

PROMOTION RECOMMENDATION**The University of Michigan
School of Dentistry**

Keith Lough Kirkwood, DDS, PhD, assistant professor of dentistry, School of Dentistry, is recommended for promotion to associate professor of dentistry, with tenure, School of Dentistry.

Academic Degrees:

PhD	1997	State University of New York at Buffalo
Certificate	1995	State University of New York at Buffalo
DDS	1991	West Virginia University
BA	1987	West Virginia University

Professional Record:

2005 – present	Assistant Professor, University of Michigan, Ann Arbor, MI, Department of Periodontics and Oral Medicine, School of Dentistry
2004 – 2005	Assistant Professor, University of Michigan, Ann Arbor, MI, Department of Periodontics/Prevention and Geriatrics, School of Dentistry
2002 – 2003	Research Assistant Professor, State University of New York, Buffalo, NY, Department of Pharmacology & Toxicology
2000 – 2003	Assistant Professor, State University of New York, Buffalo, NY, Department of Periodontics and Endodontics,
1997 – present	Clinical Assistant Professor, State University of New York, Buffalo, NY, Department of Oral Biology
1997 – 2000	Clinical Assistant Professor, State University of New York, Buffalo, NY, Department of Periodontics,
1997 – 1999	Post Doctoral Fellow, State University of New York, Buffalo, NY, Department of Pharmacology and Toxicology
1995 – 1997	Clinical Instructor, State University of New York, Buffalo, NY, Department of Periodontics

Summary of Evaluation

Teaching: Dr. Kirkwood performs both clinical and didactic teaching. Since joining the School of Dentistry, Dr. Kirkwood has had teaching responsibilities in several areas including: course director for D2 student teaching Dent Ed 645 Integrated Medical Sciences–III (IV); Dent Ed 606 Mineralized Tissues (~25 graduate students; Dent Ed 720 Comprehensive Care Clinic (~80 dental students); DH 425 Periodontal Therapy (~40 dental hygiene students); Dent Ed 786 Periodontal Therapy (~25 residents); Dent Ed 780 Grad Periodontal Clinic (~12 residents); Dent Ed 746 Periodontal Therapy II (~100 dental students); Dent Ed 540 Integrated Medical Sciences – II (~100 dental students); and MCDB 300 Independent Research (J. Othemba, 2006)-mentoring undergraduate student research from Molecular, Cellular, and Developmental Biology (MCDB) program.

Prior to his joining the School he had significant teaching responsibilities at the State University of New York at Buffalo from 2000-2004. A substantial amount of Dr. Kirkwood's time is devoted to our teaching programs. Dr. Kirkwood has played an integral role in the School's new Integrated Medical Sciences curriculum where he is a course director. He also lectures in other courses including Mineralized Tissues and Periodontal Therapy. In addition to his didactic teaching, he provides clinical teaching during the year. In didactic courses Dr. Kirkwood generally receives high ratings, and peer evaluations of his teaching performance are also strong. Faculty note that "the breadth and quantity of his teaching, at various levels, are impressive, from clinic to classroom to laboratory bench." Dr. Kirkwood has proven to be a very good educator with high expectations for his students.

Dr. Kirkwood is currently mentoring one doctoral candidate in a DDS/PhD program and one master's candidate in periodontics. Under Dr. Kirkwood's guidance, this masters candidate has been recently recognized by the American Academy of Periodontology as a finalist for the 2006 Balint Orban Memorial research competition. Previously, Dr. Kirkwood has mentored two masters candidates; several postdoctoral associates; dental students and several undergraduate students working on independent research projects in his laboratory.

Research: Dr. Kirkwood has an excellent, internationally recognized research program that focuses on enhancing the understanding of basic mechanisms of gene expression from the pharmacologic perspective and in particular, as it relates to inflammatory conditions. This area of research is extremely timely in that the results of these studies are critical for improving strategies to examine and understand cell-signaling pathways. Moreover, the information gained from these studies provides the potential for use in the treatment of periodontal diseases and other inflammatory disorders.

Dr. Kirkwood has been very successful in obtaining outside funding and has been awarded 17 grants from internal and external sources. Currently, he is funded and is the principal investigator on grants from the National Institutes of Health (NIH); National Institute of Diabetes & Digestive & Kidney Disease (NIDDK); Department of Defense; Pfizer, Inc.; and Scios Pharmaceuticals, Inc. He has received support from the University of Michigan Comprehensive Cancer Center. Dr. Kirkwood's ability to obtain continued funding from external sources is an excellent indication of the respect he has gained from the scientific community.

Dr. Kirkwood currently has 23 peer reviewed publications and 3 book chapters either published or accepted for publication. He is first or senior author on more than 19 of these publications, indicating his direct contribution to the studies presented in these papers. The quality of his research is reflected in the peer-reviewed journals in which he publishes. He has published in top journals in his field including *Cancer Research*, *Journal of Bone and Mineral Research*, *The Journal of Biological Chemistry*, *Journal of Periodontology*, *Clinical Oral Investigation*, *Periodontology 2000*, *Journal of Interferon and Cytokine Research*, *Oral Microbiology and Immunology*; among others, and has authored a book chapter in the prestigious textbook, the 10th Edition of *Carranza's Clinical Periodontology*. His long-term research goal is to translate his biological findings and those of others into therapeutic applications. Beyond his excellent research performance, his presentations are impressive and he has gained international recognition for his

research as evidenced by his invitations for presentations at other universities and special meetings.

Recent and Significant Publications:

1. **Kirkwood, K.L.**, Martin, T., Kim, Y. J. Chemically Modified Tetracyclines Selectively Inhibit IL-6 Expression in Osteoblasts by Decreasing mRNA Stability. *Biochemical Pharmacology*, 66: 1809-1819, 2003.
2. Patil, C., Zhu, X. Rossa, C., Kim, Y.J., **Kirkwood, K.L.** p38 MAPK Regulates IL-6 Expression through IL-6 mRNA Stability in Osteoblasts. *Immunological Investigations*, 33(2): 213-233, 2004.
3. Rossa, C., Liu, M., Patil, C., **Kirkwood, K.L.** MKK3/6-p38 MAPK negatively regulates murine MMP-13 gene expression induced by IL-1b and TNF-a in immortalized periodontal ligament fibroblasts. *Matrix Biol.*, 24:478-488, 2005.
4. Rossa, C., Ehmann, K., Patil, C., **Kirkwood, K.L.** MKK3/6-p38 MAPK Signaling Is Required For IL-1b Induced RANKL Expression in Bone Marrow Stromal Cells. *Journal of Interferon and Cytokine Research*, 2006 (in press).
5. Patil, C., Rossa, C., **Kirkwood, K.L.** A. actinomycetemcomitans LPS Induces IL-6 Expression through Multiple MAPK Pathways in Periodontal Ligament Fibroblasts. *Oral Microbiology and Immunology*, 2006 (in press).

Service: Dr. Kirkwood continues to put a major effort into service for the School, as well as on a national level. He has served on several committees within the School and has received excellent feedback on his superb and insightful contributions to the goals of these committees. For the School, he has served on the Honor System Review Committee (2004-present); Strategic Assessment Facilitating Committee (SAFCo) Topic Specific Discussion Group for Faculty (2006); Search Committee for Pediatric Dentistry (2005); Search Committee for Periodontics and Oral Medicine (2005); Research Committee, Periodontics and Oral Medicine (2004- present); Judge, UM Dental School Research Day (2005-06). Dr. Kirkwood also was co-PI on an NIH Shared Instrument Application to obtain a flow cytometer that will be used by all investigators in the School. In addition to these service obligations, Dr. Kirkwood is an active participant in departmental continuing education programs.

He has also gained recognition on an international level, as indicated by his being asked to review articles for several journals. He is an active member of the IADR Pharmacology Toxicology Therapeutics Group (Secretary/Treasurer 2002-2005, Vice President 2005-2006, and President Elect 2006-present); he also serves on the AADR Ethics in Dental Research Committee (2005-2008); AAP Subcommittee of Research Submissions (2001-2003); Judge, ADA Student Clinical Program, Basic Sciences Category (2002-2005); Session Chair, American Association for Dental Research, Baltimore MD (2005); Organized and Chaired AADR Symposium, *Cytokine and Signal Transduction Blockers for the Treatment of Inflammatory Periodontal Diseases*, Baltimore, MD (2005).

External Reviewers:

Reviewer (A)

“In my assessment, Dr. Kirkwood is not only a well rounded periodontist but an achieved scientist. Dr. Kirkwood’s publication record is excellent (total of 23 to date) and the strength of his research work among his publications is his consistency.”

Reviewer (B)

"In the context of clinical scholars (periodontists) and basic scientists working within Dental Schools, his good research funding puts him among the best junior faculty nationally."

Reviewer (C)

"I am not aware of others who have taken the time with the clinically relevant focus displayed by Dr. Kirkwood to capitalize on differences inflammatory pathways for the express purpose of therapeutic intervention. It is my opinion that Dr. Kirkwood is currently performing the best work in this field at the present time."

Reviewer (D)

"I strongly support Dr. Kirkwood's promotion to Associate Professor with tenure because of the clear evidence that he is able to combine his clinical service and teaching with his research activities and because he has tremendous potential for the future."

Reviewer (E)

"He has an impressive record in all aspects of academic dentistry and he has distinguished himself in the field of periodontology and periodontal research. He has been quite productive in his short career with 23 original articles in high quality refereed journals and three book chapters to his credit, and another 5 papers submitted or in press."

Reviewer (F)

"Dr. Kirkwood has a high impact in the Dental Science Community by performing high level molecular studies. He is certainly recognized as an expert in the field."

Summary of Recommendation:

Dr. Kirkwood was appointed as an assistant professor on the tenure track in the Department of Periodontics/Prevention/Geriatrics at the University of Michigan, School of Dentistry, in January 2004. His initial appointment as an assistant professor was at the State University of New York at Buffalo in 2000. Dr. Kirkwood has a strong research background in the area of understanding basic mechanisms of gene expression with a pharmacologic intervention perspective. He is also a talented clinician in the area of periodontics. Dr. Kirkwood is an exceptional individual committed to dental education, to dental research, and to the dental community. He is a valued faculty member who has made significant contributions to the School and the dental community and has gained recognition as a gifted researcher and concerned clinician dedicated to the academic community. It is with the support of the Appointments, Promotion and Tenure and Executive Committees of the School of Dentistry that Dr. Kirkwood is being recommended for promotion to associate professor of dentistry, with tenure, School of Dentistry.



Peter J. Polverini, DDS, DMSc
Dean, School of Dentistry

May 2007