

To Whom it may concern

Re: Professor Daniel Green

This letter is to support Professor Danny Green's application for his NHMRC fellowship renewal. Professor Danny Green was appointed at LJMU in 2005 and worked here full-time until 2009 and on a fractional appointment since then.

Danny had a huge impact on the Cardiovascular Health Sciences research group within the Research Institute for Sport and Exercise Sciences (RISES) at LJMU. Danny was a leader of the group and was instrumental in developing many aspects of the group's scholarly activity not least developing and mentoring staff, supervising post-doctoral and postgraduate students as well as having very specific and far reaching effects in relation to the establishment of new techniques within vascular physiology that ultimately underpinned the world-leading expertise of his group. During his appointment at LJMU Danny established key new collaborations at LJMU as well as with other high profile groups in Europe and around the world. Importantly he started a key clinical collaboration with Liverpool Heart and Chest Hospital that thrives to this day and has underpinned the recently launched Liverpool Centre for Cardiovascular Sciences (hospital-university-partnership). Danny has mentored post-doctoral students at LJMU including Thijssen, Dawson, and Hopkins who are now members of staff and have high ranking positions. Danny also oversaw the development of an excellent group of PhD students who won numerous conference awards internationally (ACSM/ECSS).

As noted above an important far-reaching element of Danny's impact has been the development, testing and dissemination of new imaging techniques that have been central to the work done at LJMU and many other institutions in the past two decades. For the first time in humans, Danny has provided real time high resolution assessment of the size of, and blood flow through, human conduit arteries *in vivo*. The edge-detection and wall tracking software that he developed is now used worldwide by scientists who study human cardiovascular physiology and medicine. In the laboratories at LJMU and UWA, these developments have facilitated the observation that different exercise modalities and intensities are associated with fundamentally distinct pattern of stress and pressure in human arteries. These studies have opened up a new field of human integrative physiology which is currently a focus of much international research endeavour. Other new methods of assessing microvascular structure and function utilising optical coherence tomography have been developed recently at UWA. These will revolutionise clinical and functional exercise physiology, with important implications for training effects on the vasculature and thermal physiology. These tools and techniques have also been important in the establishment of the RISES Ultrasound Summer School launched with Keith George in 2007. This has run with worldwide delegates every year since in Liverpool and has successfully been transferred to Canada (x2) and Australia (x3). These schools build international collaborative partnerships and are helping to put LJMU on the map as an International Centre of Excellence of CV research by leading research agendas in cardiovascular physiology.

Danny continues to be an active leader/collaborator in the Cardiovascular Health Science Research Group. Current joint projects, papers and grants exist with Dick Thijssen, Ellen Dawson, Helen Jones, Keith George and Dave Oxborough. He is also actively involved in the supervision of PhD students with Dick Thijssen, Ellen Dawson and Warren Gregson. The future agenda of the

group will continue its collaboration and internationalisation building on Danny's links at UBC, Canada, Radboud Holland and ASPIRE Qatar. These links enable effective and career enhancing mobility for PhD students and post-doctoral fellows (recent examples include Atkinson, Carter, Smith, Hoiland, Pugh, Sprung, Dawson etc). This network also has the potential and capacity to facilitate larger trials in cardiac and vascular physiology (including clinical trials) with more power and high sensitivity outcome measures.

Danny has an exceptional academic track record and contributed significantly to the attainment of our excellent rankings in RAE2008 as well as in REF2014 when RISES was the top UK Institution in Sports and Exercise Science for Research Quality. In this regard, REF2014 saw a significant number manuscripts that were submitted under LJMU's banner that were the result of the collaborative work between labs facilitated by Danny. In a recent exercise to identify potential 4* papers from 1-1-2014 in preparation for the next REF2021, the CHS group have identified 30 out of the 140 papers as potential 3/4-4*. From these 30 papers, Danny Green was involved in 17 of them (11 of them as senior and /or first author). This demonstrates he is a significant strategic and influential lead on these papers, and has either had a significant contribution or initiated the work that was subsequently performed in the lab that was best equipped to perform the work.

Other impacts are listed briefly here but could be developed in a much longer communication. Danny significantly raised RISES profile through engagement with ECSS and was a scientific Chair of the 2012 Pre-Olympic Congress. Danny has engineered RISES international engagement with Australia through ESSA conferences and student and staff visits to UWA. Danny had a key role in establishing one of the first MSc programs in Clinical Exercise Physiology in LJMU. The result of the launch of this program has been profound, with graduates from the clinical MSc course in Liverpool now working across the UK in Hospitals, Cardiology and Rehabilitation centres and in Universities.

In summary, Danny has been an invaluable critical friend of the School, RISES and in particular the Cardiovascular Health Sciences research group and has been central to the generation of esteem and kudos that surrounds our cardiovascular research work. His appointment in 2005 signified a quantum shift in the quality of our outputs and significantly contributed to the attainment of our top-rated rankings over the years. His ability to quickly build and mentor research teams has seen his ECRs gain promotion to Readers and Professors and his PhD graduates gain academic positions in esteemed institutions, as well as providing a rich resource of output for our recent and upcoming REF cycles. He is an outstanding leader in the field internationally, he had a big impact and a tremendous influence across all areas of our academic work. He built a substantive research capacity for the Institution and left a legacy of growth, which continues to this day and will be very influential in the future.

Yours



Professor V. Baltzopoulos
Head of the Research Institute for Sport and Exercise Sciences