Approved by the Regents
May 17, 2018

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF SURGERY
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Shaun Kunisaki, M.D., assistant professor of surgery, Department of Surgery, and assistant professor of obstetrics and gynecology, Department of Obstetrics and Gynecology, Medical School, is recommended for promotion to associate professor of surgery, with tenure, Department of Surgery, and associate professor of obstetrics and gynecology, without tenure, Department of Obstetrics and Gynecology, Medical School.

Academic Degrees:

M.D.	2000	Harvard Medical School
M.Sc.	1995	London School of Economics
A.B.	1994	Harvard College

Professional Record:

2010-present	Assistant Professor of Surgery, University of Michigan
2010-present	Assistant Professor of Obstetrics and Gynecology, University of Michigan

Summary of Evaluation:

Teaching: Dr. Kunisaki has demonstrated outstanding skills as a teacher and mentor for individuals at every level of training, including undergraduates, medical students, residents, fellows, post-graduate students, and clinical peers. Six UM undergraduates have worked with him directly on various basic science or clinical research projects through the UROP program (12 hrs/yr). Given his research interests in lung development, he has been involved with the core content development, curriculum re-design, and delivery of the annual M2 pulmonary embryology lecture for the past five years. The quality of his science teaching is reflected by favorable student evaluations (mean overall score: 4.02 out of 5). In addition, he has taught and mentored numerous M3s and M4s rotating on the pediatric surgery service in the operating room, on rounds, and in teaching conferences. His dedication and devotion towards teaching general surgery residents and pediatric surgery fellows is evident from consistently glowing evaluations and letters of support. On a national residency education level, he helped develop original content material for the Esophageal Atresia/Tracheoesophageal Fistula and Esophageal Stenosis modules for the web-based SCORE portal. Since 2013, Dr. Kunisaki has mentored two Ph.D. students in the laboratory, both of whom now hold advanced research positions elsewhere. Finally, he has authored several Pediatric Surgery *Not a Textbook* chapters and has spoken in local continuing medical education-based lectures on a variety of topics in pediatric thoracic surgery.

Research: Dr. Kunisaki has been successful as a surgeon-scientist in both the basic science and clinical realms. Virtually all of his endeavors at Michigan Medicine have reflected a consistent body of work closely related to his interests in advancing fetal therapy and pediatric thoracic surgery. He has 48 peer-reviewed manuscripts (including 25 since his appointment as assistant professor) and has written 16 book chapters. The vast majority of his academic work has been as either first- or senior-author. He has published in respected journals, including *Tissue Engineering* (cover article in Sept 2014), *Stem Cells and Development*, *Stem Cells Translational Medicine*, *American Journal of Obstetrics and Gynecology*, the *Annals of Thoracic Surgery*, and the *Journal of the American College of Surgeons*. His clinical research in the area of prenatal diagnosis of fetal lung malformations has already changed practice within the Fetal Diagnosis and Treatment Center (FDTC) at Michigan Medicine and at other fetal care centers, both regionally and nationally. Since 2014, he has been the lead investigator of the Midwest Pediatric Surgical Consortium congenital lung malformation registry, the largest database of its kind in the United States. His fetal stem cell and regenerative medicine laboratory, which commenced in 2010, has been consistently funded through numerous external career development awards from prestigious organizations, including the American College of Surgeons, the American Pediatric Surgical Association (APSA), and the Robert Wood Johnson Foundation. More recently, he was awarded his first NIH RO1 as the principal investigator on a grant aimed at determining the impact of neural stem cell implants on fetal spinal cord regeneration in models of spina bifida. His basic science work, which incorporates induced pluripotent stem cells, organoid differentiation, and 3D printing technologies, has been a collaborative effort involving cell biologists and biomedical engineers within the institution and elsewhere. Dr. Kunisaki is an established authority on amniotic fluid stem cell biology and has presented his work in national symposia (e.g., American Thoracic Society, University of Texas at Houston, APSA) as an invited lecturer.

Recent and Significant Publications:

Ehrenberg-Buchner S, Stapf AM, Berman DR, Drongowski RA, Mychaliska GB, Treadwell MC, Kunisaki SM: Fetal lung lesions: can we start to breathe easier? *American Journal of Obstetrics & Gynecology* 2013, 208:151e1-7, 2013.

Di Bernardo J, Maiden MM, Jiang G, Hershenson MB, Kunisaki SM: Paracrine regulation of fetal lung morphogenesis using human placenta-derived mesenchymal stromal cells. *Journal of Surgical Research* 190:255-263, 2014.

Kunisaki SM, Powelson IA, Haydar B, Bowshier BC, Jarboe MD, Mychaliska GB, Geiger JD, Hirschl RB: Thoracoscopic vs. open lobectomy in infants and young children with congenital lung malformations. *Journal of the American College of Surgeons* 218:261-270, 2014.

Jiang G, Herron TJ, Di Bernardo J, Walker KA, O'Shea KS, Kunisaki SM: Human cardiomyocytes prior to birth by integration-free reprogramming of amniotic fluid cells. *Stem Cells Translational Medicine* 5:1595-1606, 2016.

Kunisaki SM, Coran AG: Esophageal replacement. *Seminars in Pediatric Surgery* 26:105-115, 2017.

Service: Dr. Kunisaki has shown a consistent commitment toward service and is currently a member of two national professional organization committees; the Publications Committee of the Surgical Section of the American Academy of Pediatrics and the APSA Program Committee. He recently served on the APSA Fetal Committee (2015-2017) where he took the lead in revising the APSA Fetal Handbook, an important educational resource for practicing pediatric surgeons engaged in prenatal consultations. He was formerly a member of the Publications Committee of the Association for Academic Surgeons (2013-2015). At an institutional level, he served on the Pain Management Committee, a Medical School committee dedicated towards developing pain management guidelines and protocols for adults and pediatric patients on an institutional level (2010-2014). From a research perspective, he has been an external grant reviewer for stem cell grants as part of the California Institute of Regenerative Medicine. He has also reviewed grants for the French Ministry of Health on congenital lung malformations. In addition to being an ad hoc reviewer for over 20 journals, Dr. Kunisaki has served on the editorial board for *Organogenesis* (IF: 3.426) since 2012.

Professional Work: Dr. Kunisaki maintains a busy clinical practice with demonstrated regional expertise in his chosen areas of sub-specialization. He has one of the largest minimally invasive lung surgery practices in the entire Midwest and has operated on infants from upstate New York and China. Furthermore, he has been involved in a number of programmatic efforts at Michigan Medicine, including Pediatric Esophageal Surgery, the Aerodigestive Clinic, Phrenic Nerve Pacer Program, the Congenital Diaphragmatic Hernia Clinic, and the FDTC. As the program lead of Pediatric Esophageal Surgery, he has helped to increase the referral base of complex esophageal patients, some of which have come as far away as France to receive surgical care. He has also helped to introduce newer surgical techniques, namely the Foker procedure for long-gap esophageal atresia (n=2 cases), thoracoscopic repair for pure esophageal atresia (n=2 cases), and esophageal stenting (n=10 cases). Since 2012, he has been the surgical lead of the Phrenic Nerve Pacer Program for children and adults with central hypoventilation and traumatic cervical spinal cord injuries (n=8 cases). The Phrenic Nerve Pacer Program continues to expand in terms of its referral case and has drawn a number of out-of-state patients from Ohio and Indiana in recent years. As a member of the FDTC, he has helped to build one of the strongest comprehensive fetal treatment programs in the region, which now offers selective laser ablation of placenta vessels for twin-twin transfusion syndrome (since 2010) and prenatal myelomeningocele repair (since 2012).

External Reviewers:

Reviewer A: "…Shaun has demonstrated outstanding clinical/surgical skills and has a reputation as an outstanding clinician. This combination of scholarly activity and top tier clinical skills in the highly technical field of fetal and pediatric surgery is a rare combination."

Reviewer B: "I would rank Dr. Kunisaki equal or above his peers of leading surgery clinicians/scholars in the field. He is a competent, inquisitive, productive, mature and professional surgical scholar. I can say that I would be delighted to have Dr. Kunisaki as part of my own team, and again, support his promotion in the strongest terms."

Reviewer C: "Based on my review of Dr. Kunisaki's academic activities, I am confident that he meets the requirements for promotion. He is an active clinical pediatric surgeon who has made important scholarly contributions in his areas of expertise and exhibits a commitment to teaching and mentoring. In short, Dr. Kunisaki is a wonderful example of an academic surgeon, scientist, and educator."

Reviewer D: "His research program is thoughtfully designed and fully executable. He is at the cutting edge of basic research in fetal and neonatal surgical disease and an innovator in our field. He has the capacity to be a future academic leader."

Reviewer E: "Overall I find that Dr. Kunisaki has a building national reputation for his clinical and scholarly contributions. He has demonstrated activity at the national and local level in committee work. Dr. Kunisaki's scholarship is also building, with his recent RO1 award a very laudable accomplishment at this stage."

Summary of Recommendation:

Dr. Kunisaki is an outstanding surgeon with unique expertise in complex thoracic surgery in children and fetal therapy which he brings to the care of children at C.S. Mott Children's Hospital. He is NIH funded for his fetal stem cell work. I am pleased to recommend Shaun Kunisaki, M.D. for promotion to associate professor of surgery, with tenure, Department of Surgery, and associate professor of obstetrics and gynecology, without tenure, Department of Obstetrics and Gynecology, Medical School.

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

May 2018

MICHIGAN MEDICINE
UNIVERSITY OF MICHIGAN

Marschall S. Runge, M.D., Ph.D.
Dean, U-M Medical School
Executive Vice President
for Medical Affairs
University of Michigan

February 1, 2018

Martin A. Philbert, Ph.D.
Provost and Executive Vice President for Academic Affairs
3075 Fleming

Subject: Shaun M. Kunisaki, M.D., Assistant Professor, Empl. ID: 92113182; Surgery (100%), Obstetrics and Gynecology (0%), Date of Hire: 7/1/2010

Dear Martin:

I would like to recommend Shaun M. Kunisaki, M.D. for promotion to Associate Professor, with tenure, in the Department of Surgery, and to Associate Professor, without tenure, in the Department of Obstetrics and Gynecology. Dr. Kunisaki received his M.D. degree in 2000 from Harvard Medical School. Prior to that, he received a master's in health policy, planning and financing from the London School of Economics. He completed an internship and residency in general surgery from 2000 to 2003 at Massachusetts General Hospital/Harvard Medical School. He then completed a postdoctoral research fellowship in tissue engineering/fetal surgery at that institution from 2003 to 2006, a residency in general surgery from 2006 to 2008 at Harvard, and a fellowship in pediatric surgery at the University of Michigan from 2008 to 2010. He was appointed Assistant Professor of Surgery, Section of Pediatric Surgery in 2010, with a joint appointment in the Department of Obstetrics and Gynecology. This is his eighth year in rank.

Dr. Kunisaki's *teaching* primarily takes the form of outpatient clinical and operating room instruction. He has mentored six undergraduate students, two residents, and 31 fellows and six medical students. Three former trainees and a collaborator provided very positive letters attesting to the quality of his teaching and his impact on trainees. Dr. Kunisaki was instrumental in creating a lecture for second-year medical students that contributes to the embryology and respiratory sequence curriculum. Evaluations from medical students, residents, and fellows place him at or above average for his peers. Teaching scores range from 3 to 5 on a 5-point scale, with many excellent comments. Overall, based on evaluations, educational materials, and letters, it is apparent that he is valued for his teaching contributions.

Dr. Kunisaki's *research* focuses on stem cell therapies and regenerative repair of congenital fetal malformations. The research is translational and thematically in line with his well-respected clinical expertise. He is the principal investigator on an NIH R01 grant and co-investigator on an additional R01. He is also the principal investigator on an industry grant. Dr. Kunisaki lists 48 publications and 16 book chapters.

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Dr. Kunisaki's organizational *service* includes ad hoc peer review for several journals and his role as associate editor of *Organogenesis*. He is on the program committee for the American Pediatric Surgical Association, the publications committee for the Association for Academic Surgery as well as the American Academy of Pediatrics Section on Surgery, and a member of the Fetal Diagnosis and Treatment Committee for the American Pediatric Surgical Association. Locally, Dr. Kunisaki has a large minimally invasive lung surgery practice that has drawn patients from around the U.S. He has been the surgical lead in the Phrenic Nerve Pacer Program and a member of the Congenital Diaphragmatic Hernia Clinic and the Fetal Diagnostic and Treatment Center. As the program lead of Pediatric Esophageal Surgery, he is credited with helping to increase the referral base of complex esophageal patients, some of whom come from other countries to receive surgical care.

Dr. Kunisaki is an outstanding surgeon who brings to Mott Children's Hospital unique expertise in fetal therapy and complex thoracic surgery in children. The Medical School review committees noted that he is establishing himself as a leading researcher in a very specialized field. The Advisory Committee for Appointments, Promotions and Tenure (ACAPT) voted unanimously 9-0-0 to approve the promotion and tenure recommendations. The Medical School Executive Committee also unanimously voted to approve the recommendations 8-0-0.

Sincerely,

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