joint tissues. Roles of CD59 in maintaining tissue equilibrium and structural architecture within the synovial joint have not been described previously. Since CD59a is the primary regulator of membrane attack complex assembly in mice; we used CD59a-gene-deleted mice (CD59a-/-) as tools to unravel the function of CD59a in modulating inflammatory arthritis, bone re-modelling and age-related joint degeneration. Inflammatory and degenerative changes are classified using histopathology whilst three dimensional radiological image analysis provided objective markers of bone changes at the tibiofemoral joint.

Biography

Anwen S Williams is a Pharmacist, a member of the Royal Pharmaceutical Society and a senior member of the academic staff in the School of Medicine at Cardiff University. She is a biomedical research expert who is passionate about defining the biological changes that occur in the musculoskeletal system during the transition from health to disease. Her work has been supported by Arthritis Research UK, the Wellcome Trust, the British Heart Foundation, the Medical Research Charity and Joint action. Her sustained output of high quality research papers provide evidence of her scientific expertise that is aligned with (i) the development and characterization of models which recapitulate cellular, molecular and architectural features of inflammatory joint disease, (ii) the identification and examination of cellular and molecular mechanisms that orchestrate cell trafficking, inflammation-induced tissue injury and reparative responses and (iii) the evaluation of novel agents for treating arthritis.

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