



The Corporal Michael J. Crescenz VA Medical Center's Translational Musculoskeletal Research Center

Directors: George R. Dodge, PhD and Robert L. Mauck, PhD

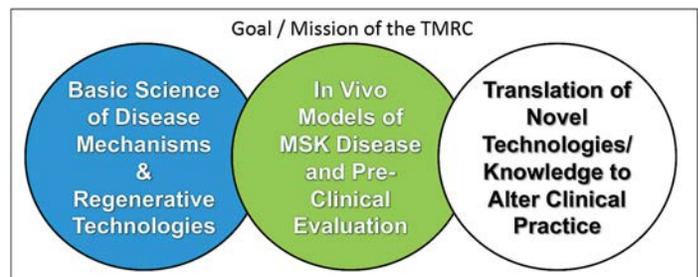


Musculoskeletal (MSK) conditions are part of normal life and aging however occur more frequently in individuals after a variety of injuries. MSK conditions and joint diseases, such as osteoarthritis, as well as spine and disc degeneration also may arise as a consequence of the high risk physical activity typical of military service and with associated combat trauma. In fact, MSK diseases and related disabilities are more prevalent in Veterans than in the general population. Furthermore, while improvements in armor and “in theater” medical care has introduced incredible life-saving technologies, an increasing number of our wounded soldiers return home with damaged limbs and joints. Also, as with any population, when veterans age, there is an increasing tendency to develop arthritis and various degenerative joint diseases, each of which can significantly compromise quality of life. In response, the Department of Veterans’ Affairs has focused research efforts to improve our understanding of the function of MSK tissues and injuries that occur to them. In particular, in 2014 the VA created an enterprise located at the Corporal Michael Crescenz VA Medical Center (CMC VAMC) with a focus developing novel technologies to enhance tissue repair, regeneration, and ultimately function. This was named the Translational Musculoskeletal Research Center (TMRC) and has grown over these past 6 years to be a research enterprise comprised of 18 Principal Investigators including 2 new junior members, 10 full-time VA employees and more than 35 WOC employees.

In keeping with the goal of improving Veteran musculoskeletal health, the last several years have witnessed a dramatic growth in VA-sponsored MSK research across the nation, with one of the largest increases occurring at our CMC VAMC in Philadelphia. The TMRC is a collaborative multidisciplinary group of physician investigators, basic scientists, and engineers at the CMC VAMC, together with

colleagues from the University of Pennsylvania from many disciplines, including Orthopaedic Surgery, Rheumatology, Physical Medicine and Rehabilitation, Bioengineering, and Neurosurgery. Currently there are more than 15 current research projects being carried out within the TMRC focused on the injury and repair of MSK tissues, including tendons, ligaments, disc, bone, meniscus, and cartilage.

Critical to our research mission is to keep the research we do focused on the outcomes that relate to improving regenerative and rehabilitative approaches that ultimately will translate into improving the lives of Veterans. To carry out our mission, we are an integral part of the Research Enterprise at the CMC VAMC, including the Shared Instrument Core which is comprised of high tech state-of-the-art imaging and analysis instrumentation. Physically, we are all under one roof, in approximately 9,000 sq. ft. of renovated research space. Drs. George Dodge and Robert Mauck co-direct this enterprise with input, advice, and support from a joint CMC VAMC / Penn TMRC Advisory Committee and local and central office leadership. This year has seen several new grants from both VA and NIH sources including a new Career Development Award-2 (CDA-2) to Dr. Sarah Gullbrand that is focused on novel disc and spine regenerative approaches and a CDA-1 Award to Dr. Jay Patel, focused on cartilage repair. Dr. Robert Mauck was also awarded a VA Career Scientist Award, and both Drs. Sarah Gullbrand and Dr. Mauck were awarded SPiRE Awards. Dr. David Steinberg was recently notified of the award of a new Merit Award focused on articular cartilage regeneration. In keeping with collaborative nature of our center, we have several new projects funded in 2019-2020 involving 8+ PI's in the TMRC in the form of new or renewed VA Merit awards, a NIH R21, and an NIH R01. Of particular note is the new R01 grant to study the mechanism that contributes to osteoarthritis, awarded to Dr. Carla Scanzello, a clinical scientist who is also Division Chief of Rheumatology at the CMC VAMC. Grant funding at the VA TMRC totals more than \$2.5 million dollar in direct costs.



The ultimate goal of the TMRC is to develop a focused, internationally recognized research center at the CMC VAMC and to emerge as a VA Center of Excellence, which is an ongoing goal and application process. The TMRC continues as a center for MSK translational research both at the VA along with partners and collaborators at Penn, CHOP, Drexel and Temple Universities. We will continue to focus on the Veteran MSK issues and do so by bringing new resources

and regenerative technologies to all service members, past and present. Overall, the TMRC is on an upward trajectory, with a vibrant multi-disciplinary team of investigators and significant new funding directed towards making possible new discoveries in musculoskeletal repair and regeneration. We are committed to our goal of translating this research into life-changing improvements in patient care and quality of life for Veterans as well as the general population.