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EDUCATION

Ph.D, Applied Mathematics, University of Minnesota, Oct 2006 [Advisor: Hans G. Othmer]
M.S, Applied Mathematics, University of Minnesota, Nov 2003 [Advisor: Hans G. Othmer]
B.S, Korea University, Seoul, Republic of Korea, May, 1997

EMPLOYMENT

Associate Professor [2015 - present] *Konkuk University, Mathematics, South Korea*
Visiting Professor [Jan- Aug, 2017] *Mathematical Biosciences Institute (Sabbatical leave)*
Department chair [July 2015 - Dec 2016] *Konkuk University, Mathematics, South Korea*
Adjunct Professor [2016 - 2017] *National Cancer Center, South Korea*
Assistant Professor [2012 - 2014] *Konkuk University, Mathematics, South Korea*
Assistant Professor [2009 - 2013] *University of Michigan, Mathematics, USA*
Postdoctoral Fellow [2006 - 2009] *Mathematical Biosciences Institute, OSU, USA*
Lecturer [2008] *Ohio State University, Mathematics, USA*

EDITORIAL BOARD

1. Mathematical Biosciences and Engineering [2016 Sep - present]
2. Frontiers in Cell and Developmental Biology and Oncology, Molecular and Cellular Oncology section [2015 - present]

SCIENTIFIC VISIT

Visiting Scholar [Jan, 2019] *School of Mathematics and Statistics, University of Sydney, Australia*
Visiting Scholar [Sep, 2018] *Medical School, Kumamoto University Hospital, Japan*
Visiting Scholar [Sep, 2018] *Medical School, Kyushu University Hospital, Japan*
Visiting Scholar [July-Oct, 2018] *Mathematical Biosciences Institute, Ohio State University, USA*
Visiting Scholar (Sabbatical leave) [Jan-Aug, 2017] *Mathematical Biosciences Institute, Ohio State University, USA*
Visiting Scholar [Oct, 2016] *Institute of Industrial Science, University of Tokyo, Japan*
Visiting Scholar [July, 2016] *Mathematical Biosciences Institute, Ohio State University, USA*
Visiting Scholar [May, 2016] *Medical School, University of Tokyo, Japan*
Visiting Scholar [Mar, 2016] *Medical School, University of Tokyo, Japan*
Visiting Scholar [Feb, 2016] *Medical School, University of Tokyo, Japan*
Visiting Scholar [Oct, 2015] *Medical School, University of Tokyo, Japan*

Visiting Scholar [Aug, 2015] *Medical School, Kyoto University, Japan*
Visiting Scholar [Aug, 2015] *Medical School, University of Tokyo, Japan*
Visiting Scholar [Apr, 2015] *Mathematical Biosciences Institute, Ohio State University, USA*
Visiting Scholar [Jan, 2015] *School of Mathematics and Statistics, University of Sydney, Australia*
Visiting Scholar [Nov, 2014] *Medical School, University of Tokyo, Japan*
Visiting Scholar [Aug, 2014] *Mathematical Biosciences Institute, Ohio State University, USA*
Visiting Scholar [July, 2014] *Medical School, University of Tokyo, Japan*
Visiting Scholar [Jan-Feb, 2014] *Mathematical Biosciences Institute, Ohio State University, USA*
Visting Scholar [2013 - 2014] *Department of Mathematics, Ohio State University, USA*
Visiting Scholar [Aug 2012] *University of Dundee, UK*
Visting Scholar [July 2012] *Department of Mathematics, University of Minnesota, USA*
Visting Scholar [2009 - 2010] *Mathematical Biosciences Institute, Ohio State University, USA*

PUBLICATIONS

Published/accepted

1. **Yangjin Kim**, Junho Lee, Donggu Lee and Hans G. Othmer, *Synergistic Effects of Bortezomib-OV Therapy and Anti-Invasive Strategies in Glioblastoma: A Mathematical Model*, Cancers, 11(2), 215, Feb 13, 2019. [doi:10.3390/cancers11020215]
2. **Yangjin Kim**, Donggu Lee, Junho Lee, Seongwon Lee, Sean Lawler, *Role of tumor-associated neutrophils in regulation of tumor growth in lung cancer development: A mathematical model*, PLoS One, 14(1): e0211041, Jan 28, 2019.
3. **Yangjin Kim**, Hyunji Kang, Gibin Powathil, Hyeongi Kim, Dumitru Trucu, Wanho Lee, Sean Lawler, and Mark Chaplain, *Role of extracellular matrix and microenvironment in regulation of tumor growth and LAR-mediated invasion in glioblastoma*, PLoS One, 13(10):e0204865, Oct 4, 2018 [doi: 10.1371/journal.pone.0204865]
4. **Yangjin Kim**, Ji Young Yoo, Tae Jin Lee, Joseph Liu, Jianhua Yu, Michael A Caligiuri, Balveen Kaur, and Avner Friedman, *Complex Role of NK cells in regulation of oncolytic virus-bortezomib therapy*, Proc Natl Acad Sci, 115 (19) 4927-4932, May 8, 2018. [doi: 10.1073/pnas.1715295115]
5. **Yangjin Kim**, Wanho Lee, Hyejin Jeon, Sookkyung Lim, Soyeon Roh, Donggu Lee, Junho Lee, and Sean Lawler, *The role of microenvironment in regulation of cell infiltration in glioblastoma*, Springer volume 'Cell Movement: Modeling and Applications', Editors: Stolarska, Magdalena, Tarfulea, Nicoleta E, 27-60, 2018. ISBN 978-3-319-96842-1
6. **Yangjin Kim**, Hyejin Jeon, and Hans Othmer, *The role of the tumor microenvironment in glioblastoma: A mathematical model*, IEEE Trans Biomed Eng (IF 2.347), 64(3):519-527, March 2017. [doi: 10.1109/TBME.2016.2637828] (This paper was selected as a featured article)
7. Wanho Lee, Sookkyung Lim, and **Yangjin Kim**, *The role of myosin II in glioma invasion: A mathematical model*, PLoS One, 12(2): e0171312. Feb 06, 2017. [doi:10.1371/journal.pone.0171312, 2017] [IF=4.411]
8. Ji Sun Lim, Seongwon Lee, and **Yangjin Kim**, *Hopf bifurcation in a model of TGF-β in regulation of the Th 17 phenotype*, Discrete and Continuous Dynamical Systems-B, 21(10), 3575–3602, Dec 2016. [doi:10.3934/dcdsb.2016111]

9. Shinji Nakaoka, Sota Kuwahara, Changhyeong Lee, Hyejin Jeon, Junho Lee, Yasuhiro Takeuchi, and **Yangjin Kim**, *Chronic inflammation in the epidermis: A mathematical model*, Appl. Sci. 6(9), 252, Sep 2016 doi:10.3390/app6090252. [IF=1.726]
10. Hyun Geun Lee and **Yangjin Kim**, *The role of the microenvironment in regulation of CSPG-driven invasive and non-invasive tumor growth in glioblastoma*, Japan J. Indust. Appl. Math. 32 (3) , 771–805 (Jan 2016). [DOI 10.1007/s13160-015-0188-2]
11. Hyun Geun Lee, **Yangjin Kim**, and Junseok Kim, *Mathematical model and its fast numerical method for the tumor growth*, Math Bios Eng, 12 (6), 1173–1187, Dec 2015.
12. **Yangjin Kim** and Hans Othmer, *Hybrid models of cell and tissue dynamics in tumor growth*, Math Bios Eng, 12 (6), 1141–1156, Dec 2015.
13. Aurelio A. de los Reyes V, Eunok Jung, and **Yangjin Kim**, *Optimal control strategies of eradicating invisible glioblastoma cells after conventional surgery*, J Roy Soc Interface, 12 (106), 20141392, (May 6, 2015). [doi: 10.1098/rsif.2014.1392.] [IF=3.917]
14. **Yangjin Kim**, Gibin Powathil, Hyunji Kang, Dumitru Trucu, Hyeongi Kim, Sean Lawler, and Mark Chaplain, *Strategies of eradicating glioma cells: A multi-scale mathematical model with miR-451-AMPK-mTOR control*, PLoS One, 10(1):e0114370, (Jan 28, 2015). [DOI: 10.1371/journal.pone.0114370, 2015] [IF=3.234]
15. **Yangjin Kim**, Hyunji Kang, and Sean Lawler, *The Role of the miR-451-AMPK Signaling Pathway in Regulation of Cell Migration and Proliferation in Glioblastoma*, in 'Mathematical Models of Tumor-Immune System Dynamics', Springer Proceedings in Mathematics & Statistics, Springer, New York, NY, 107, 125-155, (Oct 18, 2014) ISBN 978-1-4939-1792-1 / 2194-1009.
16. **Yangjin Kim**, Hyungeun Lee, Nina Dmitrieva, Balveen Kaur, Junseok Kim, and Avner Friedman, *Choindroitinase ABC I-mediated enhancement of oncolytic virus spread and anti-tumor efficacy: A mathematical model*, PLoS One, 9(7), e102499 (July 21, 2014). [DOI 10.1371/journal.pone.0102499]. [IF=3.234]
17. Seongwon Lee, Hyung Ju Hwang, **Yangjin Kim**, *Modeling the role of TGF-β in regulation of the Th17 phenotype in the LPS-driven immune system*, Bull Math Biol., 76 (5), 1045-1080 (May, 2014) [DOI 10.1007/s11538-014-9946-6].
18. Heinz Schättler, **Yangjin Kim**, Urszula Ledzewicz, Aurelio A. de los Reyes V, and Eunok Jung, *On the control of cell migration and proliferation in glioblastoma*, proceeding of the 52nd IEEE Conference on Decision and Control, 978-1-4673-5716-6/13, 1810-1815 (Dec, 2013)
19. **Yangjin Kim**, Seongwon Lee, You-Sun Kim, Yoon-Keun Kim, Yong Song Gho, Hyung Ju Hwang, Sean Lawler, *Regulation of Th1/Th2 cells in asthma development: A mathematical model*, Math. Bios. Eng., 10(4), 1095–1133, (Aug, 2013).
20. **Yangjin Kim** and Hans Othmer, *A hybrid model of tumor-stromal interactions in breast cancer*, Bull Math Biol, 75, 1304–1350 (Aug, 2013) [DOI 10.1007/s11538-012-9787-0]
21. **Yangjin Kim** and Soyeon Roh *A hybrid model for cell proliferation and migration in glioblastoma*, Discrete and Continuous Dynamical Systems-B, 18 (4), 969-1015 (June 2013).
22. **Yangjin Kim** and Khalid Boushaba, *Regulation of Tumor Dormancy and Role of Microenvironment: A Mathematical Model*, Adv. Exp. Med. Biol., 734, 237-259 (2013).
23. **Yangjin Kim**, *Regulation of cell proliferation and migration in glioblastoma: New therapeutic approach*, Frontiers in Molecular and Cellular Oncology, 3, 53 (Mar 2013). doi: 10.3389/fonc.2013.00053

24. **Yangjin Kim** and Khalid Boushaba, *Regulation of Tumor Dormancy and Role of Microenvironment: A Mathematical Model*, Systems Biology of Tumor Dormancy, Advances in Experimental Medicine and Biology, Heiko Enderling, Nava Almog, Lynn Hlatky (Eds.), Springer, New York, 734, 237-259 (2013).
25. **Yangjin Kim**, Soyeon Roh, Sean Lawler, and Avner Friedman, *miR451 and AMPK mutual antagonism in glioma cells migration and proliferation*, PLoS One, 6(12), e28293, (Dec 20, 2011). [doi:10.1371/journal.pone.0028293] [IF=3.234]
26. Marisa Eisenberg, **Yangjin Kim**, Ruth Li, William E. Ackerman, Douglas A. Kniss, and Avner Friedman, *Modeling the effects of myoferlin on tumor cell invasion*, Proc Natl Acad Sci USA, 108(50), 20078-83, (Dec 13, 2011) [IF=9.674]
27. **Yangjin Kim** and Khalid Boushaba, *An enzyme kinetics model of tumor dormancy, regulation of secondary metastases*, Discrete and Continuous Dynamical Systems-S, 4(6), 1465-1498 (Dec, 2011).
28. Baltazar D. Aguda, **Yangjin Kim**, Hong Sug Kim, Avner Friedman, and Howard Fine, *Qualitative network modeling of the MYC-p53 control system of cell proliferation and differentiation*, Biophysical Journal, 101(9), 2082-2091 (Nov, 2011). [IF=3.972] (This paper was selected as a featured article)
29. **Yangjin Kim**, Magdalena Stolarska, and Hans G. Othmer, *The Role of The Microenvironment in Tumor Growth and Invasion*, Progress in Biophysics and Molecular Biology, 106, 353-379 (Aug, 2011). [IF(2011)=4.00]
30. Avner Friedman and **Yangjin Kim**, *Tumor cells proliferation and migration under the influence of their microenvironment*, Mathematical Biosciences and Engineering, 8(2), 373-385 (2011).
31. **Yangjin Kim** and Sookkyung Lim, *The role of the microenvironment in tumor invasion*, 2009 Proceedings of the Fourth SIAM Conference on Mathematics for Industry (MI09), 84-92 (2010).
32. **Yangjin Kim**, Julie Wallace, Fu Li, Michael Ostrowski and Avner Friedman, *Transformed epithelial cells and fibroblasts/myofibroblasts interaction in breast tumor: a mathematical model and experiments*, J Math Biol, 61(3), 401-421 (2010)
33. **Yangjin Kim** and Avner Friedman, *Interaction of tumor with its microenvironment : A Mathematical Model*, Bull.Math.Biol., 72(5), 1029-1068 (2010)
34. **Yangjin Kim**, Sean Lawler, Michal O. Nowicki, E. Antonio Chiocca, and Avner Friedman, *A mathematical model for pattern formation of glioma cells outside the tumor spheroid core*, J. Theo. Biol., 260, 359-371 (2009)
35. Magdalena Stolarska, **Yangjin Kim**, and Hans G. Othmer, *Multiscale models of cell and tissue dynamics*, Phil. Trans. Roy. Soc. A, 367, 3525-3553 (2009) [IF(2015)=2.43]
36. Baltazar D. Aguda, **Yangjin Kim**, Melissa G. Piper-Hunter, Avner Friedman, and Clay B. Marsh, *MicroRNA Regulation of a Cancer Network: Consequences of the Feedback Loops Involving miR-17-92, E2F, and Myc*, Proc Natl Acad Sci, 105(50), 19678-19683 (2008) [IF=9.674]
37. **Yangjin Kim**, Magdalena Stolarska, and Hans G. Othmer, *A hybrid model for tumor spheroid growth in vitro I: Theoretical development and early results*, Math. Models Methods in Appl Scis, 17, 1773-1798 (2007) [IF(2014)=3.094 (1.2%)]
38. Ph.D thesis (advisor : Hans G. Othmer) : **Yangjin Kim**, *Mathematical modeling of cell movement and tumor spheroid growth in vitro*, Oct., 2006.

Submitted/in revision :

1. Eunok Jung, Aurelio A. de los Reyes V, Kurt Jan A. Pumares, and Yangjin Kim, *Strategies in regulating glioblastoma signaling pathways and anti-invasion therapy*, PLoS One, in revision, 2019

In preparation :

1. Yangjin Kim, Ji Young Yoo, Balveen Kaur, and Avner Friedman, *Dual role of M1 and M2 macrophages in regulation of glioma invasion and proliferation in OV therapy*, in preparation, 2017.
2. Hideki Murakawa and Yangjin Kim, *The role of microenvironment and cell-cell adhesion in pattern formation and implications in breast cancer: A mathematical model.* in preparation, 2017.
3. Hyeonggi Kim, Hyunji Kang, Yangjin Kim, and Jinsu Kim, *Efficacy of relaxin and antibody on spreading of oncolytic virus and overall tumor cell killing in mAb-Ad3-RLX OV therapy: Mathematical model*
4. Yangjin Kim and Tracy Jackson, *Perivascular stem cell niche and evasive resistance of HNSCC: A mathematical model*, in preparation, 2017.

Invited TALKS

(Countries (16) visited: USA, UK, Canada, Brazil, Republic of Korea, Japan, China, Taiwan, Australia, Philippine, Poland, France, Germany, Israel, Italy, Spain)

Conferences/Workshops :

1. (Coming) ICIAM conference, Valencia, Spain [July 15-19, 2019]
2. *The role of microenvironment in regulation of cell infiltration and bortezomib- OV therapy in glioblastoma*, The 5th joint workshop of A3 Foresight Program, Lakai Sandpine Hotel, Gangneung, S. Korea [October 18-20, 2018 (18th)]
3. *The role of microenvironment in regulation of cell infiltration and bortezomib-OV therapy in glioblastoma*, SIAM-LS meeting, Radisson Blue Minneapolis Hotel, Minneapolis, USA [August 6-9, 2018 (7th)]
4. *Complex Role of NK cells in regulation of OV-Bortezomib therapy*, 2018 Annual Meeting of the Society for Mathematical Biology & the Japanese Society for Mathematical Biology, University of Sydney, Sydney, Australia [July 8 - 12, 2018 (12th)]
5. *Role of extracellular matrix and microenvironment in regulation of tumor growth and LAR-mediated invasion in glioblastoma: A multi-scale mathematical model*, Virtual Tissues: Progress and Challenges in Multicellular Systems Biology, MATRIX, University of Melbourne, Creswick, Australia. [July 2 - 7, 2018 (4th)]
6. *The role of microenvironment in regulation of cell infiltration in glioblastoma*, 2018 International workshop on mathematical biology, Costabella tropical beach hotel buyoung, Mactan island Cebu, Philippines [January 7 - 10, 2018 (9th)]
7. *Mathematical models of tumor invasion and OV/immune therapy*, MIMS International Workshop on "Modeling and Numerical Analysis of Nonlinear Phenomena: Fluid Dynamics, Motion of Interfaces, and Cell Biology", Meiji University, Tokyo, Japan [Dec 6-8, 2017 (7th)]

8. *The role of the microenvironment in regulation of cell infiltration in glioblastoma*, Workshop on "Multiple scale analysis and modeling of collective migration in biological systems", ZIF Center for Interdisciplinary Research, University of Bielefeld, Germany [Oct. 9-14, 2017 (10th)]
9. *Mathematical modeling of tumor growth: hybrid approaches*, in a session "From cell to tissues: multicale mathematical approaches in cancer biology", 2017 Annual Meeting of the Society for Mathematical Biology University of Utah, Salt Lake City, UT, USA [July 17-20, 2017 (19th)]
10. *The role of microenvironment in regulation of cell infiltration in glioblastoma*, in a session "Mathematical models of cancer development and treatment", 2017 Annual Meeting of the Society for Mathematical Biology University of Utah, Salt Lake City, UT, USA [July 17-20, 2017 (18th)]
11. *OV therapy for the invasive/non-invasive glioma and Bortezomib-induced synergetic effect on tumor killing*, in a session "Modeling Viruses to Defeat Cancer", 2017 Annual Meeting of the Society for Mathematical Biology University of Utah, Salt Lake City, UT, USA [July 17-20, 2017 (17th)]
12. *The role of microenvironment in regulation of tumor growth*, International Conference for the 70th Anniversary of Korean Mathematical Society, Seoul National University, Republic of Korea [Sep 20-23, 2016 (22nd)]
13. *Interaction of gliomas with M1/M2 microglia: A mathematical model*, PDE analysis and modeling, GDRI ReaDiNet conference, Frejus, France [Sep 19-23, 2016 (19th)]
14. *Mathematical models of cancer development I*, 2016 Summer workshop and Intensive course in bio-medicine, Konkuk University, Seoul, Republic of Korea [Aug 22-26, 2016 (23rd)]
15. *Cancer Modeling: Examples*, 2016 Summer workshop and Intensive course in bio-medicine, Konkuk University, Seoul, Republic of Korea [Aug 22-26, 2016 (22nd)]
16. *Principles and Examples on Mathematical Modeling*, KSMB summer school, Chonnam University, Republic of Korea [Aug 16-18, 2016 (17th)]
17. *Interaction of gliomas with their micro-environment: A mathematical model*, 2016 Patterns and waves, Sapporo, Japan [Aug 1-5, 2016 (4th)]
18. *The Role of M1/M2 Microglia in Regulation of Cell Infiltration in Glioblastoma* in a mini-symposium "Mathematical Oncology", 11th AIMS conference on Dynamical Systems, Differential Equations and Applications, Orlando, USA [July 1 - 5, 2016 (5th)]
19. *The Role of the Microenvironment in Regulation of CSPG-driven Tumor Growth: Invasive and Non-invasive Gliomas* in a mini-symposium "Emergence and Dynamics of Patterns in Nonlinear Partial Differential Equations from Mathematical Science", 11th AIMS conference on Dynamical Systems, Differential Equations and Applications, Orlando, USA [July 1 - 5, 2016 (2nd)]
20. *The role of the microenvironment in regulation of glioma invasion and development of therapeutic strategies*, 2016 KSMB conference, Jeju Ramada Hamdeok Hotel, Jeju, Republic of Korea, [June 16 - 18, 2016 (17th)]
21. *The role of the microenvironment in regulation of cell infiltration in glioblastoma: Models & Experiments*, A3 Workshop on Interdisciplinary Research Connecting Mathematics and Biology BICMR, Peking University, China [April 22 - 24, 2016]

22. *The role of the microenvironment in regulation of cell infiltration in glioblastoma: Models & Experiments*, 2016 Workshop for Mathematical Biology: Recent Topics and Vision of Mathematical Biology in Korea Ramada Hamdeok hotel, Jeju Island, Republic of Korea [Feb 27 - 28, 2016 (28th)]
23. *How to model cancer progression?: different approaches and pros and cons*, 2016 Winter workshop and Intensive course in bio-medicine, Konkuk University, Seoul, Republic of Korea [Jan 18-22, 2016 (18th)]
24. *The role of the microenvironment in regulation of CSPG-driven tumor growth: invasive and non-invasive gliomas*, KSIAM conference, Pusan, Republic of Korea [Nov 20-22, 2015 (21st)]
25. *The role of the microenvironment in regulation of CSPG-driven tumor growth: invasive and non-invasive gliomas*, Mini-workshop on PDE models in mathematical biology, Yonsei University, Seoul, Republic of Korea [Nov 6, 2015]
26. *Role of microenvironment in regulation of tumor growth: signaling, adhesion, growth, direct migration*, International Conference on Mathematical Modeling and Applications 2015 'Self-Organization-Modeling and Analysis', Meiji University, Tokyo, Japan [Oct 26 - 29, 2015 (26th)]
27. *Role of microenvironment in regulation of tumor growth*, International workshop on intracranial tumors modeling, Bordeaux, France [Sep 21 - 22, 2015]
28. *The role of myosin II in regulation of glioma infiltration: a mathematical model*, 2015 Joint Meeting of The 5th China-Japan-Korea Colloquium on Mathematical Biology and The Japanese Society for Mathematical Biology, Doshisha University, Kyoto, Japan [Aug 26 - 29, 2015 (29th)]
29. *Mathematical models of the miR-451-AMPK-mTOR system and implications to cell proliferation and migration in glioblastoma*, Workshop on cancer research for resistance, National Cancer Center, Ilsan, Republic of Korea [Aug 13, 2015 (13th)]
30. *The role of chemotaxis and diffusion processes in tumor growth models*, 2015 KAIST CMC Mathematical Biology Conference on Cross-diffusion, chemotaxis, and related problems, KAIST, Daejeon, Republic of Korea [July 8 - 10, 2015 (July 09)]
31. *Multiscale models of cell proliferation and migration in glioblastoma*, International cancer workshop on "Computational and multiscale mathematical modelling of cancer growth and spread", International centre for mathematical sciences, Edinburgh, UK [June 22 - 26, 2015 (June 26)]
32. *Training mathematical biologists and future in mathematical biology in Korea*, Workshop on development of mathematical biology program in Korea, NIMS, Rebpulic of Korea [May 12, 2015]
33. *Mathematical models of oncolytic virus therapy and characterization of the invasive and non-invasive glioma*, MBI cancer workshop 7: STEM CELLS, DEVELOPMENT, AND CANCER, Mathematical Biosciences Institute, Ohio State University, Columbus, OH, USA [April 13 - 17, 2015 (April 14)]
34. *Oncolytic virus spread and CSPG-driven tumor cell infiltration in glioblastoma*, BIRS Workshop 'Partial Differential Equations in Cancer Modelling', Banff, Canada [Feb 1 - 6, 2015 (Feb 3)]
35. *Mathematical modeling of tumor growth: an application to breast cancer and glioblastoma*, Seoul-Tokyo conference on "Applied Partial Differential Equations: Theory and Applications", KIAS, Seoul, Republic of Korea [Dec 13-14, 2014 (Dec 13)].

36. *The role of CSPG and astrocytes in regulation of glioma infiltration*, 2014 KSIAM conference, Jeju International Convention Center, Jeju, Republic of Korea [Nov 20-23, 2014 (Nov 22)]
37. *How to kill infiltrative glioma cells via HIF-miR-451-AMPK-mTOR-cell cycle signaling*, mini-symposium organized by Peter Kim, 2014 JSMB-SMB joint conference, Osaka, Japan [July 28 - Aug 1, 2014 (Aug 1)].
38. *Mathematical modeling of Choindroitinase ABC I-mediated enhancement of oncolytic virus spread and anti tumor efficacy*, mini-symposium organized by Heiko Enderling and Amina, 2014 JSMB-SMB joint conference, Osaka, Japan [July 28 - Aug 1, 2014 (July 29)].
39. *The role of myosin II in glioma invasion: Cell-ECM interactions*, mini-symposium organized by Yi Jiang, 2014 JSMB-SMB joint conference, Osaka, Japan [July 28 - Aug 1, 2014 (July 29)].
40. *Mathematical models of cell and tissue movement: application to tumor growth*, A mini-workshop in Mathematical biology, University of Tokyo, Japan [July 25, 2014].
41. *How to eradicate glioma cells: can a radical idea lead to a new therapeutic strategy?*, 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain [July 07 - 11(8), 2014].
42. *Choindroitinase ABC-mediated enhancement of oncolytic virus spread and anti tumor efficacy: A mathematical model*, 2014 KSMB conference, Kyungbook University, Daegu, Republic of Korea [May 19-21(20), 2014].
43. *Choindroitinase ABC-mediated enhancement of oncolytic virus spread and anti tumor efficacy: A mathematical model*, 2014 NIMS Hot Topic workshop "Application of ecological and mathematical theory to cancer: new challenges", National Institute for Mathematical Sciences (NIMS), Daejeon, Republic of Korea [May 12-15(12), 2014]. (Main organizer)
44. *The role of TGFbeta in regulation of Th1 and Th2 asthma development*, 2014 Spring KMS conference, Wonju University, Republic of Korea [April 24, 2014].
45. *Mathematical models of cell and tissue movement: application to tumor growth*, 2014 NIMS Hot Topic workshop "British Council Researchers Links Workshop on Soft Matter: Analysis, Applications and challenges", National Institute for Mathematical Sciences (NIMS), Daejeon, Republic of Korea [March 19, 2014].
46. *Regulation of Th1 and Th2 cells in asthma development: A mathematical model*, 2013 KIAM conference, KAL Hotel, Jeju Island, Republic of Korea [Nov 22-24, 2013].
47. *Regulation of Th1 and Th2 cells in asthma development: A mathematical model*, 2013 KSMB annual conference, Jeju University, Jeju Island, Republic of Korea [Aug 21-23, 2013].
48. *A hybrid model of tumor-stromal interactions in breast cancer* in a session MS20: Hybrid modeling for biological systems organized by Benjamin Franz, 2013 SMB annual conference, Tempe, AZ, USA [June 10-13 (13), 2013].
49. *Choindroitinase ABC I-mediated enhancement of oncolytic virus spread and anti tumor efficacy: A mathematical model*, in a session MS33: Mathematical models of tumor growth and treatment organized by Urszula Ledzewicz and Avner Friedman, 2013 SMB annual conference, Tempe, AZ, USA [June 10-13 (10), 2013].
50. *A mathematical model of miR-451-AMPK-mTOR and cell cycle in glioblastoma*, in a session MS6: Hypothesis-based, data validated mathematical models of cancer organized by John Nagy and Yang Kuang, 2013 SMB annual conference, Tempe, AZ, USA [June 10-13 (10), 2013].

51. *Survival Switch in Glioblastoma: new therapeutic approach*, 2013 Hot Topics Workshop on Special Highlights on Mathematical Biology, National Institute for mathematical sciences (NIMS), Daejeon, Republic of Korea [June 3-5 (4), 2013].
52. *Role of myoferlin in regulation of cancer invasion*, 2013 KSIAM spring conference, Yonsei University, Seoul, Korea [May 24-25 (24), 2013].
53. *A hybrid Model for cell proliferation and migration in Glioblastoma: microRNA (miR451) regulation of tumor invasion/growth*, 2013 Sydney Workshop on Mathematical Models of Tumor-Immune System Dynamics, Sydney, Australia [Jan 7-10, 2013]
54. *The role of biomechanics in the breast cancer cell migration: A mathematical model*, 2012 SMB conference, Knoxville, TN, USA [July 25-28, 2012]
55. *The role of biomechanics in the early development of breast cancer: A hybrid model*, 2012 SIAM annual meeting, Hyatt Regency Minneapolis, Minneapolis, MN, USA [July 9-13, 2012]
56. *Signal transduction pathways in the growth and invasion of glioblastoma: a mathematical model*, special session contributed to 80-th birthday of Avner Friedman, The 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, USA [July 1 - 5, 2012]
57. *The role of the microenvironment in tumor growth and dormancy*, 2012 KSMB meeting, Pusan University, Pusan, Republic of Korea [May 23, 2012]
58. *The role of the biomechanics and microenvironment in breast cancer invasion: a hybrid model*, 2012 KSIAM spring meeting, Ewha University, Seoul, Republic of Korea [May 19, 2012]
59. *Free boundary problems in the early development of breast cancer*, Free Boundary Problems in Biology, Mathematical Biosciences Institute, Ohio State University, Columbus, OH [Nov 14-18, 2011]
60. *A mathematical model of glioma invasion*, SIAM conference on Analysis of Partial Differential Equations, San Diego, CA [Nov 14-17, 2011]
61. *The Role of mechanics in glioma cell invasion*, 7th International Congress on Industrial and Applied Mathematics, Vancouver, BC, Canada [July 18-22, 2011]
62. *The role of the microenvironment in an early development of breast cancer: a hybrid (multi-scale) model*, ECMTB/SMB conference, Krakow, Poland [June 28 - July 2, 2011]
63. *The role of the microenvironment in tumor invasion: a mathematical model*, ECMTB/SMB conference, Krakow, Poland [June 28 - July 2, 2011]
64. *Mathematical model of glioma (brain tumor) invasion*, Workshop on PDE Models of Biological Process, National Tsing-Hua University, Hsinchu, Taiwan. [December 13-17, 2010]
65. *A multi-scale mathematical model of tumor-microenvironment interactions*, 2010 AMS Fall Central Section Meeting, U of Notre Dame, IN [November 5-7, 2010]
66. *Glioma invasion in vitro*, 2010 US-Korea Conference on Science, Technology and Entrepreneurship, Hyatt Regency Bellevue, Bellevue, WA [August 11-15, 2010]
67. *What is Mathematical Biology? Is it useful in Biology?*, 2010 Students Mathematics Workshop, Hyatt Regency Bellevue, Bellevue, WA [August 13, 2010]
68. *The role of cancer's microenvironment in drug resistance*, SMB annual conference, Federal University of Rio de Janeiro State, Rio de Janeiro, Brazil [July 26 - July 29, 2010]

69. *Role of microenvironment in cancer progression*, Organizer for a mini-symposium on "Tumor microenvironment: Influence on cancer progression", SIAM Conference on the Life Sciences (LS10), The David L. Lawrence Convention Center, Pittsburgh, Pennsylvania [July 12-15, 2010]
70. *A hybrid model of interaction between tumor cells and microenviroment*, 10th International Conference on Computational and Mathematical Methods in Science and Engineering, University of Wisconsin-Madison, WI [May 24-26, 2010]
71. *Pattern formation in glioma invasion*, 2010 AMS Spring Central Section Meeting, Macalester College, St. Paul, MN [April 10, 2010]
72. *Role of microenvironment in cancer progression : A mathematical model*, 2010 AMS Spring Central Section Meeting, Macalester College, St. Paul, MN [April 11, 2010]
73. *Role of microenvironment in cancer progression : A multiscale approach*, Workshop: Mathematical Methods in Systems Biology, Tel Aviv University, Tel Aviv, Israel [Jan 4-7, 2010]
74. *Multiscale modeling of tumor growth*, Math Biol Workshop, Korea Advanced Institute of Science and Technology, Daejeon, South Korea [Dec 21, 2009]
75. *The role of microenvironment in glioma invasion: a mathematical model*, Joint Meeting of the KMS and AMS, Ewha Womans University, Seoul, South Korea [Dec 19, 2009]
76. *A hybrid model of interaction between tumor cells and microenvironment*, **Organizer** for a minisymposium on "Multiscale Modeling of Cancer Progression", International Conference on Mathematical Biology and 2009 Annual Meeting of The Society of Mathematical Biology, University of British Columbia, Vancouver, Canada [Jul 30, 2009]
77. *Glioma invasion and microenvironment : a multiscale approach*, MS52 State of the Art in Computational Modelling of Cancer - Part II of III, SIAM Conference on Computational Science and Engineering (CSE09), Miami Hilton Hotel, Miami, Florida [Mar 3, 2009]
78. *Glioma invasion: how one can use a multi-scale model?*, 2008 annual meeting of Korean Society for Mathematical Biology (KSMB), Korea University, Seoul, South Korea [Oct 10, 2008]
79. **Co-organizer** : *A mathematical model of Brain tumor : pattern formation of glioma cells outside the tumor spheroid core*, 2008 Workshop for Young Researchers in Mathematical Biology (WYRMB), MBI, Ohio State University, Columbus, OH [Sep 2, 2008]
80. *Transformed Epithelial Cells and Fibroblasts/Myofibroblasts Interaction in Breast Tumor: A Mathematical Model and Experiments*, **Organizer** for a mini-symposium on "Tumor microenvironment: Influence on cancer progression", 2008 SMB conference, Fields Institute, Toronto, Canada, [Jul 30, 2008]
81. *Interaction of tumor with its microenvironment: A mathematical model*, 2008 World Congress of Nonlinear Analysis, Orlando, Florida, [Jul 2, 2008]
82. *A multi-scale model for avascular tumor growth*, AMS Central 2008 spring sectional meeting, Indiana University, Bloomington, IN [Apr 5, 2008]
83. *Transformed Epithelial cells and fibroblasts/myofibroblasts interaction in Breast Tumor: A Mathematical Model and Experiments*, AMS SE 2008 spring sectional meeting, Louisiana State University, Baton Rouge, LA [Mar 30, 2008]
84. *A hybrid model of tumor spheroid growth*, SIAM Conference on Mathematics for Industry: Challenges and Frontiers, Hyatt Regency, Philadelphia, Pennsylvania [Oct 9-11, 2007]

Colloquium/seminars :

University of Adelaide (Australia, Jan 11, 2019), Korea Foundation for the Advancement of Science & Creativity (Republic of Korea, Konkuk University, Teacher Education Program, July 17-19, 2018), Korea University (Republic of Korea, Feb 21-22, 2018), Korea Foundation for the Advancement of Science & Creativity (Republic of Korea, Konkuk University, Teacher Education Program, Nov 16-17, 2017), University of British Columbia (Canada, May 23, 2017), Mathematical Biosciences Institute (USA, May 1, 2017), Ohio State University (USA, April 13, 2017), Seoul National University Hospital (Republic of Korea, Nov 24, 2016), Seoul Metropolitan Office of Education (Republic of Korea, Nov 21,23, 2016), Korea University (Republic of Korea, Nov 4, 2016), National Cancer Center (Republic of Korea, Sep 12, 2016), A3 foresight program seminar (Republic of Korea, June 24, 2016), Konkuk University (Republic of Korea, Apr 7, 2016), Soongsil University (Republic of Korea, Nov 26, 2015), National Cancer Center (Republic of Korea, Oct 19, 2015), Kyoto University (Japan, Aug 28, 2015), Pharmicell (Republic of Korea, July 30, 2015), UNIST (Republic of Korea, July 27-28, 2015), Korea University (Republic of Korea, July 10, 2015), University of Sydney (Australia, Jan 16, 015), Yonsei University (Republic of Korea, Nov 26, 2014), Kangwon University (Republic of Korea, Nov 5, 2014), Korea University (Republic of Korea, Oct 31, 2014), RIKEN (Japan, Oct 24, 2014), Korea University (Republic of Korea, Oct 13, 2014), Korea University (Republic of Korea, Sep 19, 2014), Kyoto University (Shin Issii lab, Japan, July 31, 2014), Cancer research institute, Seoul National University (Republic of Korea; May 20, 2014), KAIST (Republic of Korea; May 19, 2014), UNIST (Republic of Korea; May 02, 2014), Inha University (Republic of Korea; April 17, 2014), Konkuk University (Mathematics, Republic of Korea; Apr 16, 2014), Konkuk University (Chemistry, Republic of Korea; Mar 13, 2014), NIMS (Republic of Korea; Feb 27, 2014), UNIST (Republic of Korea; Dec 6, 2013), Korea University (Republic of Korea; Sep 27, 2013), National cancer center (Republic of Korea; Aug 08, 2013), Kyunghee University (Republic of Korea; May 23, 2013), Seoul National University Hospital (Republic of Korea; Apr 25, 2013), Yonsei University (Republic of Korea; Apr 23, 2013), Hanyang University (Republic of Korea; Apr 2, 2013), Korea University (Republic of Korea; Mar 2013), Yonsei University (Republic of Korea; Nov, 2012), Inha University (Republic of Korea, Nov 2012), Seonggyungwan University (Republic of Korea; Oct 2012), Konkuk University (Republic of Korea; May 2012), Korea University (Republic of Korea; May 2012), Konkuk University (Republic of Korea; Apr 2012), Korea University (Republic of Korea; Mar 2012), Konkuk University (Republic of Korea; Mar 2012), Chungnam University (Republic of Korea, Nov 2011), Konkuk University (Republic of Korea; Nov 2011), University of Michigan (USA, Nov 2011), Wayne State University (USA, Oct 2011), UNIST (Republic of Korea; Dec 2010), University of Michigan-Ann Arbor (USA, Oct 2010), University of Michigan (USA, Sep 2010), Cleveland State University (USA, Mar 2010), University of Windsor (Canada, Mar 2010), Oakland University (USA, Jan 2010), University of Michigan (USA, Jan 2010), Konkuk University (Republic of Korea; Dec 2009), UNIST (Republic of Korea; Dec 2009), Korea University (Republic of Korea; Dec 2009), POSTECH (Republic of Korea; Dec 2009), University of Michigan (USA, Nov 2009), University of Cincinnati (USA, Nov 2009), Case Western Reserve University (USA, Feb 2009), University of Michigan (USA, Feb 2009), University of California-San Diego (USA, Feb 2009), University of Delaware (USA, Jan 2009), Ohio State University (USA, Nov 2008), Worcester Polytechnic Institute (USA, Nov 2008), Korea University (Republic of Korea; Oct 2008), Ohio State University (USA, Oct 2008), Mathematical Biosciences Institute (USA, Jul 2008), POSTECH (Republic of Korea; Apr 2008), Konkuk University (Republic of Korea; Apr 2008), Fields Institute (USA, Aug 2008), Ohio State University (USA, Nov 2007), Mathematical Biosciences Institute (USA, Oct 2007), Mathematical Biosciences Institute (USA, Nov 2006), University of Minnesota (USA, Jul 2006), University of British Columbia (Canada; Jan 2006), University of Minnesota (USA, Jan 2006), Winona State University (USA, Oct 2004),

University of Minnesota (USA, Jul 2004), University of Minnesota (USA, Apr 2004), University of Minnesota (USA, Jun 2003), University of Minnesota (USA, Oct 2002),

FELLOWSHIPS & (Grant) AWARDS

1. Research Grant Award (co-PI) entitled 'Game' [Sep 2018 -]
2. Research Grant Award entitled *'Drug delivery strategies to overcome the blood-brain barrier and development of anti-cancer combination therapy through the tumor-immune interaction system in TME: Mathematical modeling and theory'*, Basic Science Research Program, National Research Foundation of Korea, Ministry of Science and ICT, Republic of Korea [Mar 2018; 3 years] (300,000,000 KRW)
3. R&E Program award entitled *'Development of anti-cancer strategies in glioblastoma'*, Ministry of Education, Republic of Korea [Mar 2016; 10 months] (6,500,000 KRW)
4. Research Grant Award entitled *'Dynamics of bortezomib-induced ER stress in NFkB-Bcl-2-BAX signaling and development of bortezomib/chemo/radio therpeutic strategies in multiple myeloma, head and neck cancer, and glioblastoma: Mathematical models'*, Basic Science Research Program (General), National Research Foundation of Korea, Ministry of Education, Republic of Korea [Nov 2015; 3 years] (150,000,000 KRW)
5. Industry-Mathematics Grant Award (Co-PI) entitled *'Mathematics in Biosciences and Medicine'*, National Institute for Mathematical Sciences, Republic of Korea [June 2015; 18 months] (120,000,000 KRW)
6. Internal grants: Faculty Research Grant Award, Konkuk University, Republic of Korea: [May 2016 (10,000,000 KRW); May 2015 (25,000,000 KRW); Dec 2014 (25,000,000 KRW); May 2014 (25,000,000 KRW); May 2013 (18,000,000 KRW); Mar 2012 (15,000,000 KRW)].
7. Research grant award entitled *'Development of mathematical models for cell migration based on Acto-myosin dynamics'*, National Institute for Mathematical Sciences, Ministry of Education, Republic of Korea [May , 2014; 9 month] (30,000,000 KRW)
8. SMB WOC award for 2014 NIMS Hot Topics workshop (cancer workshop) [May, 2014] ($5,000)
9. Research Grant Award entitled *'The role of the microenvironment in cancer (breast, glioblastoma, lung) progression and development of anti-cancer drugs: Mathematical models',* Basic Science Research Program (Young Researcher), National Research Foundation of Korea, Ministry of Education, Republic of Korea [Sep 2012; 3 years] (150,000,000 KRW)
10. Faculty Rackham Replacement Research Grant award, *'The role of biomechanics in the early development of breast cancer and glioblastoma'*, U of Michigan [Dec 2011; 3 years] ($15,000)
11. Faculty Research Initiation & Seed Grant award, U of Michigan *'Multi-scale Models of the Role of the Microenvironment in Tumor Growth and Invasion'*, [Mar, 2011; 5 years] ($6,000).
12. Special Research Grant, U of Michigan [Jan, 2010]
13. Faculty (Tenure Track) Professional Development Grant Award, U of Michigan [Nov, 2010; 1 year]
14. SMB grant award for 2010 SIAM Great Lake Conference (Mathematical Biology, numerical PDEs), [Apr 2010] ($2000)
15. SIAM conference grant award for 2010 SIAM Great Lake Conference (Mathematical Biology, numerical PDEs), [Apr 2010] ($3550)

16. Rackham Faculty Research Grants Award *'The role of the tumor microenvironment in the progression of breast and brain cancer'*, U of Michigan-Ann Arbor [Mar, 2010] ($3,000)
17. NSF Postdoc Fellowship Award, Mathematical Biosciences Institute, Ohio State University, OH [Oct 2006-Aug 2009; 3 years]
18. Graduate assistantship, University of Minnesota

OTHER ACTIVITIES

10th ICIAM
ICIAM 2023 preparation committee in Republic of Korea, 2016.

Referee
Journals: Cancer Research, J. of Math Biol, J. of Theoretical Biology, Bulletin of Mathematical Biology, IMA-Mathematical Medicine & Biology, J of Royal Society Interface, PLoS Comp Biol, PLoS ONE, Mathematical Biosciences, Br. J of Cancer, J. of Biological Dynamics, Molecular Pharmaceutics, IEEE-Transactions on Biomedical Engineering, Mathematical Modeling of Natural Phenomena, Mathematical Biosciences and Engineering, Discrete and Continuous Dynamical System Series-B, M3AS, Theoretical Biology and Medical Modelling, etc.
Grants: National Research Foundation, Swiss National Science Foundation, Internal grants

Conference/workshop organizer

1. 2016 Summer School in bio-medicine, Konkuk University, Seoul, Republic of Korea [Aug 22-26, 2016] (Co-organizer)
2. 2016 Winter workshop and Intensive course in bio-medicine, Konkuk University, Seoul, Republic of Korea [Jan 18-22, 2016] (Co-organizer)
3. 2014 NIMS Hot Topic workshop "Application of ecological and mathematical theory to cancer: new challenges", National Institute for Mathematical Sciences (NIMS), Daejeon, South Korea [May 12-15, 2014]. (Main organizer)
4. SIAM Great Lake conference, University of Michigan [April 17, 2010] (Main organizer)
5. 2008 Workshop for Young Researchers in Mathematical Biology (WYRMB), MBI, Ohio State University, Columbus, OH, USA [September 2 - 4, 2008] (Co-organizer)
6. 2007 Workshop for Young Researchers in Mathematical Biology (WYRMB) MBI, Ohio State University, Columbus, OH, USA [September 11-14, 2007] (Co-organizer)
7. 2007 Workshop for Young Researchers in Mathematical Biology (WYRMB), MBI, Ohio State University, Columbus, OH, USA [March 12-15, 2007] (Co-organizer)

Organizer for a mini-symposium at conferences

1. "Mathematical biology", KSIAM annual meeting, Jeju Island, Republic of Korea [Nov 2-4, 2018] (co-organizing with Dr. Changhyeong Lee).
2. "Mathematical models of cell motility and cancer progression in microenvironment: design, experiments, mathematical framework, and hypothesis test.", 2018 SMB conference, Sydney, Australia [July 8-12, 2018] (co-organizing with prof. Hans Othmer).
3. "Recent Advances in Mathematical Modeling in Health and Disease", The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications Taipei, Taiwan [July 5 - 9, 2018] (co-organizing with profs. Yi Jiang and James Glazier).

4. "Mathematical models of cell motility and cancer progression in microenvironment: design, experiments, mathematical framework, and hypothesis test", 11th AIMS conference on Dynamical Systems, Differential Equations and Applications, Orlando, USA [July 1-5, 2016] (co-organizing with prof. Yi Jiang)
5. "Dynamics of Tumor Growth and Therapeutic Strategies: Experiments and Mathematical Models", 2016 KSMB conference, Jeju Ramada Hamdeok hotel, Jeju, Republic of Korea [June 16 - 18, 2016]
6. "Design, development, and analysis of mathematical models of biological systems", 2016 KSMB conference, Jeonnam University, Gwangju, Republic of Korea [Sep 18 - 29, 2015]
7. "Mathematical modeling of biological systems: signaling network, cell motility, disease control, and cancer" 2015 Joint Meeting of JSMB and CJK Colloquium on Mathematical Biology, Doshisha University, Kyoto, Japan [June 26 - 29, 2015]
8. "Mathematical Modeling of Biological Systems: biology, design, analysis, simulation, and implications", 2015 KSIAM conference, Sungkyungwan University, Republic of Korea [May 29 - 30, 2015]
9. "Mathematical models of cell migration, tumor growth and cancer dynamics", mini-symposium, 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain [July 07 - 11, 2014].
10. "Signaling networks, tumor growth, and cell movement: challenges and recent progress", mini-symposium, 2014 KSMB annual conference, Kyungbook University, Daegu, Korea [June 19-21, 2014].
11. "Mathematical modeling in immune system and effect of time delay", mini-symposium, 2013 KSMB annual conference, Jeju University, Jeju, Korea [Aug 21-23, 2013].
12. "Mathematical models of cancer and cancer therapy", special sessions contributed to the 80-th birthday of Avner Friedman, The 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, USA [July 1 - 5, 2012]
13. "Tumor microenvironment: Influence on cancer progression", SIAM Conference on the Life Sciences (LS10), The David L. Lawrence Convention Center, Pittsburgh, Pennsylvania [July 12-15, 2010];
14. "Multiscale Modeling of Cancer Progression", International Conference on Mathematical Biology and 2009 Annual Meeting of The Society of Mathematical Biology, University of British Columbia, Vancouver, Canada [July 27-30, 2009];
15. "Tumor microenvironment: Influence on cancer progression", 2008 SMB conference, Fields Institute, Toronto, Canada [July 30 - Aug 2, 2008];

Colloquium/seminar organizer
- Colloquium, Department of Mathematics, Konkuk University, Republic of Korea [Spring 2015, Fall 2015]
- Postdoc seminar, Mathematical Biosciences Institute, Ohio State U, USA [Fall 2008, Spring 2009]

Membership in Professional Organizations:
American Mathematical Society (AMS), Korean Mathematical Society (KMS), Society for Industrial and Applied Mathematics (SIAM), SIAM, Great Lakes Section (GLSIAM), Society for Mathematical Biology (SMB), Korean Society for Mathematical Biology (KSMB), Korean Society for

Industrial and Applied Mathematics (KSIAM).