# *Curriculum Vitae*


**Date Prepared:** August 13, 2024

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## Education

| Year | Degree (Honors) | Field of Study (Thesis advisor for PhDs) | Institution |
|---|---|---|---|
| 2006 | BS | Molecular Biology | University of Texas at Dallas |
| 2014 | M.D. PhD | Cell regulation | University of Texas Southwestern |

## Postdoctoral Training

| Year(s) | Titles | Specialty/Discipline (Lab PI for postdoc fellows) | Institution |
|---|---|---|---|
| 2015-2016 | Research Fellow | Integrated Research Pathway - Cellular and Developmental Biology, Harvey Lodish, PhD | Whitehead Institute at Massachusetts Institute of Technology |
| 2014-2017 | Resident | Pediatrics, Robert Vinci, MD and Theodore Sectish, MD BCRP | Boston Combined Residency Program in Pediatrics |
| 2017-2020 | Clinical Fellow | Pediatric Hematology/Oncology | Dana-Farber/Boston Children's Cancer and Blood Disorders Center |

## Professional Development Training

| Year(s) | Course or Program, Degree if any | Institution |
|---|---|---|
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## Faculty Academic Appointments

| Year(s) | Academic Title | Department | Academic Institution |
|---|---|---|---|
| 2020-2024 | Clinical Instructor | Pediatrics, Hematology/Oncology | Boston Children's Hospital/Dana-Farber Cancer Institute |

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|---|---|---|---|
| 2024-present | Assistant Professor | Pediatrics, Hematology/Oncology | University of Texas Southwestern Medical Center |

## Appointments at Hospitals/Affiliated Institutions

| Past | | | |
|---|---|---|---|
| Year(s) | Position Title | Department/Division | Institution |
| 2020-2024 | Attending Physician | Pediatrics, Hematology/Oncology | Boston Children's Hospital/Dana-Farber Cancer Institute |
| | | | |
| Current | | | |
| Year(s) | Position Title | Department/Division | Institution |
| 2024-present | Attending Physician | Pediatrics, Hematology/Oncology | University of Texas Southwestern Medical Center |

## Other Professional Positions

| Year(s) | Position Title | Institution |
|---|---|---|
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## Current Licensure and Certification

Licensure

| Year(s) | State |
|---|---|
| 2017-present | Massachusetts Medical License |
| 2024-present | Texas Medical License |

## Board and Other Certification

| Year(s) | Specialty | Certifying Organization |
|---|---|---|
| 2017-present | Federal DEA | |
| 2017-present | Massachusetts Controlled Substances Certificate | |
| 2020 | General Pediatrics | American Board of Pediatrics |
| 2021 | Pediatrics Hematology-Oncology | American Board of Pediatrics |

## Honors and Awards

| Year | Name of Honor/Award | Awarding Organization |
|---|---|---|
| 2002-2006 | Eugene McDermott Scholar | University of Texas at Dallas |
| 2002-2006 | Dean’s List | University of Texas at Dallas |
| 2021 | Pilot Grant Edward P. Evans Center for MDS | Dana Farber Cancer Institute |

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|---|---|---|
| 2021 | ASH Outstanding Abstract Travel Award | American Society of Hematology |
| 2022 | Career Development Fellowship | Office of Faculty Development, Boston Children's Hospital |
| May 2022 | Teaching Honor Roll | Boston Combined Residency Program |
| 2022 | Highest scoring post-doctoral abstract | American Society of Hematology |
| 2023 | Faculty Feedback Honor Roll | Boston Combined Residency Program |
| 2023 | Evans MDS Young Investigator | |
| 2023 | Alex's Lemonade Stand Young Investigator | |
| 2024 | Holcombe E. Grier Fellow Teaching Award | |
| 2024 | American Society for Clinical Investigation Emerging Generation Award | |
| 2024-2029 | Horchow Family Scholar in pediatrics | |
| 2024-2029 | Cancer Research and Prevention Institute of Texas First-time Tenure Track Award | |
| 2024-2029 | National Cancer Institute K08 Award 1K08CA286756-01 | |

## Major Administrative/Leadership Positions

| Year(s) | Position Title | Institution |
|---|---|---|
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## Committee Service (*Member, unless noted otherwise)*

| Year(s) | Name of Committee | Institution/Organization |
|---|---|---|
| University/Department | | |
| | | |
| Hospital | | |
| | | |
| State/Regional | | |
| | | |
| National/International | | |
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## Professional Societies

| Dates | Society Name, member |
|---|---|
| 2018-present | American Society of Hematology (ASH), member |
| 2012-present | American Society of Gene and Cell Therapy |

## Community Engagement

| Year(s) | Role, brief description | Organization or institution |
|---|---|---|
| | | |

## Educational Activities

1. Direct Teaching

| Date | Course Name, Rotation or Session Topic | Role | Number of Instruction hours | Primary Learner Audience (number) | Department or Organization |
|---|---|---|---|---|---|
| Medical and Graduate School (UME) Course Instruction, Small Group Instruction, Clinical Supervision | | | | | |
| 2020-2024 | PY130 Homeostasis | Laboratory Faculty | 3 | Medical students | Harvard Medical School |
| | | | | | |
| Graduate Medical Education (GME) Course Instruction, Small Group Instruction, Clinical Supervision | | | | | |
| | | | | | |
| Instructor in Continuing Medical Education (CME), Faculty Development, National Educational Symposia | | | | | |
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2. Curriculum Development

| Date | Course Name or Curriculum Product | Role | Purpose | Primary Learner Audience | Organization or Institution |
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3. Mentoring and Advising

| Date | Mentee Name | Mentee Level/ Program and Institution | Role | Mentee Outcomes, Current Position |
|---|---|---|---|---|
| 2019-2023 | Rick Li | Undergraduate/Harvard Stem Cell Institute | Direct supervisor | MSTP student, Harvard Medical School |
| 2019-2021 | Blake Cohen | Research assistant/Boston Children's Hospital | Direct supervisor | Research associate, Orna Therapeutics |
| 2020-2024 | Travis Fleming | Graduate student/Biological and Biomedical Sciences, Harvard Medical School | Mentor | Graduating in late 2024 |
| 2021-2022 | Xiaotian Liao | Research assistant/Boston Children's Hospital | Direct supervisor | Graduate student, University of Cambridge |
| 2022-2023 | Elena Kamal | Research assistant/Boston Children's Hospital | Direct supervisor | Applying to medical school |

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|---|---|---|---|---|
| 2022-2024 | Sanjana Shah | Medical student/Harvard Medical School | Direct supervisor | MS3 Harvard Medical School |

4. Learner Assessment Activities or Tool Development

| Date | Course Name or Session Topic | Role | Number of Evaluation Hours | Primary Learner Audience | Organization or Institution |
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5. Educational Administration and Leadership

| Date | Title | Responsibilities | Time (FTE or hours) | Organization and Program Scope | Outcomes |
|---|---|---|---|---|---|
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## Grant Review Activities

| Year(s) | Name of Review Committee | Organization |
|---|---|---|
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## Editorial Activities

| Year(s) | Journal Name |
|---|---|
| Editor/Associate Editor | |
| | |
| Editorial Board | |
| | |
| Ad Hoc Reviewer | |
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## Grant Support

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|---|---|
| Active | *Grantor:* Edward P. Evans MDS Foundation |
| | *Title of Project:* Uncovering therapeutic vulnerabilities in MDS through investigation of MECOM activity |
| | *Role (Principal Investigator, Co-Investigator):* PI |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* July 2023-June 2026 |
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| | |
| Active | *Grantor:* Alex's Lemonade Stand Foundation |

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|---|---|
| | *Title of Project:* Identifying therapeutic vulnerabilities in pediatric AML through investigation of the MECOM transcriptional network |
| | *Role (Principal Investigator, Co-Investigator):* PI |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* July 2023-June 2026 |
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| Active | *Grantor:* Cancer Research and Prevention Institute of Texas |
| | *Title of Project:* First-time Tenure Track recruitment |
| | *Role (Principal Investigator, Co-Investigator):* PI |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* July 2024-June 2029 |
| | |
| Active | *Grantor:* National Cancer Institute K08 |
| | *Title of Project:* Uncovering therapeutic vulnerabilities in AML through mechanistic interrogation of MECOM activity |
| | *Role (Principal Investigator, Co-Investigator):* PI |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* July 2024-June 2029 |
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|---|---|
| Past | *Grantor:* Julia's Wings Foundation |
| | *Title of Project:* Advancing the understanding of pediatric aplastic anemia |
| | *Role (Principal Investigator, Co-Investigator):* Awardee |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* July 2021 - June 2024 |
| | |
| Past | *Grantor:* Boston Children's Hospital Office of Faculty Development |
| | *Title of Project:* Mechanisms of MECOM network co-regulation in the transcriptional control of AML |
| | *Role (Principal Investigator, Co-Investigator):* Awardee |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* 2022 - 2024 |
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| Past | *Grantor:* Blavatnik Therapeutics Challenge Award |
| | *Title of Project:* Lineage specific GATA1 expression as a gene therapy cure for Diamond-Blackfan anemia |
| | *Role (Principal Investigator, Co-Investigator):* Co-Investigator |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* September 2021 - August 2023 |
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| Past | *Grantor:* Edward P. Evans Center |
| | *Title of Project:* Using saturation CRISPR base editing to elucidate vulnerabilities in MECOM-driven MDS |

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|---|---|
| | *Role (Principal Investigator, Co-Investigator):* Awardee |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* October 2021 - September 2022 |
| | |
| Past | *Grantor:* Boston Children's Hospital |
| | *Title of Project:* Pathophysiology of Human Blood Cells |
| | *Role (Principal Investigator, Co-Investigator):* Fellow |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* July 2018 - July 2021 |
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| | |
| Past | *Grantor:* |
| | *Title of Project:* |
| | *Role (Principal Investigator, Co-Investigator):* |
| | *Annual amount and date (direct costs only):* |
| | *Total amount of award (if multi-year) and dates (direct costs only):* |
| | |

**Clinical Trials Activities**

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|---|---|
| Present | *Grantor:* |
| | *Title of Project:* |
| | *Role (Principal Investigator, Site PI, Sub investigator):* |
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|---|---|
| Past | *Grantor:* |
| | *Title of Project:* |
| | *Role (Principal Investigator, Site PI, Sub investigator):* |
| | |

**Invited Lectures**

| Year(s) | Title | Location |
|---|---|---|
| International | | |
| 2011 | Protection from HIV: Targeted Intervention, "Using homologous recombination to stack genetic resistance to HIV | Keystone Symposium, Whistler, Canada |
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| National | | |
| 2012 | Therapeutic gene editing and generation of endogenous fluorescent reporters at the human globin loci | 15th Annual Meeting: American Society of Gene and Cell Therapy, Philadelphia, Pennsylvania |

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|---|---|---|
| 2012 | Targeting 2A-Fusions to endogenous genes | 15th Annual Meeting: American Society of Gene and Cell Therapy, Philadelphia, Pennsylvania |
| 2012 | Generation of HIV-resistant T-cells by targeted stacking of restriction factors | 15th Annual Meeting: American Society of Gene and Cell Therapy, Philadelphia, Pennsylvania |
| 2020 | A genetic disorder reveals a hematopoietic stem cell regulatory network co-opted in leukemia | North American Pediatric Aplastic Anemia Symposium, Philadelphia, Pennsylvania |
| 2021 | A genetic disorder reveals a hematopoietic stem cell network co-opted in leukemia | American Society of Hematology annual meeting, Atlanta, Georgia |
| 2022 | Regulated GATA1 expression as a gene therapy cure for Diamond-Blackfan anemia | North American Pediatric Asplastic Anemina Consortium, San Francisco, California |
| 2022 | Regulated GATA1 expression as a gene therapy cure for Diamond-Blackfan anemia | American Society of Hematology annual meeting, New Orleans, Louisiana |
| 2023 | Hijacking hematopoiesis: implications for bone marrow failure, leukemia, and gene therapy | Pediatric hematology/oncology seminar series, Cleveland Clinic, Cleveland, Ohio |
| 2023 | Hijacking hematopoiesis: implications for bone marrow failure, leukemia, and gene therapy | Cell and Gene Therapy seminar series, Texas Children's Hospital, Houston, Texas |
| 2023 | Regulated GATA1 expression as a gene therapy cure for Diamond-Blackfan anemia | Diamond-Blackfan Anemia International Collaboration Consortium, Atlanta, GA |
| | | |
| Regional/Local | | |
| 2023 | Hijacking hematopoiesis: implications for bone marrow failure, leukemia, and gene therapy | Pediatric hematology/oncology seminar series, University of Texas Southwestern Medical Center, Dallas, Texas |

## Technological and Other Scientific Innovations

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| GATA1 gene therapy for Diamond-Blackfan anemia. Patent No. 62/859,369: being developed into a gene therapy cure for Diamond-Blackfan anemia. Patent - Awarded |
| Non-disruptive gene targeting. Patent No. 61/555,857: licensed by gene therapy company, LogicBio, for development of human gene therapy approaches. Patent - Awarded |

## Bibliography

### Peer-Reviewed Publications

Original Research Articles

| | |
|---|---|
| 1. | **Voit RA**, Liao X, Caulier A, Cohen B, Armant M, Antoszewski M, Lu HY, Fleming TJ, Kamal E, Wahlster L, Roche AM, Everett JK, Petrichenko A, Huang M, Clarke W, Myers KC, Forester C, Perez-Atayde A, Bushman FD, Pellin D, Shimamura A, William DA, Sankaran VG. (2024). Regulated GATA1 expression as a gene therapy for Diamond-Blackfan anemia. Submitted. |
| 2. | **Voit RA**., Sankaran VG. (2023). MECOM deficiency: from bone marrow failure to impaired B-cell development. Journal of Clinical Immunology. 43(6):1052-1066. https://doi.org/10.1007/s10875-023-01545-0 |
| 3. | **Voit RA**., Corey SJ. (2023). Gene therapy for congenital marrow failure syndromes – no longer grasping at straws?. *Haematologica*. https://doi.org/10.3324/haematol.2023.283462 |
| 4. | **Voit, RA**., Tao, L., Yu, F., Cato, L. D., Cohen, B., Fleming, T., Antoszewski, M., Liao, X., Fiorini, C., Nandakumar, S., Wahlster, L., Teichert, K., Regev, A., & Sankaran, V. (2023). A genetic disorder reveals a hematopoietic stem cell regulatory network co-opted in leukemia. Nature Immunology, 24, 69–83. https://doi.org/10.1038/s41590-022-01370-4 |
| 5. | Hou, L., **Voit, RA**., Shibamura-Fujiogi, M., Koutsogiannaki, S., Li, Y., Chen, Y., Luo, H., Sankaran, V., & Yuki, K. (2022). CD11c regulates neutrophil maturation. Blood Advances. https://doi.org/10.1182/bloodadvances.2022007719 |
| 6. | **Voit RA**., Sankaran VG. (2022). Multiomics on our multitudes. Nature Genetics. 54(10):1449-1450. https://doi.org/10.1038/s41588-022-01175-z |
| 7. | Shen, Y., Li, R., Teichert, K., Montbleau, K. E., Verboon, J. M., **Voit, RA**., & Sankaran, V. (2021). Pathogenic BCL11A variants provide insights into the mechanisms of human fetal hemoglobin silencing. PLoS Genetics, 17(10), e1009835. https://doi.org/10.1371/journal.pgen.1009835 |
| 8. | Shen, Y., Verboon, J. M., Zhang, Y., Liu, N., Kim, Y. J., Marglous, S., Nandakumar, S. K., **Voit, RA**., Fiorini, C., Ejaz, A., Basak, A., Orkin, S. H., Xu, J., & Sankaran, V. (2021). A unified model of human hemoglobin switching through single-cell genome editing. Nature Communications, 12(1), 4991. https://doi.org/10.1038/s41467-021-25298-9 |
| 9. | Wahlster, L., Verboon, J. M., Ludwig, L. S., Black, S. C., Luo, W., Garg, K., **Voit, RA**., Collins, R. L., Garimella, K., Costello, M., Chao, K. R., Goodrich, J. K., DiTroia, S. P., O'Donnell Luria, A., Talkowski, M. E., Michelson, A., Cantor, A., & Sankaran, V. (2021). Familial thrombocytopenia due to a complex structural variant resulting in a WAC-ANKRD26 fusion transcript. J Experimental Medicine. 218(6). https://doi.org/10.1084/jem.20210444 |
| 10. | Hou, L., **Voit, RA**., Sankaran, V., Springer, T., & Yuki, K. (2020). CD11c regulates hematopoietic stem and progenitor cells under stress. Blood Advances 4(24), 6086–6097. https://doi.org/10.1182/bloodadvances.2020002504 |
| 11. | **Voit, RA**., & Grace, R. (2020). Pyruvate kinase deficiency in a newborn with extramedullary hematopoiesis in the skin. Blood. 136(6), 770. https://doi.org/10.1182/blood.2020006395 |
| 12. | Liggett, L. A., **Voit, RA**., & Sankaran, V. (2020). Sowing the Seeds of Clonal Hematopoiesis. Cell Stem Cell. 27(2), 195–197. https://doi.org/10.1016/j.stem.2020.07.011 |
| 13. | Voit, RA., & Sankaran, V. (2020). Stabilizing HIF to Ameliorate Anemia. Cell 180(1), 6. https://doi.org/10.1016/j.cell.2019.12.010 |
| 14. | Lin, Y., Fine, E. J., Zheng, Z., Antico, C. J., **Voit, RA**., Porteus, M. H., Cradick, T. J., & Bao, G. (2014). SAPTA: a new design tool for improving TALE nuclease activity. Nucleic Acids Research. 42(6), e47. https://doi.org/10.1093/nar/gkt1363 |

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| 15. | **Voit, RA**., Hendel, A., Pruett-Miller, S. M., & Porteus, M. H. (2014). Nuclease-mediated gene editing by homologous recombination of the human globin locus. Nucleic Acids Research. 42(2), 1365–1378. https://doi.org/10.1093/nar/gkt947 |
| 16. | Bauer, D., Kamran, S. C., Lessard, S., Xu, J., Fujiwara, Y., Lin, C., Shao, Z., Canver, M. C., Smith, E. C., Pinello, L., Sabo, P. J., Vierstra, J., **Voit, RA**., Yuan, G. C., Porteus, M. H., Stamatoyannopoulos, J. A., Lettre, G., & Orkin, S. H. (2013). An erythroid enhancer of BCL11A subject to genetic variation determines fetal hemoglobin level. Science. 342(6155), 253–257. https://doi.org/10.1126/science.1242088 |
| 17. | **Voit, RA**., McMahon, M. A., Sawyer, S. L., & Porteus, M. H. (2013). Generation of an HIV resistant T-cell line by targeted "stacking" of restriction factors. Molecular Therapy. 21(4), 786–795. https://doi.org/10.1038/mt.2012.284 |

Reviews, Book Chapters, Monographs and Editorials

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| 1. | |

Books/Textbooks

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| 1. | |
| 2. | |

Case Reports

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Letters to the Editor

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| 1. | |

Meeting Summaries or Proceedings

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| 1. | |

Clinical Practice Guidelines

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| 1. | |

**Non-peer reviewed scientific or medical publications/materials in print or other media (no abstracts)**

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