Curriculum Vitae

Sangsoo Lim (임상수)

Postdoctoral Research Associate

Bio and Health Informatics Lab, Bioinformatics Institute

Seoul National University, Seoul, Republic of Korea

Phone: +82-2-880-2860

E-mail: sslim@snu.ac.kr

Profile summary

I am currently a postdoctoral Research Associate affiliated with Bio & Health Informatics Lab and Bioinformatics Institute at Seoul National University. I received a Ph.D. degree in Bioinformatics at Seoul National University in 2019. My research currently focuses on developing machine learning algorithms to model toxicity of chemicals in large-scale drug discovery data using deep neural networks, identifying toxicophores (hotspots) contributing to the toxicity of chemicals.

Education

2014 – 2019	Ph.D., Interdisciplinary Program in Bioinformatics, Seoul National University, Seoul, Korea ◆ Research areas: transcriptome data analysis, data mining, computational modeling of biological data ◆ Advisor: Sun Kim ◆ Thesis title: Quantification of pathway activity using RNA-seq data
2011 – 2013	M.S. in Chemistry, Yonsei University, Seoul, Republic of Korea ◆ Research areas: Lipidomics, LC-MS ◆ Advisor: Myeong Hee Moon ◆ Thesis title: Development of computational algorithm for structural identification of phospholipids and profiling of phospholipid biomarkers for prostate cancer from human urine
2006 – 2011	B.S. in Chemistry & Applied Statistics, Yonsei University, Seoul, Republic of Korea

Professional experiences

2019 – Present Postdoc. Research Associate, Bioinformatics Institute, Seoul National University, Seoul, Republic of Korea

- Research areas: drug toxicity prediction, deep learning, pharmacogenomics

Publications

[At Seoul National University]

1. **Sangsoo Lim**[1], Heonyi Lee[1], Joungmin Choi and Heejoon Chae
   "PathwayCloud: a cloud-based system for calculating individualized pathway activity values", *In preparation*, 2020
2. Minsu Kim, Sangseon Lee, **Sangsoo Lim**, Doh Young Lee and Sun Kim
   "AttentiveCancer: an attention framework using subnetwork level representation of transcriptome for predicting lymph node metastasis in early oral cancer", *In preparation*, 2020
3. Sangseon Lee, **Sangsoo Lim**, Taeheon Lee, Inyoung Sung and Sun Kim
   "Cancer subtype classification and modeling by pathway attention and propagation", *Bioinformatics*, In press, 2020
4. **Sangsoo Lim**, Sangseon Lee, Inuk Jung, Sungmin Rhee and Sun Kim
   "Comprehensive and critical evaluation of individualized pathway activity measurement tools on pan-cancer data", *Briefings in Bioinformatics* 21(1), 2020
5. Aeran Lim[1], **Sangsoo Lim**[1] and Sun Kim
   "Enhancer prediction with histone modification marks using a hybrid neural network model", *Methods* 166, 2019
6. Minsu Kim, Sangseon Lee, **Sangsoo Lim** and Sun Kim
   "SpliceHetero: An information theoretic approach for measuring spliceomic intratumor heterogeneity from bulk tumor RNA-seq", *Plos one* 14(10), 2019
7. Ji Hwan Moon, **Sangsoo Lim**, Kyuri Jo, Sangseon Lee, Seokjun Seo and Sun Kim
   "PINTnet: construction of condition-specific pathway interaction network by computing

[1] Equal contribution

shortest paths on weighted PPI", *BMC systems biology* 11(2), 2017

8. Sungmin Rhee, **Sangsoo Lim** and Sun Kim
   "Iterative segmented least square method for functional microRNA-mRNA module discovery in breast cancer", *IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, 2016

9. Benjamin Hur, **Sangsoo Lim**, Heejoon Chae, Seokjun Seo, Sangseon Lee, Jaewoo Kang and Sun Kim
   "CLIP-GENE: a web service of the condition specific context-laid integrative analysis for gene prioritization in mouse TF knockout experiments", *Biology direct* 11(1), 2016

10. Youngjune Park, **Sangsoo Lim**, Jun-Wu Nam and Sun Kim
    "Measuring intratumor heterogeneity by network entropy using RNA-seq data", *Scientific reports* 6, 2016

11. **Sangsoo Lim**, Youngjune Park, Benjamin Hur, Minsu Kim, Wonshik Han and Sun Kim
    "Protein interaction network (PIN)-based breast cancer subsystem identification and activation measurement for prognostic modeling", *Methods* 110, 2016

12. Jinwoo Park, Benjamin Hur, Sungmin Rhee, **Sangsoo Lim**, Minsu Kim, Kwangsoo Kim, Wonshik Han and Sun Kim
    "Information theoretic sub-network mining characterizes breast cancer subtypes in terms of cancer core mechanisms", *Journal of bioinformatics and computational biology* 14(5), 2016

[At Yonsei University]

13. **Sangsoo Lim**, Dae Young Bang, Koon Ho Rha and Myeong Hee Moon
    "Rapid screening of phospholipid biomarker candidates from prostate cancer urine samples by multiple reaction monitoring of UPLC-ESI-MS/MS and statistical approaches", *Bulletin of the Korean Chemical Society* 35(4), 2014

14. Ju Yong Lee, **Sangsoo Lim**, Sungha Park and Myeong Hee Moon
    "Characterization of oxidized phospholipids in oxidatively modified low density lipoproteins by nanoflow liquid chromatography-tandem mass spectrometry", *Journal of Chromatography A* 1288, 2013

15. Ki Hun Kim, Ju Yong Lee, **Sangsoo Lim** and Myeong Hee Moon
    "Top-down lipidomic analysis of human lipoproteins by chip-type asymmetrical flow field-flow fractionation-electrospray ionization-tandem mass spectrometry", *Journal of Chromatography A* 1280, 2013

16. Seul Kee Byeon, Ju Yong Lee, **Sangsoo Lim**, Donghoon Choi and Myeong Hee Moon

"Discovery of candidate phospholipid biomarkers in human lipoproteins with coronary artery disease by flow field-flow fractionation and nanoflow liquid chromatography-tandem mass spectrometry", *Journal of Chromatography A* 1270, 2012

17. **Sangsoo Lim**, Seul Kee Byeon, Ju Yong Lee and Myeong Hee Moon
"Computational approach to structural identification of phospholipids using raw mass spectra from nanoflow liquid chromatography-electrospray ionization-tandem mass spectrometry", *Journal of mass spectrometry* 47(8), 2012

18. Dae Yong Bang, **Sangsoo Lim** and Myeong Hee Moon
"Effect of ionization modifiers on the simultaneous analysis of all classes of phospholipids by nanoflow liquid chromatography/tandem mass spectrometry in negative ion mode", *Journal of Chromatography A* 1240, 2012

19. Rae Ung Jeong, **Sangsoo Lim**, Myoung Ok Kim and Myeong Hee Moon
"Effect of D-allose on prostate cancer cell lines: phospholipid profiling by nanoflow liquid chromatography-tandem mass spectrometry", *Analytical and bioanalytical chemistry* 401(2), 2011

20. Ju Yong Lee, **Sangsoo Lim** and Myeong Hee Moon
"Effects of column lengths and particle diameter on phospholipid analysis by nanoflow liquid chromatography-electrospray ionization-mass spectrometry", *Mass Spectrometry Letters* 2(3), 2011

21. Hye Kyeong Min, **Sangsoo Lim**, Bong Chul Chung and Myeong Hee Moon
"Shotgun lipidomics for candidate biomarkers of urinary phospholipids in prostate cancer", *Analytical and bioanalytical chemistry* 399(2), 2011

Awards

2012	Excellent Teaching Assistant (Department of Chemistry, Yonsei University)
2011	Excellent Teaching Assistant (Department of Chemistry, Yonsei University)