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The Willard L. Wood, MD, Professor of
Rheumatology

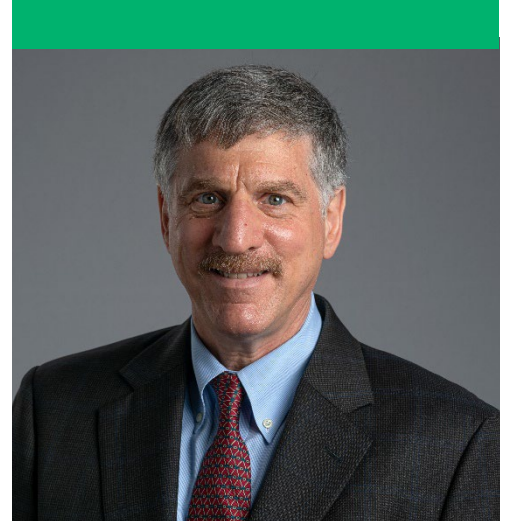
Advancement of Medicine

In 2023, we continued our osteoarthritis (OA) work. This affliction overwhelmingly remains the most common form of arthritis, affecting more than 30 million Americans and representing in aggregate one of the largest causes of work disability and overall societal medical expenses. Moreover, OA pain is poorly controlled despite a multitude of opiate and non-opiate analgesic options. Notwithstanding OA's societal prevalence and morbidity, there are no clinical treatments that have been shown to retard disease progression.

This represents an urgent unmet medical need.

The Wood Professorship fund enables our Division of Rheumatology to focus efforts on evaluating the neurobiology and physiology of OA pain in preclinical and clinical settings and studying mechanically active interventions that may improve care for OA of the knee. The translational studies performed by the laboratories of Anne-Marie Malfait, MD, PhD, and Rachel E. Miller, PhD, and partly supported by your generosity, provide important novel insights into possible therapeutic targets of OA pain.

There are currently no laboratory tests that permit assessment of OA pain or functional disability, yet these are the most prominent features that result in loss of work and poor quality of life. Assessment in a quantitative manner is possible through validated questionnaire-based instruments. One such instrument, the MD-HAQ/RAPID3 has become the standard tool for following rheumatoid arthritis and is mandated by the Medicare Physician Quality Reporting System. The inventor of that instrument, Theodore P. Pincus, MD, is a Rush rheumatologist. He has been collaborating with Juan Schmukler, MD, a recently hired assistant professor, to develop analogous information from OA patients. This work has already resulted in numerous publications and presentations internationally and will further the ability to track OA-related pain and disability in a validated, quantitative and





reproducible manner. Dr. Schmukler, partly supported through your generosity, is currently preparing a junior faculty development grant to be submitted to a national grantmaking organization.

OA is also associated with somatosensory dysfunction, as defined by work by the faculty of the Division of Rheumatology at Rush over the past decade. Combination of the somatosensory assessment with the pain assessment tools at Rush provides new insights into the pathophysiology of pain in OA. All this work is unique to Rush and the environment fostered within the Division of Rheumatology and is supported by the funds provided by the Wood Professorship.

Finally, in 2023, I served as vice president and president-elect of the U.S. Bone & Joint Initiative and was honored with the Richard Weber Lectureship, University of Illinois at Chicago.

Research

Wood Professorship funds provide support for the large OA research infrastructure within the Division of Rheumatology. This includes both basic science investigations related to the pathophysiology of OA as well as biomechanical and clinical investigations directly applicable to translating research findings into the clinic.

- The Wood Professorship provides support for the laboratories of both Anna Plaas, PhD, and Dr. Miller in their studies of the role of hyaluronans in wound healing and overuse OA models and in the neurobiology of OA pain, respectively. It should be noted that the Wood Professorship provided initial seed funding for Dr. Miller to begin her work, which is now richly supported through R01 and NIH/HEAL funding (it also provided the initial seed money to permit Dr. Malfait to begin accruing data, which has resulted in multiple R01, P30, HEAL, DoD and AF grants in the past decade).
- The Wood Professorship has provided material support to permit Dr. Schmukler to begin obtaining preliminary data critical for his submission for junior faculty funding.
- We continued to supply unique human chondrocyte cell lines to investigators worldwide, principally for studies of human chondrosarcoma physiology and human chondrocyte biology. In the last year, unique cell lines have been provided either through material transfer agreements or licensing agreements to:
 - Johns Hopkins University, Baltimore, Maryland (Gregg Semenza, MD, PhD, 2019 Nobel Laureate in Medicine or Physiology)

- University of Washington, Seattle, Washington
- University of Sheffield, United Kingdom

Clinical Trials

These clinical trials are directly related to the activities of the Wood Professorship:

- “A randomized, double-blind, placebo-controlled, multi-center, phase 3 study to determine the efficacy and safety of TG-C in subjects with Kellgren and Lawrence grade 2 or 3 osteoarthritis of the knee ACTiVION II study,” TissueGene Inc.
- “A multicenter, randomized, double-blind, placebo-controlled study to evaluate the safety and efficacy of upadacitinib in subjects with giant cell arteritis: SELECT-GCA,” Abbvie.
- “A multicenter, randomized, double-blind, placebo-controlled, phase III study to evaluate the efficacy and safety of BIIB059 in adult participants with active systemic lupus erythematosus (SLE) receiving background nonbiologic lupus standard of care,” Biogen MA Inc.
- “A double-blind, placebo-controlled randomized, multicenter study to assess changes in omega-3 index in erythrocytes and health benefit after 24 weeks of daily consumption of AKBM-3031 followed by a 24 WK OPE in patients with systemic lupus erythematosus,” Ample Biosolutions.
- “A multicenter, randomized, double-blind, placebo-controlled, parallel-group study to evaluate the efficacy and safety of dapirolizumab pegol in study participants with moderately to severely active systemic lupus erythematosus,” UCB Inc.
- “Prospective observational cohort of patients with moderate-to-severe SLE to characterize cross-sectional and longitudinal disease activity, treatment patterns and effectiveness, outcomes and comorbidities, healthcare resource utilization, and the impact of SLE on quality of life by type I interferon gene expression,” AstraZeneca LP.
- “A randomized, double-blind, placebo controlled, 2-arm multicenter phase 3 study to assess the efficacy and safety of ionalumab in patients with active Sjögren’s syndrome (NEPTUNUS-1),” Novartis.



Education

Importantly, the Wood Professorship provides funding for our Visiting Professor Series. This series has been ongoing for more than a decade and has exposed the Rush rheumatology faculty to the most prominent rheumatologists nationally and internationally. Several important collaborations have resulted from this series in the last several years, and the series itself has been endangered by the Institution providing increasing barriers to funding for it. In addition, it is critical for the educational program that such interactions are fostered at Rush.

Grants

These grants directly emanated from Wood Professorship support to the investigators and/or their laboratories:

- “The Role of Mechanosensation Pathways in Osteoarthritis Joint Damage and Pain,” NIH/NIAMS PD/PI: Miller.
- “Elucidating how macrophages contribute to osteoarthritis pain,” NIH/NIAMS - PD/PI: Geraghty.

Scholarly Service

- In 2023, I served on the following editorial boards: *Osteoarthritis and Cartilage*, *Osteoarthritis and Cartilage Open*, *Journal of Orthopaedic Research* and the *Journal of Clinical Rheumatology*.
- I also served as chair of several NIAMS and NIH workshops and review boards.
- For the Data and Safety Monitoring Board (DSMB), I served on two committees.
- For the American College of Rheumatology, I chaired the winter Rheumatology Symposium Planning Committee. I also was a subcommittee chair for the Committee on Education and served as Abstract Category Chair: Orthopedics, Low Back Pain, & Rehabilitation.
- I am a member of the Osteoarthritis Research Society International.
- Meet the Professor, Junior Faculty Career Development

Publication Highlights – Abbreviated

- “Thirty years of publishing osteoarthritis research in perspective — a special journal issue to mark the 30th anniversary of *Osteoarthritis and Cartilage*.” *Osteoarthritis Cartilage*. 2023.



- “Does higher quality of care in systemic lupus erythematosus translate to better patient outcomes?” *Lupus*. 2023.
- “Clinical features of osteoarthritis,” book chapter in *Rheumatology*, 8th Edition, 2023. Elsevier, Philadelphia.

The Year Ahead: 2024 and Beyond

We will continue to strengthen the investigational, clinical and educational infrastructure of the Division of Rheumatology and support junior faculty members in the ongoing quest for extramural funding.

Importantly, a new clinical investigator has been recruited from the University of Pittsburgh, who will inaugurate a myositis clinic and has been funded to study inflammatory myopathy. She will be partly supported by the Wood Professorship.

With Gratitude

The generous donors of this professorship passed away decades ago. However, the entire Division of Rheumatology remains deeply grateful for their foresight in endowing this fund, which enables the field of rheumatology to advance at Rush and make a significant impact on the lives of people living with OA.