

Curriculum Vitae

Naoto Kubota, Ph.D

Postdoctoral scholar (Sika Zheng Lab)
School of Medicine, Division of Biomedical Sciences
University of California, Riverside

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EDUCATION

7.2020	Ph.D., Department of Medical Molecular Cell Biology, Graduate School of System Life Sciences, Kyushu University
3.2017	M.S., Department of Bioresource Science, Graduate School of Agricultural Science, Kobe University
3.2015	B.S., Department of Bioresource Science, Faculty of Agriculture, Kobe University

POSITION HELD

5.2022 -	Postdoctoral scholar, School of Medicine Division of Biomedical Sciences University of California, Riverside (Dr. Sika Zheng)
7.2020 - 3.2022	Research Associate, Medical Institute of Bioregulation, Kyushu University (Dr. Mikita Suyama)
4.2020 - 6.2020	Technical Staff, Medical Institute of Bioregulation, Kyushu University (Dr. Mikita Suyama)
4.2019 - 9.2019	Guest Researcher, Barcelona Supercomputing Center (Dr. David Torrents)
1.2018 - 3.2018	Research Assistant, Graduate School of System Life Sciences,

4.2017 - 3.2018

Kyushu University
(Dr. Mikita Suyama)
Research Assistant,
Medical Institute of Bioregulation,
Kyushu University
(Dr. Mikita Suyama)

RESEARCH INTERESTS

Functional Genomics; Computational Biology; Gene Regulation; RNA Splicing; Nonsense-mediated mRNA decay; Neuronal development & disease; QTL mapping; Software development

RESEARCH EXPERIENCE

5.2022 -

University of California Riverside, School of Medicine,
Postdoctoral Scholar (Dry)
PI: Dr. Sika Zheng

- Software development for systematic identification of differential RNA splicing [Kubota *et al.*, 2025]
- Performed integrative transcriptomic analysis of nonsense-mediated mRNA decay (NMD) in brain development [Lin and Zhao *et al.*, 2024; Lin and Kubota *et al.*, 2026]
- Alternative splicing analysis in astrocytes with PTBP1 loss [Zhang, Kubota, Nikom *et al.*, 2025]
- Analyzing splicing dysregulation in neurological diseases

7.2020 - 3.2022

Kyushu University, Medical Institute of Bioregulation,
Research Associate (Dry)
PI: Dr. Mikita Suyama

- Surveyed functional variants that regulate promoter usage (promoter usage QTL) in the human genome to interpret disease risk using conventional RNA-seq data [Kubota and Suyama, 2022]
- Surveyed overlooked functional variants within TF footprints in the human genome by integrating blood xQTL data (eQTL, caQTL, hQTL, etc.) [Kubota and Suyama, 2021]
- Characterized the trophoblast stem cells of disease patients by epigenome and transcriptome analysis with molecular biologists [Kobayashi *et al.*, 2022]

4.2017 - 6.2020

Kyushu University, Graduate School of System Life Sciences
Ph.D. student (Dry)
Advisor: Dr. Mikita Suyama

- Surveyed functional variants in the human genome associated with psoriasis risk by integrating and

reanalyzing public omics datasets [Kubota and Suyama, 2020]

- Identified a putative enhancer for *DMRT3* and suggested its involvement in the pathogenesis of spastic cerebral palsy by analyzing genomic data of patients and various omics datasets [Kubota *et al.*, 2018]

4.2014 - 3.2017

Kobe University, Graduate School of Agricultural Science,
Graduate student (Wet)

Advisor: Dr. Nobuhiko Hoshi

- Analyzed DNA methylation status of the enhancer for *DMRT1*, which has a pivotal role in the testis differentiation in mice, by molecular experiments such as bisulfite sequencing

HONOR/AWARDS/FELLOWSHIPS

6.2026	2026 UC President's Lindau Nobel Laureate Meeting Fellow, University of California
12.2024	Creativity award, 2024 BMSC Special Recognition, School of Medicine, UC Riverside
12.2022	Creativity award, 2022 BMSC Special Recognition, School of Medicine, UC Riverside
5.2022 - 4.2023	Postdoctoral fellowship, The Uehara Memorial Foundation
4.2019 - 9.2019	Overseas Challenge Program for Young Researchers, Japan Society for the Promotion of Science
12.2018	JSBi Certified Bioinformatics Engineer (Pass in the top 10%), Japanese Society for Bioinformatics
8.2018	Most Excellent Oral Presentation Award, The 21st Retreat of Medical Institute of Bioregulation
4.2018 - 3.2020	JSPS Research Fellow (DC2), (The best notable scholarship for Ph.D. students in Japan), Japan Society for the Promotion of Science
11.2017	Japan Statistical Society Certificate Grade 2 (Pass with credit), The Japan Statistical Society
3.2015	Senior Laboratory Animal Technician, Japanese Society for Laboratory Animal Resources

RESEARCH FUNDINGS

4.2022 - 3.2024	Grant-in-Aid for Early-Career Scientists, KAKENHI, \$27K for the research, Japan Society for the Promotion of Science
4.2019 - 9.2019	JSPS Research Grant, KAKENHI, \$14K for the research and stipend, Japan Society for the Promotion of Science
4.2018 - 3.2020	JSPS Research Grant, KAKENHI, \$15K for the research, \$47K for the stipend,

PUBLICATIONS

1. Development of a robust method to derive human trophoblast stem cells from late-gestation placentas and its application to preeclampsia
Akira Oike[#], Eri H. Kobayashi[#], Yasuhiro Yamamoto[#], Hirotaka Hamada, Sota Takahashi, Takanori Shimizu, Akane Kitamura, Asato Sekiya, Norio Kobayashi, Shun Shibata, Shun Endo, Tetsuya Sato, **Naoto Kubota**, Chie Kikutake, Mikita Suyama, Takahiro Arima, Hiroaki Okae ([#]Equal contribution)
Proc. Natl. Acad. Sci. U. S. A. 123(24), e2537884123, 2026.
2. Nonsense-mediated mRNA decay orchestrates neuronal migration and cortical lamination while modulating Reelin and ciliary gene regulatory networks
Lin Lin[#], **Naoto Kubota**[#], Yi-Li Lam, Michelle Mingxue Song, Min Zhang, Sika Zheng ([#]Equal contribution)
Cell reports 45 (3), 117027, 2026.
3. PTBP1 depletion in mature astrocytes reveals distinct splicing alterations without neuronal features
Min Zhang[#], **Naoto Kubota**[#], David Nikom[#], Ayden Arient, Sika Zheng ([#]Equal contribution)
eLife 14:RP107683, 2025.
4. Colonizing bacteria around aggregated lymphoid tissue of the rat ascending colon change diurnally and affect the host local transcriptome
Asaka Shimada, **Naoto Kubota**, Sika Zheng, Rinako Morishita, Toshifumi Yokoyama, Nobuhiko Hoshi, Youhei Mantani
Cell Tissue Res. 402, 97–108, 2025.
5. Shiba: a versatile computational method for systematic identification of differential RNA splicing across platforms
Naoto Kubota, Liang Chen, Sika Zheng
Nucleic Acids Research 53(4), gkaf098, 2025.
6. Long live the RNAs: The guardians of neuronal longevity?
Lin Lin, **Naoto Kubota**, Nanaka Kaneshiro, Sika Zheng
Mol. Cell 84(11), 2014–2016, 2024
7. Epistatic interactions between NMD and TRP53 control progenitor cell maintenance and brain size
Lin Lin[#], Jingrong Zhao[#], **Naoto Kubota**, Zhelin Li, Yi-Li Lam, Lauren P. Nguyen, Lu Yang, Sheela P. Pokharel, Steven M. Blue, Brian A. Yee, Renee Chen, Gene W. Yeo, Chun-Wei Chen, Liang Chen, Sika Zheng ([#]Equal contribution)
Neuron 112(13), 2157–2176.e12, 2024.
8. Diurnal changes in bacterial settlement on the Peyer's patch and surrounding mucosa in the rat ileum and its effect against the intestinal immune system
Youhei Mantani, Nanami Sakata, **Naoto Kubota**, Asaka Shimada, Satoki Nakanishi, Toshifumi Yokoyama, Nobuhiko Hoshi
Cell Tissue Res. 393, 83–95, 2023.
9. Mapping of promoter usage QTL using RNA-seq data reveals their contributions to complex traits
Naoto Kubota, Mikita Suyama
PLoS Comput. Biol. 18(8): e1010436, 2022.

10. The microRNA cluster C19MC confers differentiation potential into trophoblast lineages upon human pluripotent stem cells
Norio Kobayashi, Hiroaki Okae, Hitoshi Hiura, **Naoto Kubota**, Eri H. Kobayashi, Shun Shibata, Akira Oike, Takeshi Hori, Chie Kikutake, Hirotaka Hamada, Hirokazu Kaji, Mikita Suyama, Marie-Line Bortolin-Cavaillé, Jérôme Cavaillé, Takahiro Arima
Nat. Commun. 13, 3071, 2022.
11. Functional variants in hematopoietic transcription factor footprints and their roles in the risk of immune system diseases
Naoto Kubota, Mikita Suyama
bioRxiv 2021.03.22.436360; doi: <https://doi.org/10.1101/2021.03.22.436360>
12. An integrated analysis of public genomic data unveils a possible functional mechanism of psoriasis risk via a long-range *ERRF1* enhancer
Naoto Kubota, Mikita Suyama
BMC Med. Genomics 13, 8, 2020.
13. Identification of reference genes for quantitative PCR analyses in developing mouse gonads
Toshifumi Yokoyama, Takuya Omotehara, Tetsushi Hirano, **Naoto Kubota**, Shogo Yanai, Chinatsu Hasegawa, Tadashi Takada, Youhei Mantani, Nobuhiko Hoshi
J. Vet. Med. Sci. 80, 1534–1539, 2018.
14. Identification of a candidate enhancer for *DMRT3* involved in spastic cerebral palsy pathogenesis
Naoto Kubota, Toshifumi Yokoyama, Nobuhiko Hoshi, Mikita Suyama
Biochem. Biophys. Res. Commun. 496, 133–139, 2018.
15. NOAEL-dose of a neonicotinoid pesticide, clothianidin, acutely induce anxiety-related behavior with human-audible vocalizations in male mice in a novel environment
Tetsushi Hirano, Shogo Yanai, Tadashi Takada, Naoki Yoneda, Takuya Omotehara, **Naoto Kubota**, Kiichi Minami, Anzu Yamamoto, Youhei Mantani, Toshifumi Yokoyama, Hiroshi Kitagawa, Nobuhiko Hoshi
Toxicol. Lett. 282, 57–63, 2018.
16. Prenatal and early postnatal NOAEL-dose clothianidin exposure leads to a reduction of germ cells in juvenile male mice
Shogo Yanai, Tetsushi Hirano, Takuya Omotehara, Tadashi Takada, Naoki Yoneda, **Naoto Kubota**, Anzu Yamamoto, Youhei Mantani, Toshifumi Yokoyama, Hiroshi Kitagawa, Nobuhiko Hoshi
J. Vet. Med. Sci. 79, 1196–1203, 2017.
17. Ontogenic and morphological study of gonadal formation in genetically-modified sex reversal XY(POS) mice
Yuria Umemura, Ryosuke Miyamoto, Rie Hashimoto, Kyoko Kinoshita, Takuya Omotehara, Daichi Nagahara, Tetsushi Hirano, **Naoto Kubota**, Kiichi Minami, Shogo Yanai, Natsumi Masuda, Hideto Yuasa, Youhei Mantani, Eiko Matsuo, Toshifumi Yokoyama, Hiroshi Kitagawa, Nobuhiko Hoshi
J. Vet. Med. Sci. 77, 1587–1598, 2016.
18. The combined effect of clothianidin and environmental stress on the behavioral and reproductive function in male mice
Tetsushi Hirano, Shogo Yanai, Takuya Omotehara, Rie Hashimoto, Yuria Umemura, **Naoto Kubota**, Kiichi Minami, Daichi Nagahara, Eiko Matsuo, Yoshiko Aihara, Ryota Shinohara, Tomoyuki Furuyashiki, Youhei Mantani, Toshifumi Yokoyama, Hiroshi Kitagawa, Nobuhiko Hoshi

J. Vet. Med. Sci. 77, 1207–1215, 2015.

19. Immunohistochemical analysis of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) toxicity on the developmental dentate gyrus and hippocampal fimbria in fetal mice
Yoshihiro Kobayashi, Tetsushi Hirano, Takuya Omotehara, Rie Hashimoto, Yuria Umemura, Hideto Yuasa, Natsumi Masuda, **Naoto Kubota**, Kiichi Minami, Shogo Yanai, Mitsuko Ishihara-Sugano, Youhei Mantani, Toshifumi Yokoyama, Hiroshi Kitagawa, Nobuhiko Hoshi
J. Vet. Med. Sci. 77, 1355–1361, 2015.

PRESENTATIONS

Oral Presentations

1. Identification of a causal *cis*-regulatory element and a novel target gene for psoriasis-associated SNPs.
Naoto Kubota, Mikita Suyama
The 21st Retreat of Medical Institute of Bioregulation, Fukuoka, Japan, 30/8/2018.
2. Identification of a candidate enhancer for *DMRT3* involved in the pathogenesis of spastic cerebral palsy.
Naoto Kubota, Mikita Suyama
The 27th Hot Spring Harbor International Symposium, Fukuoka, Japan, 31/10/2017.

Poster Presentations

1. Shiba: a versatile computational method for systematic identification of differential RNA splicing across platforms
Naoto Kubota, Liang Chen, Sika Zheng
The 3rd annual symposium Center for RNA Biology and Medicine, Riverside, United States, 11/03/2025.
2. Shiba: a versatile computational method for systematic identification of differential RNA splicing across platforms
Naoto Kubota, Liang Chen, Sika Zheng
The 30th Annual Meeting of the RNA Society, San Diego, United States, 5/28/2025.
3. A genome-wide survey of functional variants associated with psoriasis risk by integrating public data.
Naoto Kubota, Mikita Suyama
The 42nd Annual Meeting of the Molecular Biology Society of Japan, Yokohama, Japan, 30/12/2019.
4. A genome-wide survey of functional variants associated with psoriasis risk by integrating public data.
Naoto Kubota, Mikita Suyama
The 14th International Symposium of the Institute Network for Biomedical Sciences, Osaka, Japan, 2/10/2019.
5. An intergenic variant rs72635708 within the *ERRFI1* enhancer is associated with psoriasis risk.
Naoto Kubota, Mikita Suyama

The 41st Annual Meeting of the Molecular Biology Society of Japan, Kobe, Japan, 28/11/2018.

6. Identification of a candidate enhancer for *DMRT3* involved in spastic cerebral palsy pathogenesis.

Naoto Kubota, Mikita Suyama

Consortium of Biological Sciences 2017, Kobe, Japan, 6/12/2017.

7. DNA methylation status of transcriptional regulatory regions of sex related genes in fetal gonads.

Naoto Kubota, Takuya Omotehara, Anzu Yamamoto, Yuuka Miura, Tetsushi Hirano, Kiichi Minami, Shogo Yanai, Tadashi Takada, Naoki Yoneda, Haruka Iwamoto, Youhei Mantani, Toshifumi Yokoyama, Hiroshi Kitagawa, Nobuhiko Hoshi

The 39th Annual Meeting of the Molecular Biology Society of Japan, Yokohama, Japan, 1/12/2016.

TEACHING EXPERIENCE

1.2020	Teaching Assistant, School of Medicine, <i>Kyushu University</i>
10.2018	Teaching Assistant, School of Medicine, <i>Kyushu University</i>
10.2017 - 3.2018	Teaching Assistant, School of Medicine, <i>Kyushu University</i>

COMMUNITY WORKS

4.2019 - 3.2022	Co-Organizer of Kyushu Bioinformatics Community
4.2017 - 3.2019	Staff of Young Researchers Society for Biochemistry

Peer review (ad hoc reviewer)

- *Nature communications* x 3, *JoVE* x 1

REFERENCES

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Nobuhiko Hoshi, DVM, DMSc, Ph.D.

Professor

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Kobe University, Japan

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ICREA Research Professor

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Barcelona Supercomputing Centre, Spain

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