

# Feiya Ou

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## OBJECTIVES

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I seek to investigate fundamental mechanisms of transcription and aspire to become a leader in connecting Genetics and Immunology.

## EDUCATION

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### Washington University in St. Louis (WashU)

St. Louis, MO, USA

Ph.D. in Immunology

Sep 2019 – Present

Advisor: Dr. Kenneth M. Murphy

Thesis: *Molecular Circuitries in Dendritic Cell Development*

### Xiamen University

Xiamen, Fujian, China

B.S. in Biology

Sep 2015 – Jun 2019

## AWARDS & HONORS

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- **The FASEB Journal Early Career Researcher Award** (2025): Sole recipient at the conference, awarded for presenting rigorous, impactful research findings that advance the field of science at a FASEB Science Research Conference
- **Lucille P. Markey Special Emphasis Pathway in Human Pathobiology** (2020 – 2022): a selective program designed to inspire fundamental research related to human disease, including coursework in pathobiology and clinical shadowing experiences
- **Talented Undergraduate Training Program of the Beutler Institute** (*ranked first in 20 selected students*; 2018 – 2019): a highly selective program initiated by Nobel Laureate Dr. Bruce Beutler, which included a semester of advanced coursework in Genetics and Immunology at Xiamen University, followed by a year of scientific training at UT Southwestern Medical Center
- **Pilot Program for Cultivating Top-notch Students in Basic Disciplines** (2016 – 2019)

## PUBLICATIONS (complete list available at [Google Scholar](#))

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1. **Ou, F.**, Liu, T., Du, S., Chen, J., Koch, A. R., Kraft, M., Murphy, T. L., & Murphy, K. M. (under review). E proteins facilitate Zeb2 expression for balanced lymphoid and myeloid development. Preprint: <https://doi.org/10.21203/rs.3.rs-7455813/v1>
2. Postoak, J. L., Koch, A. R., Shan, S., Ohara, R. A., Jo, S., Chen, J., **Ou, F.**, Kraft, M., Desai, P., Diamond, M. S., Kim, S., Murphy, T. L., & Murphy, K. M. (under review). WDFY4-dependent cross-presentation proceeds via a vacuolar antigen processing route.
3. Du, S., Drieu, A., **Ou, F.**, Xu, E., Cheng, Y., Storck, S. E., Rustenhoven, J., Mamuladze, T., Bhattarai, B., Brioschi, S., Nguyen, K., Cao, J., Rodrigues, P. F., Smirnov, I., DeNardo, D., Ginhoux, F., Cella, M., Colonna, M., & Kipnis, J. (in revision). Brain-engrafted monocyte-derived macrophages from blood and skull-bone marrow exhibit distinct identities from microglia. Preprint: <https://doi.org/10.1101/2024.08.08.606900>
4. Chen, J., Liu, T.-T., **Ou, F.**, Ohara, R. A., Jo, S., Postoak, J. L., Egawa, T., Day, R. B., Murphy, T. L., Murphy, K. M., & Kim, S. (2025). C/EBP $\alpha$  activates Irf8 expression in myeloid progenitors at the +56-kb enhancer to initiate cDC1 development. *Science Immunology*, 10(107), eadt5899. <https://doi.org/10.1126/sciimmunol.adt5899>
5. Jo, S., Ohara, R. A., Theisen, D. J., Kim, S., Liu, T., Bullock, C. B., He, M., **Ou, F.**, Chen, J., Piersma, S. J., Postoak, J. L., Yokoyama, W. M., Diamond, M. S., Murphy, T. L., & Murphy, K. M. (2025).

- Shared pathway of WDFY4-dependent cross-presentation of immune complexes by cDC1 and cDC2. *The Journal of Experimental Medicine*, 222(4). <https://doi.org/10.1084/jem.20240955>
6. **Ou, F.**, & Murphy, K. M. (2025). “What’s in a name?” Clarifying the identity of ROR $\gamma$ t<sup>+</sup> antigen-presenting cells. *The Journal of Experimental Medicine*, 222(8), e20250760. <https://doi.org/10.1084/jem.20250760>
7. Kim, S., Chen, J., **Ou, F.**, Liu, T.-T., Jo, S., Gillanders, W. E., Murphy, T. L., & Murphy, K. M. (2024). Transcription factor C/EBP $\alpha$  is required for the development of Ly6Chi monocytes but not Ly6Clo monocytes. *Proceedings of the National Academy of Sciences of the United States of America*, 121(15), e2315659121. <https://doi.org/10.1073/pnas.2315659121>
8. Kim, S., Liu, T.-T., **Ou, F.**, Murphy, T. L., & Murphy, K. M. (2024). Anatomy of a superenhancer. *Advances in Immunology*, 163, 51–96. <https://doi.org/10.1016/bs.ai.2024.08.001>
9. Murphy, K. M., & **Ou, F.** (2024). Weak enhancer allows autoactivation of Irf8 to control cDC1 versus cDC2 lineage commitment. *Nature Immunology*, 25(11), 1997–1998. <https://doi.org/10.1038/s41590-024-01977-9>
10. **Ou, F.**, Liu, T.-T., Desai, P., Ferris, S. T., Kim, S., Shen, H., Ohara, R. A., Jo, S., Chen, J., Postoak, J. L., Du, S., Diamond, M. S., Murphy, T. L., & Murphy, K. M. (2024). Optimization of the Irf8 +32-kb enhancer disrupts dendritic cell lineage segregation. *Nature Immunology*, 25(11), 2043–2056. <https://doi.org/10.1038/s41590-024-01976-w>
11. Ferris, S. T., Liu, T., Chen, J., Ohara, R. A., **Ou, F.**, Wu, R., Kim, S., Murphy, T. L., & Murphy, K. M. (2023). WDFY4 deficiency in NOD mice ameliorates autoimmune diabetes and insulinitis. *Proceedings of the National Academy of Sciences of the United States of America*, 120(13), e2219956120. <https://doi.org/10.1073/pnas.2219956120>
12. Kim, S., Chen, J., Jo, S., **Ou, F.**, Ferris, S. T., Liu, T.-T., Ohara, R. A., Anderson, D. A., Wu, R., Chen, M. Y., Gillanders, W. E., Gillanders, W. E., Murphy, T. L., & Murphy, K. M. (2023). IL-6 selectively suppresses cDC1 specification via C/EBP $\beta$ . *The Journal of Experimental Medicine*, 220(10), e20221757. <https://doi.org/10.1084/jem.20221757>
13. Liu, T.-T., **Ou, F.**, Belk, J. A., Bagadia, P., Anderson, D. A., 3rd, Durai, V., Yao, W., Satpathy, A. T., Murphy, T. L., & Murphy, K. M. (2023). Cis interactions in the Irf8 locus regulate stage-dependent enhancer activation. *Genes & Development*, 37(7–8), 291–302. <https://doi.org/10.1101/gad.350339.122>
14. **Ou, F.**, Ferris, S. T., Kim, S., Wu, R., Anderson, D. A., 3rd, Liu, T.-T., Jo, S., Chen, M. Y., Gillanders, W. E., Murphy, T. L., & Murphy, K. M. (2023). Enhanced in vitro type 1 conventional dendritic cell generation via the recruitment of hematopoietic stem cells and early progenitors by Kit ligand. *European Journal of Immunology*, 53(9), e2250201. <https://doi.org/10.1002/eji.202250201>
15. Anderson, D. A., **Ou, F.**, Kim, S., Murphy, T. L., & Murphy, K. M. (2022). Transition from cMyc to L-Myc during dendritic cell development coordinated by rising levels of IRF8. *The Journal of Experimental Medicine*, 219(2), e20211483. <https://doi.org/10.1084/jem.20211483>
16. Ferris, S. T., Chen, J., Ohara, R. A., **Ou, F.**, Wu, R., Kim, S., Liu, T., Murphy, T. L., & Murphy, K. M. (2022). WDFY4 deficiency in NOD mice abrogates autoimmune diabetes and insulinitis. In *bioRxiv* (p. 2022.09.02.506326). <https://doi.org/10.1101/2022.09.02.506326>
17. Ferris, S. T., Ohara, R. A., **Ou, F.**, Wu, R., Huang, X., Kim, S., Chen, J., Liu, T.-T., Schreiber, R. D., Murphy, T. L., & Murphy, K. M. (2022). CDC1 vaccines drive tumor rejection by direct presentation independently of host cDC1. *Cancer Immunology Research*, 10(8), 920–931. <https://doi.org/10.1158/2326-6066.CIR-21-0865>
18. Liu, T.-T., Kim, S., Desai, P., Kim, D.-H., Huang, X., Ferris, S. T., Wu, R., **Ou, F.**, Egawa, T., Van Dyken, S. J., Diamond, M. S., Johnson, P. F., Kubo, M., Murphy, T. L., & Murphy, K. M. (2022). Ablation of cDC2 development by triple mutations within the Zeb2 enhancer. *Nature*, 607(7917), 142–148. <https://doi.org/10.1038/s41586-022-04866-z>
19. Wu, R., Ohara, R. A., Jo, S., Liu, T.-T., Ferris, S. T., **Ou, F.**, Kim, S., Theisen, D. J., Anderson, D. A., 3rd, Wong, B. W., Gershon, T., Schreiber, R. D., Murphy, T. L., & Murphy, K. M. (2022). Mechanisms

of CD40-dependent cDC1 licensing beyond costimulation. *Nature Immunology*, 23(11), 1536–1550. <https://doi.org/10.1038/s41590-022-01324-w>

20. Misawa, T., SoRelle, J. A., Choi, J. H., Yue, T., Wang, K.-W., McAlpine, W., Wang, J., Liu, A., Tabeta, K., Turer, E. E., Evers, B., Nair-Gill, E., Poddar, S., Su, L., **Ou, F.**, Yu, L., Russell, J., Ludwig, S., Zhan, X., ... Beutler, B. (2020). Mutual inhibition between Prkd2 and Bcl6 controls T follicular helper cell differentiation. *Science Immunology*, 5(43), eaaz0085. <https://doi.org/10.1126/sciimmunol.aaz0085>
21. Turer, E. E., San Miguel, M., Wang, K.-W., McAlpine, W., **Ou, F.**, Li, X., Tang, M., Zang, Z., Wang, J., Hayse, B., Evers, B., Zhan, X., Russell, J., & Beutler, B. (2018). A viable hypomorphic Arnt2 mutation causes hyperphagic obesity, diabetes and hepatic steatosis. *Disease Models & Mechanisms*, 11(12), dmm035451. <https://doi.org/10.1242/dmm.035451>

## SELECTED PRESENTATIONS

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### Oral Presentations

- 2025 *WashU Immunology Program Work-in-Progress* (opening seminar), ID2 secures cDC1 specification by antagonizing E protein activity at a pleiotropic *Zeb2* enhancer
- 2025 *FASEB Mechanisms of Immune Cell Development and Function*, ID2 secures cDC1 specification by antagonizing E protein activity at a pleiotropic *Zeb2* enhancer (*awarded*)
- 2025 *WashU Genetics Work-in-Progress*, E proteins facilitate *Zeb2* expression in lymphoid and dendritic cell development
- 2024 *WashU Immunology Program Annual Retreat*, E proteins facilitate *Zeb2* expression in lymphoid and dendritic cell development
- 2024 *WashU Immunology Program Work-in-Progress* (recruitment seminar), Optimization of the *Irf8* +32-kb enhancer disrupts dendritic cell lineage segregation
- 2022 *WashU Markey Pathway Annual Retreat*, A synthetic high-affinity *Irf8* enhancer converts pre-cDC2 into cDC1 and cDC1-like cells

### Poster Presentations

- 2025 *Cold Spring Harbor Laboratory (CSHL) Mechanisms of Eukaryotic Transcription*, ID2 secures cDC1 specification by antagonizing E protein activity at a pleiotropic *Zeb2* enhancer
- 2024 *4D Nucleome (4DN) Annual Meeting*, E proteins facilitate *Zeb2* expression for balanced lymphoid and myeloid development
- 2024 *CSHL Gene Expression & Signaling in the Immune System*, Optimization of the *Irf8* +32-kb enhancer disrupts dendritic cell lineage segregation
- 2022 *CSHL Gene Expression & Signaling in the Immune System*, A synthetic high-affinity *Irf8* +32-kb enhancer converts pre-cDC2 to cDC1 and cDC1-like cells

## RESEARCH SKILLS

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- **Mouse genetics:** CRISPR/Cas9 genome editing, ES cell-based homologous recombination, breeding, genotyping, and colony management
- **Molecular cloning**
- **Flow cytometry and FACS sorting**
- **Cell culture:** established cell lines and primary bone marrow-derived immune cell cultures
- **Genomics assays and analyses:** CUT&RUN, bulk RNA-seq, and single-cell RNA-seq

## PIVOT PREPARATION

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- Regular participant in WashU Genetics Seminar Series and Work-in-Progress meetings (2023 – present)

- Regular participant in WashU Immunology Seminar Series, Work-in-Progress meetings, and Journal Clubs (2019 – present)
- Completed year-long Bioinformatics Workshop Series (2023 – 2024) to strengthen computational skills for genomic data analysis
- Took *BIO 5488 Genomics* (Spring 2023) after fulfilling credit requirements to develop foundational knowledge for my disciplinary transition
- Read *From DNA to Diversity: Molecular Genetics and the Evolution of Animal Design* to deepen understanding of developmental gene regulation

## TEACHING EXPERIENCE

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**Teaching Assistant**, *BIO 5053 Immunobiology I* (graduate level), WashU, Fall 2020

Course Director: Dr. Takeshi Egawa

Enrollment: 29 students

Led weekly review sections, drafted and graded assignments and three exams

## MENTORSHIP EXPERIENCE

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- **Dr. Magdalena Kraft:** Dr. Kraft is a postdoctoral researcher who joined the Murphy lab in 2024. Since her arrival, I have been actively involved in her training, and we are currently initiating a collaborative project.
- **Ms. Alyssa R. Koch:** Alyssa joined the Murphy lab after completing her rotation as a student in the Immunology program in 2025. I began mentoring her during her rotation and am continuing to provide training and guidance.
- **Ms. Wenxuan Cheng:** Wenxuan joined the Murphy lab in 2025 after completing her rotation as a student in the Immunology program in 2024. I began mentoring her during her rotation and am continuing to provide training and guidance.
- **Mr. Haolin (Charles) Shen:** Charles was an undergraduate student who majored in Biology. I mentored him throughout his research in the Murphy lab in 2022 -2023. He received his BA in 2023 and is now a Ph.D. student in the Biomedical Sciences Program at the University of California, San Francisco, in Dr. Jason G. Cyster's lab.

## LEADERSHIP & SERVICE

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- Participated in multiple mock qualifying exams to help fellow PhD students prepare for their prelims (2021–present)
- Founded and led a regular basketball group for graduate students and postdocs at the WashU Medical Campus (2022 – present)

## EDITORIAL ACTIVITY

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- Topic coordinator: *Frontiers in Immunology*
- *Ad hoc* reviewer: *The Journal of Experimental Medicine*, *Nature Communications*

## REFERENCES

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**Dr. Kenneth M. Murphy**, Thesis Advisor

Eugene Opie First Centennial Professor, Department of Pathology & Immunology, WashU Medicine

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Feiya Ou

**Dr. Gwendalyn J. Randolph**, Thesis Committee

Emil R. Unanue Professor, Department of Pathology & Immunology, WashU Medicine

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**Dr. Ting Wang**, Thesis Committee

The Sanford and Karen Loewentheil Distinguished Professor of Medicine and Head, Department of Genetics,  
WashU Medicine

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