EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

Curriculum Vitae

PERSONAL INFORMATION

Neal Lindsay Millar

WORK EXPERIENCE

August 2021- Present

Professor of Orthopaedic Surgery

University of Glasgow (United Kingdom)

February 2014-August 2021

Senior Clinical Lecturer in Orthopaedics

University of Glasgow (United Kingdom)

Neal Millar is an Academic Consultant Orthopaedic Surgeon specialising in shoulder surgery having completed shoulder fellowships in Sydney and New York. Our institute has led many recent advances in the field and particularly, has reinvented conceptually the central role of immunobiology in tendinopathy. My research has demonstrated that the current lack of targeted therapeutics represents a failure to properly embrace the potential in molecular and cellular translational immune biology to deliver for tendinopathy patients. We advocate that the tendinopathy field embrace experimental medicine approaches and move towards trialling therapies based on plausible molecular candidates.

EDUCATION AND TRAINING

- ### PhD

  University of Glasgow (United Kingdom)

  Immunology

- ### FRCSEd(Tr&Orth)

  Royal College of Surgeons of Edinburgh ()

  FRCSEd (Tr &Ortho) Fellowship in Trauma and Orthopaedics

ADDITIONAL INFORMATION

Expertise

Practice development

My Postdoctoral fellowship enabled me to set up a Scotland wide tendinopathy referral pathway. This is run in conjunction with a Consultant Rheumatologist with a specialist interest in enthesopathies/tendinopathies and gives patients access to unique, multi-disciplinary expertise to manage these complex overlapping conditions. This has raised awareness of the significant burden of disease that is associated with tendinopathy with up to 30% of musculoskeletal consultations due to tendon disease.

Product development

In an innovative approach, in collaboration with researchers within our Institute I was able to characterise one of the key pathways whereby both humans and horses develop tendon disease. This has led to a new therapy (TenoMiR/ EquiMIR, Patent WO2015107340 A1) for treating tendinopathy that is currently being trialed in horses with tendon disease at Texas A&M University,Texas, USA. The discovery of a single microRNA-dependent regulatory pathway in early tissue healing highlights a microRNA replacement therapy as a promising therapeutic option for human and equine tendon representing a major advance in patient and animal care. To this end 'Causeway Therapeutics' is a biotech spin out emerging from this innovative work.

Immunobiology of tendinopathy

Our institute has led many recent advances in the field and particularly, has reinvented conceptually the central role of immunobiology in tendinopathy. My research has demonstrated that the current lack of targeted therapeutics represents a failure to properly embrace the potential in molecular and cellular translational immune biology to deliver for tendinopathy patients. We advocate that the tendinopathy field embrace experimental medicine approaches and move towards trialling therapies based on plausible molecular candidates.

Publications

Key Publications

Millar NL, Murrell GAC, McInnes IB. Inflammatory mechanisms in tendinopathy: toward translation Nature Reviews Rheumatology Feb 2017

Millar NL, Akbar M, Campbell AL, Reilly JH, Kerr SC, McLean,M., Frleta-Gilchrist,M. Fazzi, UG,Leach WJ, Rooney BP, Crowe LAN, Murrell GA, McInnes, IB. IL-17A mediates inflammatory and tissue remodelling events in early human tendinopathy Sci Rep. 2016 Jun 6;6:27149. doi: 10.1038/srep27149. PMID: 27263531

Millar NL, O'Donnell C, McInnes IB, Brint E.Wounds that heal and wounds that don't - The role of the IL-33/ST2 pathway in tissue repair and tumorigenesis. Semin Cell Dev Biol. 2016 Aug 10. pii: S1084-9521(16)30245-2. PMID: 27521518

Millar NL, Gilchrist DS, Akbar M, Reilly JH, Kerr SC, Campbell AL, Murrell GA, Liew FY, Kurowska-Stolarska M, McInnes IB. MicroRNA29a regulates IL-33-mediated tissue remodelling in tendon disease. Nat Commun. (2015), 2015 Apr 10;6:6774. doi: 10.1038/ncomms7774. PMID: 25857925

Millar NL, Reilly JH, Kerr SC, Campbell AL, Little KJ, Leach WJ, Rooney BP, Murrell GA, McInnes IB., Hypoxia: a critical regulator of early human tendinopathy. Ann Rheum Dis. (2012), 2011 Oct 4.

Hueber AJ, Alves-Filho JC, Asquith DL, Michels C, Millar NL, Reilly JH, Graham GJ, Liew FY, Miller AM, McInnes IB., IL-33 induces skin inflammation with mast cell and neutrophil activation. Eur J Immunol. (2011), 2011 Aug;41(8):2229-37.

Kurowska-Stolarska M, Alivernini S, Ballantine LE, Asquith DL, Millar NL, Gilchrist DS, Reilly J, Ierna M, Fraser AR, Stolarski B, McSharry C, Hueber AJ, Baxter D, Hunter J, Gay S, Liew FY, McInnes IB, MicroRNA-155 as a proinflammatory regulator in clinical and experimental arthritis. Proc Natl Acad Sci U S A. (2011);108(27):11193-8.

Millar NL, Hueber AJ, Reilly JH, Xu Y, Fazzi UG, Murrell GA, McInnes IB., Inflammation is present in early human tendinopathy.Am J Sports Med (2010), 2010 Oct;38(10):2085-91

Millar NL, Wei AQ, Molloy TJ, Bonar F, Murrell GA. Cytokines and apoptosis in supraspinatus tendinopathy.J Bone Joint Surg Br (2009), Mar;91(3):417-24

Millar NL, Wu X, Tantau R, Silverstone E, Murrell GA. Open versus two forms of arthroscopic rotator cuff repair. Clin Orthop Relat Res. 2009 Apr;467(4):966-78. doi: 10.1007/s11999-009-0706-0.

Millar NL, Wei AQ, Molloy TJ, Bonar F, Murrell GA. Heat shock protein and apoptosis in supraspinatus tendinopathy. Clin Orthop Relat Res. 2008 Jul;466(7):1569-76. doi: 10.1007/s11999-008-0265-9.

Projects

Grant Funding

Innovate UK Biomedical catalyst April 2018- April 2020 (£1.3M)- MicroRNA in tendon disease - PI

Medical Research Council New Investigator Award (£670,000)- Damage mechanisms in tendon disease - July 2018-Jul 2021 PI

Arthritis Research UK (ARUK) Project Grant (£232,000) -Understanding how damage is caused in tendon disease -Jan 2017-2020 PI

Wellcome Trust Institutional Strategic Support Fund (ISSF) Innovation Catalyst Grant (£27,000) April 2016-April 2107- microRNA29a in tendon disease Co-PI

Tenovus Scotland, Small Research Support Grant (£11,000) - Cytokine and damage molecules in tendon disease. October 2016- ongoing -PI

Scottish Enterprise Proof of Concept Grant (£623,000). Tendon therapeutic (TenoMiR) Proof of Concept. Aug 2014- March 2017 - Co-PI

Scottish Senior Clinical Research Fellowship (£467,000) The role of microRNA 29 in tendon disease. Jan 2014- Dec 2017 -PI

Horse Racing Betting Levy Project Grant (£140,347) Fine-Tuning of Endogenous tendon cells to matrix stiffness and type: The key to optimising repair? March 2013-17-PI

Wellcome Trust Early Postdoctoral Training Fellowship for Clinician Scientists (£263,020). The role of microRNA in tendon disease. Jan 2013-17-PI

Academy of Medical Sciences Starter Grants for Clinical Lecturers (£27,000). The role of mast cells in the pathogenesis of tendon disease. January 2013-15. PI

ARUK Orthopaedic Clinical Research Fellowship (£145,000) October 2009-11.The role of interleukin 33 in Tendon Disease. PI

Markers of esteem

Patent WO2015107340 Materials and methods for modulation of tendon healing. Millar NL and Gilchrist DS 2015

US Patent 62/580,715 Methods of Treating Tendinopathy Using Interleukin-17 (IL17) Antagonists. McInnes IB, Millar NL et al 2017

Winner, British Orthopaedic Travelling Fellowship 2013

Chair of Trial Steering Committee, NHS National Institutes of Health Research

(NIHR) GRASP Trial. Sep 2016-present

Invited Speaker European Calcified Tissue Society Congress, Salzburg May 2017

Invited Chair, Tendinopathy Symposium, British Orthopaedic Research Society Annual Meeting Glasgow 2016

Invited Speaker British Society Rheumatology Annual Meeting Glasgow, 2016

Invited Speaker, St George International Shoulder Conference, Sydney, Australia

May 2015 & May 2017

Primary Supervisor MRC PhD Student August 2015-19

Memberships

Other Relevant Information