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Dr. Dae-Kyum Kim

Correspondence language: English
Sex: Male
Date of Birth: 5/17
Canadian Residency Status: Canadian Citizen
Country of Citizenship: Canada, Korea, South

Contact Information

The primary information is denoted by (*)

Address

Home

2021 Av. Atwater. Apt# 804
Montreal Quebec H3H 2P2
Canada

Primary Affiliation (*)

1001 Decarie Blvd
RI-MUHC - McGill University Health Centre
Montreal Quebec H4A 3J1
Canada

Telephone

Mobile (*)	+1-585-5205212

Email

Personal	daekyumkim@gmail.com
Work (*)	dae.k.kim@mcgill.ca

Website

Personal	https://kimlab.us/

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Dr. Dae-Kyum Kim

Degrees

2009/3 - 2015/8	Doctorate, Doctor of Philosophy, Pohang University of Science and Technology Degree Status: Completed
2006/3 - 2009/2	Bachelor's, Bachelor of Science, Pohang University of Science and Technology Degree Status: Completed

Recognitions

2017/9 - 2018/8	Korean Postdoctoral Fellowship for Training Abroad National Research Foundation of Korea
2017/4 - 2019/3	Banting Postdoctoral Fellowship Natural Sciences and Engineering Research Council of Canada (NSERC)
2010/9 - 2015/8	National Junior Research Fellowship National Research Foundation of Korea
2009/3 - 2011/8	Cheong-Am Graduate Fellowship Cheong-Am Foundation
2006/3 - 2009/2	National Research Foundation Fellowship for Young Scientists National Research Foundation of Korea

Employment

2024/9	Junior Scientist Cancer Research Program, ., The Research Institute of the McGill University Health Centre
2024/9	Assistant Professor Department of Surgery, Faculty of Medicine and Health Sciences, McGill University
2024/9	Aune Foundation Endowed Chair in Translational Oncology Montreal General Hospital Foundation, ., McGill University Health Centre
2024/7 - 2024/8	Visiting Professor Terrence Donnelly Centre for Cellular & Biomolecular Research, Faculty of Medicine, University of Toronto
2021/10 - 2024/6	Assistant Professor Department of Cancer Genetics and Genomics, Jacobs School Of Medicine And Biomedical Sciences, Roswell Park Cancer Institute

2015/10 - 2021/9 Postdoctoral Fellow
Terrence Donnelly Centre for Cellular & Biomolecular Research, Faculty of Medicine, University of Toronto

Affiliations

The primary affiliation is denoted by (*)

(*) 2024/9 Junior Scientist, Cancer Research Program, The Research Institute of the McGill University Health Centre

Research Funding History

Awarded [n=2]

2024/9 - 2029/8
Principal Applicant

Start-up grant: Aune Foundation Endowed Chair in Translational Oncology

Funding Sources:
Montreal General Hospital Foundation (Can)
Aune Foundation Endowed Chair
Total Funding - 1,350,000
Funding Competitive?: No

2024/9 - 2026/8
Principal Applicant

Aune Foundation Research Award

Funding Sources:
Montreal General Hospital Foundation (Can)
Aune Foundation Research Award
Total Funding - 60,000
Funding Competitive?: No

Completed [n=4]

2021/10 - 2024/6
Principal Applicant

Start-up grant: Roswell Park Comprehensive Cancer Center

Funding Sources:
Roswell Park Cancer Institute (RPCI)
Start-up grant
Total Funding - 1,000,000
Funding Competitive?: No

2023/1 - 2024/6
Principal Applicant

Deciphering the drug resistance mechanism of lung cancer with KRASG12C variant by proteome-wide overexpression perturbation

Funding Sources:
Roswell Park Alliance Foundation
Open Category
Total Funding - 150,000
Funding Competitive?: Yes

2024/1 - 2024/6
Principal Applicant

Deciphering the drug resistance mechanism of ovarian cancer against paclitaxel by proteome-wide overexpression perturbation

Funding Sources:
National Institutes of Health (NIH) (USA)
NIH Ovarian Cancer SPORE Career Enhancement Program
Total Funding - 100,000
Funding Competitive?: Yes

2023/1 - 2023/12
Principal Applicant

Deciphering the drug resistance mechanism of triple-negative breast cancer against doxorubicin by proteome-wide overexpression perturbation

Funding Sources:
SAS Foundation
Cancer Research Grant
Total Funding - 100,000
Funding Competitive?: Yes

Publications

Journal Articles

1. Yu J*, Sane S*, Kim JE*, Yun S*, Kim HJ, Jo KB, Wright JP, Khoshdoozmasouleh N, Lee K, Oh HT, Thiel K, Parvin A, Williams X, Hannon C, Lee H#, Kim DK#. (2024). Biogenesis and delivery of extracellular vesicles: harnessing the power of EVs for diagnostics and therapeutics. Frontiers in Molecular Biosciences. 10: 1330400.
Published
Refereed?: Yes, Open Access?: Yes

2. Mount HO, Urbanus ML, Sheykhkarimli D, Cote AG, Laval F, Coppin G, Kishore N, Li R, Spirohn-Fitzgerald K, Petersen MO, Knapp JJ, Kim DK, Twizere JC, Calderwood MA, Vidal M, Roth FP, Ensminger AW. (2024). A comprehensive two-hybrid analysis to explore the L. pneumophilaeffector-effector interactome.BioRxiv. 587239: 0.
Published
Refereed?: No, Open Access?: Yes

3. Weller B, Lin CW, Pogoutse O, Sauer M, Rosa NM, Strobel A, Young V, Knapp J, Rayhan A, Falter C, Kim DK, Roth FR, Falter-Braun P. (2023). A resource of human coronavirus protein coding sequences in a flexible, multi-purpose Gateway Entry clone collection. G3: Genes, Genomes, Genetics. 13(7): jkad105.
Published
Refereed?: Yes, Open Access?: Yes

4. Kim DK*, Weller B*, Lin CW*, Sheykhkarimli D*, Knapp JJ*, Kishore N, Sauer M, Rayhan A, Young V, Marin-de la Rosa N, Pogoutse O, Spirohn K, Strobel A, Laval F, Schwehn P, Li R, Rothballer S, Altmann M, Cassonnet P, Dugied G, Cote AG, Vergara LE, Hazelwood I, Liu BB, Nguyen M, Pandiarajan R, Coloma PAR, Willems L, Twizere JC, Demeret C, Jacob Y, Hao T, Hill DE, Falter C, Vidal M#, Calderwood MA#, Roth FP#, Falter-Braun P#. (2023). A proteome-scale map of the SARS-CoV-2 human contactome. Nature Biotechnology. 41(1): 140-149.
Published
Refereed?: Yes, Open Access?: No

5. Kim Y, Kim Y, Lim HJ, Kim DK, Park JH, Oh CM. (2023). Integrativesingle-cell transcriptome analysis provides new insights into post-COVID-19pulmonary fibrosis and potential therapeutic targets. Journal of Medical Virology. 95(11): e29201.
Published
Refereed?: Yes, Open Access?: No

6. Tang HW*, Spirohn K*, Hu Y, Hao T, Kovács IA, Gao Y, Binari R, Yang-Zhou D, Wan K, Bader JS, Balcha D, Bian W, Booth BW, Cote AG, de Rouck S, Desbuleux A, Kim DK, Knapp JJ, Lee WX, Lemmens I, Li C, Li M, Li R, Lim HJ, Luck K, Markey D, Pollis C, Rangarajan S, Rodiger J, Schlabach S, Shen Y, TeeKing B, Roth FP, Tavernier J, Calderwood MA, Celniker SE#, Vidal M#, Perrimon N#, Hill DE, Mohr SE#. (2023). Next-generation large-scale binary protein interaction network for Drosophila melanogaster. Nature Communications. 14(1): 2162.
Published
Refereed?: Yes, Open Access?: Yes

7. Brière R, … , Kim DK, …, Emilie Joos. (2023). 2023 Canadian Surgery Forum: Sept. 20-23, 2023. Canadian Journal of Surgery. 66(6 Suppl 1): S54-S136.
Published
Refereed?: Yes, Open Access?: Yes

8. Kim KH, Oh Y, Liu J, Dababneh S, Xia Y, Kim RY, Kim DK, Ban K, Husain M, Hui CC, Backx P. (2022). Irx5 and transient outward K+ current (Ito) contribute to transmural contractile heterogeneities in the mouse ventricle. American Journal of Physiology: Heart and Circulatory Physiology. 322(5): H725-H741.
Published
Refereed?: Yes, Open Access?: Yes

9. Kim JE, Li B, Fei L, Miyake H, Ayar E, Kim DK, Sherman P, Rossant J, Guo G, Pierro A, Kim TH. (2022). Gut microbiota promotes stem cell differentiation through stromal niches in early postnatal development. Immunity. 55(12): 2300-2317.e6.
Published
Refereed?: Yes, Open Access?: No

10. Choi D, Khan N, Montermini L, Tawil N, Meehan B, Kim DK, Roth FR, Divangahi M, Rak J. (2022). Quantitative proteomics and protective activity against severe COVID-19 infection of extracellular vesicles engineered to express SARS-CoV-2 spike protein. Journal of Extracellular Biology. 1(10): e58.
Published
Refereed?: Yes, Open Access?: Yes

11. Kim NE, Kim DK, Song Y. (2021). SARS-CoV-2 nonstructural proteins 1 and 13 suppress caspase-1 and activation of the NLRP3 inflammasome. Microorganisms. 9(3): 494.
Published
Refereed?: Yes, Open Access?: Yes

12. Maseko S, Van Molle I, Blibek K, Gorgulla C, Olivet J, Blavier J, Vandermeulen C, Skupiewski S, Saha D, Ntombela T, Lim HJ, Lembo F, Beauvois A, Hamaidia M, Borg JP, Zimmermann P, Delvigne F, Willems L, Van Weyenbergh J, Kim DK, Dequiedt F, Arthanari H, Volkov A, Twizere JC. (2021). Interactomeand structural basis for targeting the human T-cell leukemia virus Taxoncoprotein. BioRxiv. 457680: 0.
Published
Refereed?: No, Open Access?: Yes

13. Lim HJ*, Yoon H*, Kim H*, Kang YW, Kim JE, Kim OY, Lee EY, Twizere JC, Rak J#, Kim DK#. (2021). Extracellularvesicle proteomes shed light on the evolutionary, interactive, and functionaldivergence of their biogenesis mechanisms. Frontiers in Cell and Developmental Biology. 9: 734950.
Published
Refereed?: Yes, Open Access?: Yes

14. Kerselidou D, Dohai BS, Nelson DR, Daakour S, De Cock N, Kim DK, Olivet J, El Assal DC, Jaiswal A, Saha D, Pain C, Matthijssens F, Lemaitre P, Herfs M, Chapuis J, Ghesquière B, Vertommen D, Kriechbaumer V, Knoops K, Lopez-Iglesias C, van Zandvoort M, Lambert JC, Hanson J, Desmet C, Thiry M, Lauersen KJ, Vidal M, Van Vlierberghe P, Dequiedt F, Salehi-Ashtiani K, Twizere JC. (2021). Alternative glycosylation controls endoplasmic reticulum dynamics and tubular extension in mammalian cells. Science Advances. 7(19): eabe8349.
Published
Refereed?: Yes, Open Access?: Yes

15. Lambourne L*, Yadav A*, Wang Y*, Desbuleux A*, Kim DK, Cafarelli T, Pons C, Kovács IA, Jailkhani N, Schlabach S, Ridder DD, Luck K, Bian W, Shen Y, Mee M, Jacob Y, Lemmens I, Rolland T, Tavernier J, Spirohn K, Zhong Q, Aloy P, Hao T, Charloteaux B, Roth FP#, Hill DE#, Calderwood MA#, Twizere JC#, Vidal M#. (2021). Binary Interactome Models of Inner- Versus Outer-Complexome Organization. BioRxiv. 435663: 0.
Published
Refereed?: No, Open Access?: Yes

16. Choi DS*#, Go G*, Kim DK, Lee J, Park SM, Di Vizio D, Gho YS#. (2020). Quantitativeproteomic analysis of trypsin-treated extracellular vesicles to identify thereal-vesicular proteins. Journal of Extracellular Vesicles. 9(1): 1757209.
Published
Refereed?: Yes, Open Access?: Yes

17. Samavarchi-Tehrani P, Abdouni H, Knight JDR, Astori A, Samson R, Lin ZY, Kim DK, Knapp JJ, St-Germain J, Go CD, Larsen B, Cassonnet P, Demeret C, Jacob Y, Roth FP, Raught B and Gingras AC. (2020). ASARS-CoV-2 – host proximity interactome. BioRxiv. 282103: 0.
Published
Refereed?: No, Open Access?: Yes

18. Oh Y, Yang S, Lu X, Jana S, Izaddoustdar F, Gao X, Debi R, Kim DK, Kim KH, Yang P, Kassiri X, Lakin R, Backx PH. (2020). Transcriptomic bioinformatic analyses of atria uncover involvement of pathways related to strain and post-translational modification of collagen in increased atrial fibrillation vulnerability in intensely exercised mice. Frontiers in Physiology. 11: 605671.
Published
Refereed?: Yes, Open Access?: Yes

19. Laurent EMN, Sofianatos Y, Komarova A, Gimeno JP, Samavarchi-Tehrani P, Kim DK, Abdouni H, Duhamel M, Cassonnet P, Knapp JJ, Kuang D, Chawla A, Sheykhkarimli D, Rayhan A, Li R, Pogoutse O, Hill DE, Calderwood MA, Falter-Braun P, Aloy P, Stelzl U, Vidal M, Gingras AC, Pavlopoulos GA, Van Der Werf S, Fournier I, Roth FP, Salzet M, Demeret C, Jacob Y, Coyaud E. (2020). Global BioID-based SARS-CoV-2 proteins proximal interactome unveils novel ties between viral polypeptides and host factors involved in multiple COVID19-associated mechanisms. BioRxiv. 272955: 0.
Published
Refereed?: No, Open Access?: Yes

20. Katja L*, Kim DK*, Lambourne L*, Spirohn K*, Begg BE, Bian W, Brignall R, Cafarelli T, Campos-Laborie F, Charloteaux B, Choi D, Cote AG, Daley M, Deimling S, Desbuleux A, Dricot A, Gebbia M, Hardy MF, Kishore N, Knapp J, Kovacs IA, Lemmens I, Mee MW, Mellor JC, Pollis C, Pons C, Richardson AD, Schlabach S, Teeking B, Yadav A, Babor M, Balcha D, Basha O, Chin SF, Choi SG, Colabella C, Coppin G, D'Amata C, De Ridder D, De Rouck S, Duran-Frigola M, Ennajdaoui H, Goebels F, Gopal A, Haddad G, Helmy M, Jacob Y, Kassa Y, Li R, van Lieshout N, MacWilliams A, Markey D, Paulson JN, Rangarajan S, Rasla J, Rayhan A, Rolland T, San Miguel A, Shen Y, Sheykhkarimli D, Sheynkman GM, Simonovsky E, Taşan M, Tejeda A, Twizere JC, Wang Y, Weatheritt R, Weile J, Xia Y, Yang X, Yeger-Lotem E, Zhong Q, Aloy P, Bader GD, De Las Rivas J, Gaudet S, Hao T, Rak J, Tavernier J, Tropepe V, Hill DE#, Vidal M#, Roth FP#, Calderwood MA#. (2020). A reference map of the human binary protein interactome. Nature. 580(7803): 402-408.
Published
Refereed?: Yes, Open Access?: No

21. St-Germain JR, Astori A, Samavarchi-Tehrani P, Abdouni H, Macwan V, Kim DK, Knapp JJ, Roth FP, Gingras AC, Raught B. (2020). ASARS-CoV-2 BioID-based virus-host membrane protein interactome and viruspeptide compendium: new proteomics resources for COVID-19 research. BioRxiv. 269175: 0.
Published
Refereed?: No, Open Access?: Yes

22. Kim DK*, Knapp JJ*, Kuang D*, Chawla A, Cassonnet P, Lee H, Sheykhkarimli D, Samavarchi-Tehrani P, Abdouni H, Rayhan A, Roujia Li, Pogoutse O, Coyaud É, van der Werf S, Demeret C, Gingras AC, Raught B, Jacob Y#, Roth FP#. (2020). A comprehensive, flexible collection of SARS-CoV-2 coding regions. G3: Genes, Genomes, Genetics. 10(9): 3399-3402.
Published
Refereed?: Yes, Open Access?: Yes

23. Yang F, Kim DK, Nakagawa H, Hayashi S, Imoto S, Stein L, Roth FP. (2019). Quantifyingimmune-based counterselection of somatic mutations. PLoS Genetics. 15(7): e1008227.
Published
Refereed?: Yes, Open Access?: Yes

24. Kovács IA, Luck K, Spirohn K, Wang Y, Pollis C, Schlabach S, Bian W, Kim DK, Kishore N, Hao T, Calderwood MA, Vidal M, Barabási AL. (2019). Network-basedprediction of protein interactions. Nature Communications. 10(1): 1240.
Published
Refereed?: Yes, Open Access?: Yes

25. Chelakkot C*, Choi Y*, Kim DK, Park HT, Ghim J, Kwon Y, Jeon J, Kim MS, Jee YK, Gho YS, Kim YK#, Ryu SH#. (2018). Akkermansia muciniphila-derived extracellular vesicles influence gut permeability through regulation of tight junctions. Experimental & Molecular Medicine. 50(2): e450.
Published
Refereed?: Yes, Open Access?: Yes

26. Choi D, Montermini L, Kim DK, Meehan B, Roth FP, Rak J. (2018). The impact of oncogenic EGFRvIII on the proteome of extracellular vesicles released from glioblastoma cells. Molecular and Cellular Proteomics. 17(10): 1948-1964.
Published
Refereed?: Yes, Open Access?: No

27. Shelke GV*, Jagtap JC*, Kim DK, Shah RD, Das G, Shivayogi M, Pujari R, Shastry P. (2017). TNF-α and IFN-γ together up-regulates Par-4 expression and induce apoptosis in human neuroblastomas. Biomedicines. 6(1): pii: E4.
Published
Refereed?: Yes, Open Access?: Yes

28. Lässer C, Shelke GV, Yeri A, Kim DK, Crescitelli R, Raimondo S, Sjöstrand M, Gho YS, Jensen, KVK, Lötvall J. (2017). Two distinct extracellular RNA signatures released by a single cell type identified by microarray and next-generation sequencing. RNA Biology. 14(1): 58-72.
Published
Refereed?: Yes, Open Access?: Yes

29. Lee N, Kim DK, Han SH, Ryu HG, Park SJ, Kim KT#, Choi KY#. (2017). Comparative interactomes of VRK1 and VRK3 with their distinct roles in the cell cycle of liver cancer. Molecules and Cells. 40(9): 621-631.
Published
Refereed?: Yes, Open Access?: No

30. Bin BH, Bhin J, Kim NH, Lee SH, Jung HS, Seo J, Kim DK, Hwang D, Fukada T, Lee AY, Lee TR#, Cho EG#. (2017). An Acrodermatitis enteropathica-associated Zn transporter, ZIP4, regulates human epidermal homeostasis. Journal of Investigative Dermatology. 137(4): 874-883.
Published
Refereed?: Yes, Open Access?: No

Conference Publications

1. Kim DK. Uncovering gain-of-expression resistance drivers for anti-cancer therapies through a novel genetic screening platform. The 32nd Conference on Intelligent Systems for Molecular Biology (ISMB2024), Montreal, Canada
Conference Date: 2024/7
Poster
Refereed?: Yes, Invited?: No

2. Kim DK. Perturbome of anti-cancer therapies via a novel screening approach. Korean Society for Biochemistry and Molecular Biology 2024 (KSBMB2024), Busan, Korea, South
Conference Date: 2024/5
Poster
Refereed?: Yes, Invited?: No

Intellectual Property

Patents

1. Methods for sequentially administering TAS-102 and BCL-2 inhibitor for cancer treatment. United States of America. 2023/05/10.
Patent Status: Pending
2. Gut flora-derived extracellular vesicles, and method for searching for a disease model, vaccine, and candidate drug and for diagnosis using the same. United States of America. 9274109. 2016/03/01.
Patent Status: Granted/Issued
3. Gut flora-derived extracellular vesicles, and method for searching for a disease model, vaccine, and candidate drug and for diagnosis using the same. United States of America. 9201072. 2015/12/01.
Patent Status: Granted/Issued
4. Gut flora-derived extracellular vesicles, and method for searching for a disease model, vaccine, and candidate drug and for diagnosis using the same. Japan. 05818793. 2015/11/18.
Patent Status: Granted/Issued
5. Gut flora-derived extracellular vesicles, and method for searching for a disease model, vaccine, and candidate drug and for diagnosis using the same. China. 102480932. 2014/11/14.
Patent Status: Granted/Issued

Presentations

1. (2024). Perturbome of anticancer drugs by novel gene overexpression approach. The 2nd Conference of Artificial Intelligence and Informatics at Mayo Clinic, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No
2. (2024). Perturbome of anticancer drugs by novel gene overexpression approach. McGill University, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
3. (2024). Perturbome of anticancer drugs by novel gene overexpression approach. New England Bioscience Society (NEBS), United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
4. (2023). Perturbome of anticancer drugs by novel gene overexpression approach. Concordia University, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: No
5. (2023). Exploring drivers of chemotherapeutic resistance through a novel overexpression screening. The 22nd International Conference on Systems Biology (ICSB2023), United States of America
Main Audience: Researcher
Invited?: No, Keynote?: No