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EDUCATION

Ph.D, Applied Mathematics, Konkuk University, August 2024 [Advisor: Yangjin Kim]

M.S, Applied Mathematics, Konkuk University, February 2019 [Advisor: Yangjin Kim]

B.S, Konkuk University, Seoul, Republic of Korea, February, 2017

EMPLOYMENT

1. Instructor [Mar, 2021-Feb, 2024] Calculus, Konkuk University
2. Teaching Assistant [Sep, 2019-Aug, 2020] Calculus, Konkuk University
3. Teaching Assistant [Mar, 2017-Aug, 2018] Calculus, Konkuk University
4. Teaching Assistant [July 17-19, 2018] Teacher Education Program, Korea Foundation for the Advancement of Science & Creativity, Republic of Korea, Konkuk University
5. Teaching Assistant [Nov 16-17, 2017] Teacher Education Program, Korea Foundation for the Advancement of Science & Creativity, Republic of Korea, Konkuk University

PUBLICATIONS

Published/accepted

1. **Donggu Lee**, Aurelio A. de los Reyes V and Yangjin Kim, *Optimal strategies of oncolytic virus-bortezomib therapy via the apoptotic, necroptotic, and oncolysis aignaling network*, Mathematical Biosciences and Engineering, 21(3), 3876-3909, Feb 21, 2024. [IF=2.6]
2. Jonggul Lee, **Donggu Lee** and Yangjin Kim, *Mathematical model of STAT signalling pathways in cancer development and optimal control approaches*, R. Soc. Open. Sci., 8(9), 210594, Sep 29, 2021. [IF=3.65]
3. Junho Lee, **Donggu Lee** and Yangjin Kim, *Role of neutrophil extracellular traps in regulation of lung cancer invasion and metastasis: Structural Insights from a Computational Model*, PLoS Comp Biol, 17(2), e1008257, Feb 17, 2021. [IF=4.42]
4. Yangjin Kim, **Donggu Lee** and Sean Lawler, *Collective invasion of glioma cells through OCT1 signaling and interaction with reactive astrocytes after surgery*, Phil. Trans. R. Soc. B, 375, 20190390, July 27, 2020. [IF=6.1]
5. 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] [IF=6.1]

6. 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. [IF=2.74]
7. Yangjin Kim, Wanho Lee, Hyejin Jeon, Sookkyung Lim, Soyeon Roh, **Donggu Lee**, Junho Lee, 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.

In preparation :

1. Donggu Lee, Sunju Oh, Yangjin Kim, *Dynamics of TAN-NK cells and control of RT-induced neutropenia in lung cancer treatment*, in preparation, 2024.
2. Donggu Lee, Yangjin Kim, *Role of DNA mismatch repair and Dostarlimab in regulation of colorectal cancer*, in preparation, 2024.
3. Donggu Lee, Hyungchul Kim, Hanul Cho, Yangjin Kim, *Bone marrow mesenchymal stem cells and exosome solve doxorubicin-induced chemobrain*, in preparation, 2024.
4. Yangjin Kim, Donggu Lee, Junho Lee, *Role of tumor-associated neutrophils and neutrophil elastase in regulation of cancer invasion: A PDE model*, in preparation, 2024.
5. Yangjin Kim, Donggu Lee, Junho Lee, Sunju Oh, *Role of IFNbeta signaling network in regulation of TAN-associated apoptosis in lung cancer*, in preparation, 2024.
6. Donggu Lee, Aurelio A. de los Reyes V, Junho Lee, Sunju Oh, Yangjin Kim, *Optimal control of TGFbeta- and IFNbeta-mediated transitions between N1 and N2 TANs and anti-tumor strategies in lung cancer*, in preparation, 2024.

CONFERENCE

Conferences/Workshops :

1. (invited talk) *How does STAT1-STAT3 signaling regulate the apoptosis of tumor cells and affect the mutual interaction with neutrophils and NK cells in the tumor microenvironment: multi-scale approach*, in a session “Emerging Researchers in Mathematical Oncology: The ONCO subgroup Minisymposium”, KSMB-SMB 2024 Annual Meeting, Konkuk University, Seoul, Republic of Korea [June 30 - July 5, 2024]
2. (invited talk) *Role of NK cells and ionizing radiation in regulation of lung cancer progression*, in a session “Recent Progress in Mathematical Biology”, 2024 KMS Spring Meeting, Daejeon Convention Center & KAIST, Daejeon, Republic of Korea [April 19-20, 2024]
3. (talk) *Role of NK cells and ionizing radiation in regulation of lung cancer progression*, Joint Mathematics Meetings 2024, Moscone Center, San Francisco, USA [January 3-6, 2024]
4. (talk) *Role of NK cells in regulation of lung cancer progression*, 2023 ICIAM Conference, Waseda University, Tokyo, Japan [August 20-25, 2023]
5. (poster) *Role of NK cells in regulation of lung cancer progression*, ICIAM 2023 Satellite Workshop, Daejeon IBS, Daejeon, Republic of Korea [August 16-18, 2023]
6. (invited talk) *Optimal strategies of oncolytic virus-bortezomib therapy*, in a session “Integration of cellular processes in cell motility and cancer progression”, 2023 SMB Annual Meeting, Ohio State University, Columbus, Ohio, USA [July 16-21, 2023]
7. (poster) *Role of NK cells in regulation of lung cancer progression*, Dynamical Systems in the Life Sciences, Ohio State University, Columbus, Ohio, USA [July 13-15, 2023]

8. (invited talk) *Role of NK cells in regulation of lung cancer progression*, in a session “Mathematical Approaches to better understand and treat human disease (Cancer research) II”, 8th CIJK Conference on Mathematical and Theoretical Biology, Sono Belle Jeju, Jeju Island, Republic of Korea [June 27-July 1, 2023]
9. (invited talk) *Role of NK cells and Ionizing Radiation in Regulation of Lung Cancer Progression*, in a session “Cancer Modeling/Epidemic Modeling”, KSIAM 2023 Spring Conference, Alpensia, Pyeong Chang, Republic of Korea [May 19-21, 2023]
10. 2022 ECMTB-SMB joint Conference, Heidelberg, Germany [Sep 19-23, 2022]
11. 2022 KSIAM-NIMS School on Biomathematics : Statistical Tools for Mathematical Modeling, Yeosu Venezia Hotel, Yeosu, Republic of Korea [June 26-28, 2022]
12. (invited talk) *Optimal Strategies of Oncolytic Virus-Bortezomib Therapy*, in a session “A bridge over gaps between experiments and mathematical models in molecular biology and cancer”, 2022 KSMB Annual Meeting, Yeosu Venezia Hotel, Yeosu, Republic of Korea [June 24-26, 2022]
13. 2022 KSIAM Spring Conference, Daejeon IBS, Daejeon, Republic of Korea [May 27-28, 2022]
14. (talk) *Optimal Strategies of Oncolytic Virus-Bortezomib Therapy with Necroptotic Pathways*, 2021 KSMB Winter Meeting, Online [December 16-18, 2021]
15. (talk) *Optimal Strategies of Oncolytic Virus-Bortezomib Therapy with Necroptotic Pathways*, 2021 KSMB Winter Meeting, Bexco, Busan, Republic of Korea [December 2-5, 2021]
16. (talk) *Mathematical model of STAT signaling pathways in cancer development and optimal control approaches*, 2021 KSMB Annual Meeting, Sonohotels resorts, Jeju, Republic of Korea [August 26-28, 2021]
17. (talk) *Mathematical model of STAT signaling pathway in cancer development and optimal control approaches*, 2021 KSIAM Annual Meeting, Gangneung TopsTen Hotel, Gangneung, Republic of Korea [June 25-27, 2021]
18. (talk) *Role of glucose in regulation of miR-451/LKB1/AMPK/OCT1/mTOR core signaling network and cell invasion in glioblastoma*, 2021 SMB Annual Meeting, Online [June 13-17, 2021]
19. (talk) *Role of OCT1 in regulation of miR-451/LKB1/OCT1/mTOR core signaling network and cell invasion in glioblastoma*, 2020 KSIAM Annual Meeting, Seogwipo KAL Hotel, Jeju, Republic of Korea [November 12-15, 2020]
20. (poster) *Role of OCT1 in regulation of miR-451-LKB1-AMPK-OCT1-mTOR core signaling network and cell invasion in glioblastoma*, SMB 2020 Annual Meeting, Online [August 17-20, 2020]
21. (talk) *Role of tumor-associated neutrophils and NE in regulation of lung cancer growth and growth patterns*, 2019 KSIAM Annual Meeting, Yeosu Venezia Hotel, Yeosu, Republic of Korea [November 08-10, 2019]
22. (talk) *Role of tumor-associated neutrophils and NE in regulation of lung cancer growth and growth patterns*, The 7th China-India-Japan-Korea International Conference on Mathematical Biology, University of Science and Technology Beijing, Beijing, China [August 23-27, 2019]
23. (poster) *Role of OCT1 in regulation of miR-451-LKB1-AMPK-OCT1-mTOR core signaling network and cell invasion in glioblastoma*, 2019 Annual Conference of KSMB, Seogwipo KAL Hotel, Jeju, Republic of Korea [June 20-22, 2019]

24. (talk) *Role of tumor-associated neutrophils and NE in regulation of lung cancer growth and growth patterns*, 2019 The 14th SIAM East Asian Section Conference, Wuhan University, Wuhan, China [June 14-16, 2019]
25. (poster) *Role of tumor-associated neutrophils and NE in regulation of lung cancer growth and growth patterns*, 2019 KSIAM spring meeting, Yonsei University, Seoul, Republic of Korea [May 17-18, 2019]
26. (talk) *Dynamics of N1 and N2 neutrophils and lung cancer development in response to TGF-beta and IFN-beta*, 2019 A3 workshop on Mathematical Life Science, Peking University, Beijing, China [May 10-12, 2019]
27. (poster) *Role of N1/N2 neutrophils in regulation of tumor growth in lung cancer : A mathematical model*, 2018 KSIAM Annual Meeting, Jeju Ramada Plaza Hotel, Jeju, Republic of Korea [November 02-04, 2018]
28. (poster) *Role of tumor-associated neutrophils in regulation of tumor growth in lung cancer development : A mathematical model*, The 5th joint workshop of A3 Foresight Program, Lakai Sandpine Hotel, Gangneung, S. Korea [October 18-20, 2018 (18th)]
29. (poster) *How can a failure in immune balance (Th17, Neutrophil, Tregs) lead to tumor invasion in lung cancer development: A mathematical model*, 2018 KSMB conference, Haeundae Grand Hotel, Busan, Republic of Korea [June 28-30, 2018]
30. (poster) *How can a failure in immune balance (Th17, Neutrophil, Tregs) lead to tumor invasion in lung cancer development: A mathematical model*, 2018 KSIAM Spring conference, KAIST, Deajeon, Republic of Korea [May 25-26, 2018]
31. (poster) *How can a failure in immune balance (Th17, Neutrophil, Tregs) lead to tumor invasion in lung cancer development: A mathematical model*, 2018 International workshop on mathematical biology, Costabella tropical beach hotel buyoung, Mactan island Cebu, Philippines [January 07-10, 2018]
32. 2017 KSIAM Annual Meeting, Haeundae Grand Hotel, Busan, Republic of Korea [November 03-05, 2017]
33. 2017 KSIAM Spring conference, Seoul National University, Seoul, Republic of Korea [June 23-24, 2017]
34. 2016 KSIAM Annual Meeting, Seogwipo KAL Hotel, Jeju, Republic of Korea [November 11-13, 2016]
35. 2016 Summer workshop and Intensive course in bio-medicine, Konkuk University, Seoul, Republic of Korea [August 22-26, 2016]
36. 2016 KSMB conference, Jeju Ramada Hamdeok, Jeju, Republic of Korea [June 16-18, 2016 (18th)]

AWARDS

1. Landahl Travel Award for 2023 SMB Annual Meeting, (\$900) [July 16-21, 2023]
2. KSIAM conference poster award ‘*Role of N1/N2 neutrophils in regulation of tumor growth in lung cancer*’, 2018 KSIAM Annual Meeting Poster session [November 02-04, 2018]

VOLUNTEER

1. KSMB-SMB 2024 Annual Meeting, '*Assistant to the organizing committee*', [June 30 - July 5, 2024]
2. Joint Mathematics Meetings 2024, '*SMB booth at JMM*', [January 3-6, 2024]
3. SMB 2023 Annual Meeting, '*SMB booth*', [July 16-21, 2023]
4. 8th CIJK Conference on Mathematical and Theoretical Biology, '*International Zoom & Tech Support Team*', [June 27-July 1, 2023]
5. SMB 2021 Annual Meeting, '*International Zoom & Tech Support Team*', [June 13-17, 2021]