

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF PEDIATRICS AND COMMUNICABLE DISEASES

Sung W. Choi, M.D., assistant professor of pediatrics and communicable diseases, Department of Pediatrics and Communicable Diseases, Medical School, is recommended for promotion to associate professor of pediatrics and communicable disease, with tenure, Department of Pediatrics and Communicable Diseases, Medical School.

Academic Degrees:

M.S.	2013	University of Michigan School of Public Health
M.D.	1999	Wayne State University
M.S.	1995	Wayne State University
B.S.	1992	University of Michigan

Professional Record:

2011-present	Assistant Professor of Pediatrics and Communicable Diseases, University of Michigan
2006-2011	Clinical Assistant Professor of Pediatrics and Communicable Diseases, University of Michigan
2005-2006	Clinical Lecturer, Department of Pediatrics and Communicable Diseases, University of Michigan

Summary of Evaluation:

Teaching: Dr. Choi is a dedicated and accomplished educator of undergraduate students, medical students, residents, fellows, peers, staff, and patients. She serves as an attending physician on both the inpatient and outpatient Pediatric BMT Units. During these clinical duties, she primarily educates pediatric hematology and oncology fellows and nurse practitioners, but also provides instruction to pediatric residents, medical students, and undergraduate students with special interest in pediatric oncology. Dr. Choi enjoys delivering spur-of-the-moment Chalk Talks on a variety of topics related to bone marrow transplantation (BMT), as well as more formal didactic powerpoint presentations in a platform of organized lecture series. Given the importance of Specialty Board Examinations, she also provides lectures to fellows covering significant topics in BMT as outlined in the Board Reviews. Importantly, she addresses quality of life and patient and caregiver satisfaction in BMT. In these areas, she actively contributes to the clinical and teaching missions of the University of Michigan Medical School. Complementing her research and academic interests, she provides a significant amount of daily one-on-one instruction and mentorship to medical, graduate, and post-graduate students on topics related to blood and marrow transplantation, pediatric hematology and oncology, clinical and translational research, and phase I, II, and III clinical trials. In particular, Dr. Choi's expertise in acute graft-vs-host disease and design and execution of investigator-initiated research is integral to the educational aspect of our academic mission.

Research: The major focus of Dr. Choi's scholarly activity is in the prevention of acute graft-versus-host disease (GVHD), a major complication of allogeneic bone marrow transplantation (BMT), and improving transplant-related outcomes. Her clinical and laboratory-based research training have provided her with an excellent foundation to build an independent career in translational research. She has expertise in clinical trial design and execution with a unique focus on bench-to-bedside translation. The risk of developing acute GVHD after allogeneic BMT remains a significant clinical problem that warrants more effective preventive strategies. Recently, Dr. Choi executed and completed the 50-patient multi-center study, and these findings were recently reported in *The Lancet Oncology*. This work has impacted the field, because newer agents (such as vorinostat, a histone deacetylase [HDAC] inhibitor) that target multiple relevant pathways and cellular subsets coupled with a clearer understanding of the precise molecular and cellular interactions that mediate GVHD may be required to develop effective strategies that prevent this complication without causing other adverse effects. Her research has derived from a step-wise approach by translating the efforts of HDAC inhibition as a GVHD prevention therapy from murine studies to clinically relevant BMT patients. Dr. Choi utilized novel theoretical concepts and studied the effects of HDAC inhibition in murine models of GVHD. She then translated *in vivo* experimental observations in a proof-of-concept BMT clinical trial. More recently, she expanded these laboratory discoveries to a wider BMT population (unrelated donor) to broaden the scope of its applicability, which will ultimately have a significant impact in the field of bone marrow transplantation. Dr. Choi's work is important because this strategy could have significant impact and potentially wide ranging clinical applications in several other immunological diseases, including solid organ allograft rejection and autoimmune diseases such as lupus and diabetes.

Recent and Significant Publications:

Vander Lugt, Braun TM, Hanash S, Ritz J, Ho VT, Antin JH, Zhang Q, Won C, Wang H, Chin A, Gomez A, Harris AC, Levine JE, Choi SW, Couriel D, Reddy P, Ferrara JLM, Paczesny S: ST2 and therapy-resistant graft-versus-host disease and mortality. *NEJM* 369:529-539, 2013.

Choi SW, Braun T, Chang L, Ferrara JL, Pawarode P, Magenau JM, Hou G, Beumer JH, Levine JE, Goldstein S, Couriel DR, Stockerl-Goldstein K, Krijanovski OI, Kitko C, Yanik GA, Lehmann MH, Tawara I, Sun Y, Paczesny S, Mapara MY, Dinarello CA, DiPersio JF, Reddy P: Phase 1/2 trial of vorinostat plus tacrolimus and mycophenolate to prevent graft versus host disease following related donor reduced intensity conditioning allogeneic hematopoietic stem cell transplantation. *Lancet Oncol* 15:87-95, 2014.

Chang L, Frame D, Braun T, Gatzka E, Hanauer DA, Zhao S, Magenau JM, Schultz K, Tokala H, Ferrara JL, Levine JE, Reddy P, Paczesny S, Choi SW: Engraftment Syndrome following allogeneic hematopoietic cell transplantation predicts poor outcomes. 20:1407-1417, 2014.

Gleimer M, Li Y, Chang L, Paczesny S, Hanauer DA, Frame DG, Byersdorfer CA, Reddy P, Braun T, Choi SW: Baseline body mass index among children and adults undergoing allogeneic hematopoietic cell transplantation: clinical characteristics and outcomes. *Biol Blood Marrow Transplant* 50:402-410, 2015.

Choi SW, Gatzka E, Hou G, Sun Y, Whitfield J, Song Y, Oravec-Wilson K, Tawara I, Dinarello C, Reddy P: Histone deacetylase inhibition regulates inflammation and enhances Tregs after allogeneic hematopoietic cell transplantation in humans. *Blood* 125:815-819, 2015.

Service: Early in her research career, Dr. Choi took on Administrative Service activities. She has served as the designated BMT Program Acute GVHD Continuity Grader. In this role, she performed weekly GVHD grading on all hospitalized patients and provided consistent GVHD assessments. This enabled her to achieve her research and academic goals, while teaching and educating peers, patients, and families. She designed and developed an electronic Acute GVHD Assessment tool. She has been recognized for this expertise in clinical staging and grading of acute GVHD, which facilitated collaborative IRB-approved research with numerous investigators at the University of Michigan as well as outside institutions. For example, these GVHD assessments became an integral component of the BMT Database and contributed to the biomarker manuscripts that stemmed from our program. Importantly, this administrative service contributed to the Team Science within our program where clinicians and physician-scientists were able to collaborate successfully. Dr. Choi was also appointed as the BMT quality management officer. As the GVHD grader and as the QM officer, she was able to provide uniform and standardized approaches to the management of patients with GVHD. Additionally, in dealing with clinical complications related to GVHD, such as infections, she used her service role as the QM officer to lead an important hospital initiative as physician lead of the Pediatric Hematology Oncology Catheter-Associated Bloodstream Infection Working Group. Several of these quality-related service projects resulted in peer-reviewed manuscripts related to her research. As an educator and scholar of the University of Michigan community, she has utilized service duties as opportunities to advance knowledge and add to the medical literature.

External Reviewers:

Reviewer A: “Dr. Choi has accomplished a significant amount in a very short period of time and already has accumulated 54 peer reviewed manuscripts since completing her training. She is considered one of the rising stars in Pediatric Hematology, Oncology and Blood and Marrow Transplantation and is a consummate translational scientist....Dr. Choi has also been active at the national and international levels of Pediatric Blood and Marrow Transplantation and has been an outstanding mentor to students, residents, fellows and junior faculty members alike.... Dr. Choi clearly ranks in the top 1% of physician-scientists in Pediatric Blood and Marrow Transplantation as one of the most productive investigators in her generation of peers.... I would consider Dr. Choi a superstar and an asset or treasure to be nurtured and supported in an ongoing effort to maintain and stimulate her academic career.”

Reviewer B: “With her publication record and participation in national and international committees she has become one of the experts in graft versus host disease and pediatric transplantation.”

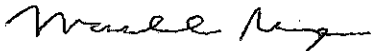
Reviewer C: “Her national reputation in the field of HCT and specifically with regards to the study of GVHD is widely respected as evidenced by her publication record, ongoing and potentially transformative trials, grant support and speaker invitations at national meetings.”

Reviewer D: “She has had a consistent and strong track record of publication in the area of the pathogenesis of graft-versus-host disease and the development of new model approaches for its prevention and treatment. Both in studies using TNF blockade and more recently with histone deacetylase inhibition, her papers have been strikingly unique in elaborating new clinical translational approaches to manage this most vexing syndrome complicating allogeneic hematopoietic cell transplantation.”

Reviewer E: “She has led important clinical trials for GVHD prevention, performed important data analyses of important complications of BMT providing important insights that have and will point to new lines of inquiry....Dr. Choi has increasingly become recognized as a national leader in her area....Her service and research accomplishments are remarkable and broad reaching. She is receiving national and international recognition for this work.”

Summary of Recommendation:

Dr. Choi has a proven commitment to excellence in the areas of scholarship, clinical service, teaching and administrative service. She is a key faculty member in the advancement and success of the Pediatric Division of Hematology Oncology. I am pleased to recommend Sung W. Choi, M.D. for promotion to associate professor of pediatrics and communicable diseases, with tenure, Department of Pediatrics and Communicable Diseases, Medical School.



Marschall S. Runge, M.D., Ph.D.
Executive Vice President for Medical Affairs
Dean, Medical School

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