Curriculum Vitae

Name:	**Dongsic Choi**
Nationality:	Republic of Korea (South)
Present Position	**Research associate,** The Research Institute of the McGill University Health Centre, H4A 3J1, Montreal, Quebec, Canada
E-mail:	darkcds@postech.ac.kr

Education

2006.3.02-2012.2.10	Ph.D., Department of Life Sciences, Pohang University of Science and Technology, Pohang, 37673, Republic of Korea Dissertation title: “Systemic studies of extracellular vesicles based on proteomic analyses” (Advisor: Dr. Yong Song Gho)
2002.3.04 - 2006.2.15	B.S., Department of Life Sciences, Pohang University of Science and Technology, Pohang, 37673, Republic of Korea

Professional experience

2017. 09. – Present	**Research associate,** The Research Institute of the McGill University Health Centre, H4A 3J1, Montreal, Quebec, Canada
2015. 12. – 2017. 08	**Postdoctoral Fellow,** Department of Biochemistry, The Research Institute of the McGill University Health Centre, McGill University, H4A 3J1, Montreal, Quebec, Canada
2013. 4. – 2015. 11	**Research Assistant Professor**, Department of Life Sciences, Pohang University of Science and Technology, Pohang, 37673, Republic of Korea
2012. 6. – 2015. 11	**Research Fellow**, Department of Life Sciences, Pohang University of Science and Technology, Pohang, 37673, Republic of Korea
2012. 3. – 2012. 6.	**Postdoctoral Fellow**, Department of Life Sciences, Pohang University of Science and Technology, Pohang, 37673, Republic of Korea

Additional experiences

1. 2015. 1 – 2015. 2, Visiting Observer, Cedars-Sinai Medical Center, Invitation by Dr. Dolores Di Vizio, M.D., Ph.D.
2. 2012. 8, Visiting research about proteomics and transcriptomics of extracellular vesicles, University of Gothenburg, Invitation by Dr. Jan Lötvall, M.D., Ph.D.

Fund and fellowship

1. Study on the biogenesis of extracellular vesicles based on proteomic and systems biology analyses, The National Research Foundation of Korea (NRF) grant funded by the Korea government (MEST), 2012R1A1A2042534, 2012.09.01-2015.08.31. (**Principle investigator: Dongsic Choi**)
2. MICRTP Postdoctoral Fellowship (CIHR/FRSQ training grant in cancer research FRN53888 of McGill Integrated Cancer Research Training Program), 2016.09.01-2017.08.31.

Publications (2019/09/05)

Number of publications

- 1st author papers: **15** (8 research articles; 5 reviews; 1 book chapter; 1 commentary)
- Co-author papers: **16** (14 research articles; 2 reviews)

Citation

- Web of science: total citation **2091**; H-index 19
- Scopus: total citation **2205**; H-index 19
- Scholar: total citation **2889**; H-index 19

A. 1st Author

[Research articles]

1. **Choi D**, Montermini L, Jeong H, Sharma S, Meehan B, Rak J. Mapping subpopulations of cancer cell-derived extracellular vesicles and particles by nano-flow cytometry. ***ACS Nano***. 2019 Aug 30. doi: 10.1021/acsnano.9b04480. [Epub ahead of print]
2. **Choi D**, Montermini L, Kim DK, Meehan B, Roth FP, Rak J, The impact of oncogenic EGFRvIII on the proteome of extracellular vesicles released from glioblastoma cells, ***Mol Cell Proteomics*** 2018 Oct;17(10):1948-1964.
3. Lee J, Kim SH, **Choi DS,** Lee JS, Kim DK, Go G, Park SM, Kim SH, Shin JH, Chang CL, and Gho YS, Proteomic analysis of extracellular vesicles derived from *Mycobacterium tuberculosis*, ***Proteomics*** 2015 Oct;15(19):3331-7. **(Cover Story)**
4. **Choi DS**, Choi DY, Hong BS, Jang SC, Kim DK, Lee J, Kim YK, KP Kim, and Gho YS, Quantitative proteomics of extracellular vesicles derived from human primary and metastatic colorectal cancer cells, ***Journal of Extracellular Vesicles*** 2012 Sep 11;1:18704.
5. **Choi DS**, Yang JS, Choi EJ, Jang SC, Park S, Kim OY, Hwang D, Kim KP, Kim YK, Kim S, and Gho YS, The protein interaction network of extracellular vesicles derived from human colorectal cancer cells, ***Journal of Proteome Research*** 2012 Feb 3;11(2):1144-51.
6. **Choi DS**, Kim DK, Choi SJ, Lee J, Choi JP, Rho S, Park SH, Kim YK, Hwang D, and Gho YS, Proteomic analysis of outer membrane vesicles derived from *Pseudomonas aeruginosa*, ***Proteomics*** 2011 Aug;11(16):3424-9.
7. **Choi DS**, Park JO, Jang SC, Yoon YJ, Jung JW, Choi DY, Kim JW, Kang JS, Park J, Hwang D, Lee KH, Park SH, Kim YK, Desiderio DM, Kim KP, and Gho YS, Proteomic analysis of microvesicles derived from human colorectal cancer ascites, ***Proteomics*** 2011 Jul;11(13):2745-51. (featured by Research Highlights in Biomarkers Med. (2011) 5(6), 821–822).
8. **Choi DS**, Lee JM, Park GW, Lim HW, Bang JY, Kim YK, Kwon KH, Kwon HJ, Kim KP, and Gho YS, Proteomic analysis of microvesicles derived from human colorectal cancer cells, ***Journal of Proteome Research*** 2007 Dec;6(12):4646-55.

[Reviews]

9. **Choi D**, Spinelli C, Montermini L and Rak J, Oncogenic regulation of extracellular vesicle proteome and heterogeneity, ***Proteomics*** 2019 Jan;19(1-2):e1800169.
10. **Choi D**, Lee TH, Spinelli C, Chennakrishnaiah S, D'Asti E, and Rak J, Extracellular vesicle communication pathways as regulatory targets of oncogenic transformation, ***Seminars in Cell and Developmental Biology*** 2017 Jan 8. pii: S1084-9521(17)30004-6.
11. **Choi DS**, Kim DK, Kim YK, Gho YS, Proteomics of extracellular vesicles: Exosomes and ectosomes, ***Mass Spectrometry Reviews*** 2015 Jul;34(4):474-90. **(Cover Story)**
12. **Choi DS**, Lee J, Go G, Kim YK, and Gho YS, Circulating extracellular vesicles in cancer diagnosis and monitoring: an appraisal of clinical potential, ***Molecular Diagnosis & Therapy*** 2013 Oct;17(5):265-71.
13. **Choi DS**, Kim DK, Kim YK, and Gho YS, Proteomics, transcriptomics, and lipidomics of exosomes and ectosomes, ***Proteomics*** 2013 May;13(10-11):1554-71.

[Books]

14. **Choi DS** and Gho YS, Isolation of extracellular vesicles for proteomic profiling, ***Methods in Molecular Biology*** 2015;1295:167-177.

[Commentary]

15. **Choi DS*,** Urinary extracellular vesicles for biomarker source to monitor polycystic kidney disease, ***Proteomics-Clinical Applications*** 2015 Jun;9(5-6):447-8. (*Corresponding author)

B. Co-Author

[Research articles]

1. Luck K et al., A reference map of the human protein interactome, ***bioRxiv 2019***, 605451
2. Go G, Lee J, **Choi DS**, Kim SS, Gho YS, Extracellular vesicle-mimetic ghost nanovesicles for delivering anti-inflammatory drugs to mitigate gram-negative bacterial outer membrane vesicle-induced systemic inflammatory response syndrome. ***Advanced Healthcare Materials*** 2018 2019 Feb;8(4):e1801082..
3. Chennakrishnaiah S, Meehan B, D'Asti E, Montermini L, Lee TH, Karatzas N, Buchanan M, Tawil N, **Choi D**, Divangahi M, Basik M, Rak J, Leukocytes as a reservoir of circulating oncogenic DNA and regulatory targets of tumor-derived extracellular vesicles. ***Journal of Thrombosis and Haemostasis*** 2018 Sep;16(9):1800-1813.
4. Spinelli C, Montermini L, Meehan B, Brisson AR, Tan S, **Choi D**, Nakano I, Rak J, Molecular subtypes and differentiation programmes of glioma stem cells as determinants of extracellular vesicle profiles and endothelial cell-stimulating activities. ***Journal of Extracellular Vesicles***. 2018 Jul 17;7(1):1490144
5. Kim DK, Lee J, Kim SR, **Choi DS**, Yoon YJ, Kim JH, Go G, Nhung D, Hong K, Jang SC, Kim SH, Park KS, Kim OY, Park HT, Seo JH, Aikawa E, Baj-Krzyworzeka M, van Balkom BW, Belting M, Blanc L, Bond V, Bongiovanni A, Borràs FE, Buée L, Buzás EI, Cheng L, Clayton A, Cocucci E, Dela Cruz CS, Desiderio DM, Di Vizio D, Ekström K, Falcon-Perez JM, Gardiner C, Giebel B, Greening DW, Gross JC, Gupta D, Hendrix A, Hill AF, Hill MM, Nolte-'t Hoen E, Hwang DW, Inal J, Jagannadham MV, Jayachandran M, Jee YK, Jørgensen M, Kim KP, Kim YK, Kislinger T, Lässer C, Lee DS, Lee H, van Leeuwen J, Lener T, Liu ML, Lötvall J, Marcilla A, Mathivanan S, Möller A, Morhayim J, Mullier F, Nazarenko I, Nieuwland R, Nunes DN, Pang K, Park J, Patel T, Pocsfalvi G, Del Portillo H, Putz U, Ramirez MI, Rodrigues ML, Roh TY, Royo F, Sahoo S, Schiffelers R, Sharma S, Siljander P, Simpson RJ, Soekmadji C, Stahl P, Stensballe A, Stępień E, Tahara H, Trummer A, Valadi H, Vella LJ, Wai SN, Witwer K, Yáñez-Mó M, Youn H, Zeidler R, Gho YS. EVpedia: A community web portal for extracellular vesicles research. ***Bioinformatics***. 2015 Mar 15;31(6):933-9.
6. Jang SC, Kim SR, Yoon YJ, Park KS, Kim JH, Lee J, Kim OY, Choi EJ, Kim DK, **Choi DS**, Kim YK, Park J, Di Vizio D, Gho YS, In vivo kinetic biodistribution of nano-sized outer membrane vesicles derived from bacteria, ***Small*** 2015 Jan;11(4):456-61.
7. Eldh M, Olofsson Bagge R, Lässer C, Svanvik J1, Sjöstrand M, Mattsson J, Lindnér P, **Choi DS**, Gho YS, Lötvall J. MicroRNA in exosomes isolated directly from the liver circulation in patients with metastatic uveal melanoma. ***BMC Cancer*** 2014 Dec 16;14(1):962.
8. Jang SC, Kim OY, Yoon CM, **Choi DS**, Roh TY, Park J, Nilsson J, Lötvall J, Kim YK, and Gho YS, Bioinspired exosome-mimetic nanovesicles for targeted delivery of chemotherapeutics to malignant tumors, ***ACS Nano*** 2013 Sep 24;7(9):7698-710.
9. Park JO, Choi DY, **Choi DS**, Kim HJ, Kang JW, Jung JH, Lee JH, Kim J, Freeman MR, Lee KY, Gho YS, and Kim KP. Identification and characterization of proteins isolated from microvesicles derived from human lung cancer pleural effusions, ***Proteomics*** 2013 Jul;13(14):2125-34.
10. Kim DK, Kang B, Kim OY, **Choi DS**, Lee J, Kim SR, Go G, Yoon YJ, Kim JH, Jang SC, Park KS, Choi EJ, Kim KP, Desiderio DM, Kim YK, Lötvall J, Hwang D, and Gho YS, EVpedia: an integrated database of high-throughput data for systemic analyses of extracellular vesicles, ***Journal of Extracellular Vesicle*** 2013 Mar 19;2:20384.
11. Moon HG, Kang CS, Choi JP, **Choi DS**, Choi HI, Choi YW, Jeon SG, Yoo JY, Jang MH, Gho YS, and Kim YK, Acetyl salicylic acid inhibits Th17 airway inflammation via blockade of IL-6 and

IL-17 positive feedback, ***Experimental & Molecular Medicine*** 2013 Jan 18;45:e6.

12. Moon HG, Kim YS, Choi JP, **Choi DS**, Yoon CM, Jeon SG, Gho YS, and Kim YK, Aspirin attenuates the anti-inflammatory effects of theophylline via inhibition of cAMP production in mice with non-eosinophilic asthma, ***Experimental & Molecular Medicine*** 2010 Jan 31;42(1):47-60.
13. Hong BS, Cho JH, Kim H, Choi EJ, Rho S, Kim J, Kim JH, **Choi DS**, Kim YK, Hwang D, and Gho YS, Colorectal cancer cell-derived microvesicles are enriched in cell cycle-related mRNAs that promote proliferation of endothelial cells, ***BMC Genomics*** 2009 Nov 25;10:556. **(Highly Accessed Article)**
14. Lee EY, Bang JY, Park GW, **Choi DS**, Kang JS, Kim HJ, Park KS, Lee JO, Kim YK, Kwon KH, Kim KP, and Gho YS, Global proteomic profiling of native outer membrane vesicles derived from *Escherichia coli*, ***Proteomics*** 2007 Sep;7(17):3143-53. **(Cover Story)**

[Reviews]

15. Spinelli C, Adnani L, **Choi D**, Rak J, Extracellular Vesicles as Conduits of Non-Coding RNA Emission and Intercellular Transfer in Brain Tumors, ***Non-Coding RNA*** 2019, 5 (1).
16. Lee EY, **Choi DS**, Kim KP, and Gho YS, Proteomics in gram-negative bacterial outer membrane vesicles, ***Mass Spectrometry Reviews*** 2008 Nov-Dec;27(6):535-55.

Patents

[Grant]

1. Cell membrane-derived nanovesicles and use thereof. Gho YS, **Choi DS**, and GO G, 2017 (Patent number: KR101720851B1)
2. Microvesicles derived from nucleated, mammalian cells and use thereof. Gho YS, Kim YK, Jang SC, Kim OY, **Choi DS**, and Yoon YJ, 2013 (Patent number: EP2450032B1, JP5667180, KR101314868, CN102596177B)

[Pending]

1. Cell membrane-derived nanovesicles and use thereof. Gho YS, **Choi DS**, and GO G. (Application number: US20180036240A1, EP3251659A4, JP2018503656A, CN107427466A, WO2016133254A1)
2. Microvesicles derived from nucleated, mammalian cells and use thereof. Gho YS, Kim YK, Jang SC, Kim OY, **Choi DS**, and Yoon YJ. (Application number: US20180036240A1, WO2016133254A1)

Oral Presentations

1. **Choi DS**, Evaluation of protein sorting in extracellular vesicles based on quantitative proteomic analyses, ISEV Workshop on EV Proteomics and Lipidomics, Melbourne, Australia, February 3, 2014.
2. **Choi DS**, Quantitative proteomic analyses of extracellular vesicles, membrane, and cells in colorectal cancer cells, The ISEV 2013 Meeting, Boston, USA, April 18, 2013.
3. **Choi DS**, Comparative proteomics of extracellular vesicles derived from colorectal primary and metastatic cancer, 2012 KSBMB (Korea Society for Biochemistry and Molecular Biology) Annual Meeting, Seoul, Republic of Korea, June 1, 2012.

Poster Presentations

1. **Choi DS**, Montermini L, Jeong H, Meehan B, and Rak J, Monitoring immunophenotypes of single extracellular vesicles by nano-flow cytometry, 2018 CHHD Scientific Retreat, Montreal, Canada, November 30, 2018.
2. **Choi DS**, Montermini L, Jeong H, Meehan B, and Rak J, Monitoring immunophenotypes of single extracellular vesicles by nano-flow cytometry, ASEMV 2018, Baltimore, USA, October 22, 2018.
3. **Choi DS**, Montermini L, and Rak J, The impact of oncogenic EGFRvIII on the proteome of

extracellular vesicles released from glioblastoma cells, The ISEV 2017 Meeting, Toronto, Canada, May 18, 2017.

4. **Choi DS**, Choi DY, Hong BS, Jang SC, Kim DK, Lee J, Kim YK, KP Kim, and Gho YS, Comparative proteomics of extracellular vesicles derived from colorectal primary and metastatic cancer, 2012 KSBMB (Korea Society for Biochemistry and Molecular Biology) Annual Meeting, Seoul, Republic of Korea, June 1, 2012.
5. **Choi DS**, Kim DK, Kim OY, Yoo SY, Rho S, Kim YK, Hwang D, and Gho YS, Absolute quantification of microvesicular proteome elucidating the origin specific signature, HUPO 9th Annual World Congress, Sydney 2010, Sydney, Australia, September 19-23, 2010. (travel supported by the HUPO 2010 Congress Bursary)
6. **Choi DS**, Kim DK, Yoo SY, Rho S, Kim YK, Hwang D, and Gho YS, Quantitative proteome profiling of microvesicles derived from human colorectal cancer cells reveals origin specific signature, KHUPO 10th Annual international proteomics conference, Seoul, Republic of Korea, May 1, 2010.
7. **Choi DS**, Park JO, Jang SC, Jung JW, Lee WC, Kang JS, Kim YK, Lee KH, Kim KP, and Gho YS, Proteomic analysis of microvesicles derived from colorectal cancer ascites, KHUPO 9th Annual International Proteomics Conference, Seoul, Republic of Korea, March 25-27, 2009.
8. **Choi DS**, Yang JS, Jang SC, Park SI, Kim YK, Kim KP, Kim SU and Gho YS, Protein-protein interaction network analysis of exosome proteome, KHUPO 2009 9th international congress on cell biology, Seoul, Republic of Korea, October 0-10, 2008.
9. **Choi DS**, Lee JM, Park GW, Lim HW, Bang JY, Kim YK, Kwon KH, Kwon HJ, Kim KP, and Gho YS, Proteomic analysis of microvesicles derived from human colorectal cancer cells, HUPO 6th Annual World Congress, Seoul 2007, Seoul, Republic of Korea, October 6-10, 2007.

Honors and Awards

1. Best Research Award, 2012 KSBMB (Korea Society for Biochemistry and Molecular Biology) Annual Meeting, Seoul, Republic of Korea, June 1, 2012.

Teaching Assistant Experiences

- Teaching Assistant

1. 2010.03-2010.07, Teaching Assistant of “Biotechnology” course in Department of Life Sciences, Pohang University of Science and Technology.
2. 2009.09-2010.02, Teaching Assistant of “General Life Science” course in Department of Life Sciences, Pohang University of Science and Technology.
3. 2008.03-2008.07, Teaching Assistant of “Cell Biology & Genetics Laboratory” course in Department of Life Sciences, Pohang University of Science and Technology.

- Research Supervisor

1. 2013-2016, research assistant professor, Si-Hyum Kim (M.D., Ph.D.) (Department of Life Sciences, Pohang University of Science and Technology)
2. 2012-2016, graduate student, Gyeongyun Go (Department of Life Sciences, Pohang University of Science and Technology)
3. 2012-2016, graduate student, Jaewook Lee (Department of Life Sciences, Pohang University of Science and Technology)
4. 2009, graduate student, Dae-Kyum Kim (Department of Life Sciences, Pohang University of Science and Technology)
5. 2009, undergraduate student, Seung-Yeon Yoo (Department of Life Sciences, Pohang University of Science and Technology)
6. 2008, undergraduate student, Yeon Hee Kang (Department of Life Sciences, Pohang University of Science and Technology)

National and International Assignments of Importance

1. 2018, Member of American Society for Exosomes and Microvesicles: www.asemv.org

2. 2012-2016, Member of International Society for Extracellular Vesicles: www.isev.org
3. 2009, Member of Korean Society for Extracellular Vesicles: www.ksev.or.kr