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Template: CIHR Biosketch

Dr. William Brent Derry

Correspondence language: English

Sex: Male

Date of Birth: 7/28

Canadian Residency Status: Canadian Citizen

Country of Citizenship: Canada

Contact Information

The primary information is denoted by (*)

Address

Primary Affiliation (*)

Developmental, Stem Cell, and Cancer Biology
The Hospital for Sick Children
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Protected when completed

Dr. William Derry

Degrees

1992/9 - 1997/6	Doctorate, PhD, University of California, Santa Barbara Degree Status: Completed
1989/9 - 1991/6	Master's Equivalent, M.Sc. - Masters, McMaster University Degree Status: Completed
1985/9 - 1989/6	Bachelor's, B.Sc. (Honours), Carleton University Degree Status: Completed

Credentials

2023/4	Research Integrity Advisor, The Hospital for Sick Children
2015/2 - 2023/5	Vice Chair, Fundamental Research, Garron Family Cancer Centre, The Hospital for Sick Children

Recognitions

2025/7 - 2027/7	Chair, Scientific Advisory Board Alliance to Cure Cavernous Malformation
2025/7	Affiliated Scientist University of Toronto
2024/7	Vice Chair, Scientific Advisory Board Cavernous Malformation Canada
2020/6 - 2025/9	Chair, External Advisory Board, Program Project Grant "Mechanisms of CCM Pathogenesis" (PI's: Douglas Marchuk, Issam Awad, Mark Ginsberg, Mark Kahn) National Institutes of Health
2015/9	College of Reviewers Canadian Institutes of Health Research

Employment

2016/7	Professor Molecular Genetics, Medicine/University of Toronto/St. George Campus, University of Toronto
2010/10	Senior Scientist, Program in Developmental, Stem Cell, and Cancer Biology, The SickKids Research Institute Developmental, Stem Cell, and Cancer Biology, Medicine/University of Toronto/St. George, The Hospital for Sick Children

2010/9	Member, Collaborative Program in Developmental Biology Molecular Genetics, Medicine/University of Toronto/St. George, University of Toronto
2017/6 - 2017/11	Visiting Professor Zoophysiologie, Institut für Biochemie und Biologie, Universitätskomplex Golm, Universität Potsdam
2011/7 - 2016/7	Associate Professor Molecular Genetics, Medicine/University of Toronto/St. George, University of Toronto
2003/9 - 2011/7	Assistant Professor Molecular Genetics, medicine/University of Toronto/St. George, University of Toronto
2003/9 - 2010/10	Scientist Developmental and Stem Cell Biology, Medicine/University of Toronto/St. George, The Hospital for Sick Children

Affiliations

The primary affiliation is denoted by (*)

(*) 2010/10	Senior Scientist, Developmental, Stem Cell, and Cancer Biology, The Hospital for Sick Children
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Leaves of Absence and Impact on Research

2017/6 - 2017/10	Sabbatical, Universität Potsdam During this sabbatical I learned new techniques in high throughput drug screening and methods for working with zebrafish models of cerebral cavernous malformations. I also helped write up a publication with my collaborators on our drug screen.
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Research Funding History

Awarded [n=3]

2023/4 - 2028/3 Principal Investigator	Role of MRCK-1 in biological tube development Funding Sources: Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery grants Total Funding - 260,000 Funding Competitive?: Yes
2023/3 - 2028/2 Principal Investigator	Regulation of biological tube development and barrier integrity by the cerebral cavernous malformation 3 (CCM3) pathway Funding Sources: Canadian Institutes of Health Research (CIHR) Project grants Total Funding - 780,300 Funding Competitive?: Yes
2019/4 - 2026/3 Principal Applicant	Tier 1 Canada Research Chair: Animal Models of Human Disease Funding Sources: Canadian Institutes of Health Research (CIHR) Awards Total Funding - 1,400,000 Funding Competitive?: Yes

Completed [n=4]

- 2019/6 - 2024/5
Principal Applicant
Molecular control of apoptotic cell death in the *C. elegans* germline
Funding Sources:
Canadian Institutes of Health Research (CIHR)
Project Grant
Total Funding - 830,026
Funding Competitive?: Yes
- 2018/6 - 2023/5
Principal Applicant
Role of alternative polyadenylation in Ras-driven cancers (Derry received 50% of funding)
Funding Sources:
Canadian Institutes of Health Research (CIHR)
Project grant
Total Funding - 1,113,075
Funding Competitive?: Yes
Co-applicant : Mads Daugaard
- 2017/6 - 2022/7
Principal Applicant
Molecular and cellular mechanisms that govern the development of cerebral cavernous malformations (CCM). (Derry receives 60% of total funds)
Funding Sources:
Canadian Institutes of Health Research (CIHR)
Project grant
Total Funding - 869,550
Funding Competitive?: Yes
Co-applicant : Ian Scott
- 2016/4 - 2022/3
Principal Applicant
Regulation of seamless tube development
Funding Sources:
Natural Sciences and Engineering Research Council of Canada (NSERC)
Discovery Grant
Total Funding - 155,000
Funding Competitive?: Yes
- Under Review [n=2]**
- 2026/7 - 2033/3
Principal Applicant
Tier 1 Canada Research Chair: Animal Models of Human Disease
Funding Sources:
Canada Research Chairs (CRC)
Chairs
Total Funding - 1,400,000
Funding Competitive?: Yes
- 2026/10 - 2031/9
Principal Investigator
Mechanism by which transgenerational inheritance of protein aggregates regulate *C. elegans* germ cell sex determination
Funding Sources:
Canadian Institutes of Health Research (CIHR)
Project grant
Total Funding - 1,595,000
Funding Competitive?: Yes

Publications

Journal Articles

1. Li Y, Zhai B, Sathaseevan A, Moskalev I, Ahluwalia R, Rezakhanlou AM, Kung SHY, Truong S, Zarni Oo H, Derry WB, Black PC, Collins C, Daugaard M. (2026). CPSF1 controls epithelial-mesenchymal plasticity and metastatic progression of tumors. *Developmental Cell*. N/A(N/A): 1-45.
Submitted
Refereed?: Yes, Open Access?: Yes
2. Sathaseevan A, Ahluwalia R, Yu B, Makhenko-Tang C, Nishimura H, Leong A, Kwan KNN, Derry WB. (2025). A stress-dependent postembryonic role for the core CPA factor CFIM-1 in germline integrity. *Genetics*. N/A: 1-51.
Published
Refereed?: Yes, Open Access?: Yes
3. Webster R, Quintana M, Yu B, Fluke S, Kafri R & Derry WB. (2025). CDK-4 regulates nucleolar size and metabolism at the cost of late-life fitness in *C. elegans*. *Heredity*. N/A(N/A): 1-31.
Published
Refereed?: Yes, Open Access?: No
4. Eroglu M & Derry WB. (2025). Regulation of MAP Kinase signaling by the insulin-like growth factor pathway during *C. elegans* vulval development. *microPublication Biology*. N/A: 1-6.
Published
Refereed?: Yes, Open Access?: Yes
5. Eroglu M, Zocher T, McAuley J, Webster R, Xiao MZX, Yu B, Mok C & Derry WB. (2024). Noncanonical inheritance of phenotypic information by protein amyloids. *Nature Cell Biology*. 26(10): 1712-1724.
Published
Refereed?: Yes, Open Access?: No
6. Peng Pan, Michael Zoberman, Pengsong Zhang, Sharanja Premachandran, Sanjana Bhatnagar, Pallavi P. Pilaka-Akella, William Sun, Chengyin Li, Charlotte Martin, Pengfei Xu, Zefang Zhang, Ryan Li, Wesley Hung, Hua Tang, Kailynn MacGillivray, Bin Yu, Runze Zuo, Karinna Pe, Zhen Qin, Shaojia Wang, Ang Li, W. Brent Derry, Mei Zhen, Arneet L. Saltzman, John A. Calarco, Xinyu Liu. (2024). Robotic microinjection enables large-scale transgenic studies of *Caenorhabditis elegans*. *Nature Communications*. 15(1): 8848-8863.
Published
Refereed?: Yes, Open Access?: Yes
7. Evelyn M Popiel, Rhea Ahluwalia, Stefan Schuetz, Bin Yu & W. Brent Derry. (2024). MRCK-1 activates non-muscle myosin for outgrowth of a unicellular tube in *Caenorhabditis elegans*. *Development*. 151(23): 1-14.
Published
Refereed?: Yes, Open Access?: Yes
8. Yu-Xi Xiao, Seon Yong Lee, Magali Aguilera-Urbe, Reuben Samson, Aaron Au, Yukti Khanna, Zetao Liu, Ran Cheng, Kamaldeep Aulakh, Jiarun Wei, Adrian Granda Farias, Taylor Reilly, Saba Birkadze, Andrea Habsid, Kevin R. Brown, Katherine Chan, Patricia Mero, Jie Qi Huang, Maximilian Billmann, Mahfuzur Rahman, Chad Myers, Brenda J. Andrews, Ji-Young Youn, Christopher M. Yip, Daniela Rotin, W. Brent Derry, Julie D. Forman-Kay, Alan M. Moses, Iva Pritišanac, Anne-Claude Gingras & Jason Moffat. (2024). The TSC22D, WNK, and NRBP gene families exhibit functional buffering and evolved with metazoa for cell volume regulation. *Cell Reports*. 43(7): 114417-114434.
Published
Refereed?: Yes, Open Access?: Yes

- [9.](#) Derry WB. (2023). Role of developmental pathways in disease (editorial). *The FEBS Journal*. 290(13): 3296-3299.
Published
Refereed?: No, Open Access?: Yes
- [10.](#) Eroglu M, Yu B & Derry WB. (2023). Efficient CRISPR/Cas9 mediated large insertions using long single-stranded oligonucleotide donors in *C. elegans*. *The FEBS Journal*. 290(18): 4429-4439.
Published
Refereed?: Yes, Open Access?: Yes
11. Urso SJ, Sathaseevan A, Derry WB, Lamitina T. (2023). Regulation of the hypertonic stress response by the 3' mRNA cleavage and polyadenylation complex. *Genetics*. 224(1): 1-10.
Published
Refereed?: Yes, Open Access?: Yes
12. Tan C, Ginzberg MB, Webster R, Iyengar S, Liu S, Concannon J, Wang Y, Auld DS, Jenkins JL, Rost H, Hilfinger A, Derry WB, Patel N & Kafri R. (2021). Cell size homeostasis is maintained by CDK4-dependent activation of p38 MAPK. *Developmental Cell*. 56(12): 1756-1769.
Published
Refereed?: Yes, Open Access?: Yes
- [13.](#) Subramanian A, Hall M, Hou H, Mufteev M, Yu B, Yuki KE, Nishimura H, Sathaseevan A, Lant B, Zhai B, Ellis J, Wilson MD, Daugaard M & Derry WB. (2021). Alternative polyadenylation is a determinant of oncogenic Ras function. *Science Advances*. 7(51): 1-61.
Published
Refereed?: Yes, Open Access?: Yes
- [14.](#) The FEBS Editorial Team, Derry B. (2021). Editor Profile: Brent Derry (editorial). *The FEBS Journal*. 288(15): 4435-4438.
Published
- [15.](#) Shahzad, U., Taccone, M. S., Kumar, S. A., Okura, H., Krumholtz, S., Ishida, J., Mine, C., Gouveia, K., Edgar, J., Smith, C., Hayes, M., Huang, X., Derry, W. B., Taylor, M., & Rutka, J. T. (2021). Modeling human brain tumours in flies, worms, and zebrafish: From proof of principle to novel therapeutic targets. *Neuro-Oncology*. 23(5): 718-731.
Published
Refereed?: Yes, Open Access?: Yes
- [16.](#) Derry WB. (2021). CRISPR: development of a technology and its applications (editorial). *FEBS*. 288(2): 358-359.
Published
Refereed?: Yes, Open Access?: Yes
- [17.](#) Abdelilah-Seyfried, S., Tournier-Lasserre, E. & Derry, W.B. (2020). Blocking Signalopathic Events to Treat Cerebral Cavernous Malformations. *Trends in Molecular Medicine*. 26(9): 874-887.
Published
Refereed?: Yes, Open Access?: No
18. Koskimäki J, Girard R, Li Y, Saadat L, Zeineddine HA, Lightle R, Moore T, Lyne S, Avner K, Shenkar R, Cao Y, Shi C, Polster SP, Zhang D, Carrión-Penagos J, Romanos S, Fonseca G, Lopez-Ramirez MA, Chapman EM, Popiel E, Tang AT, Akers A, Faber P, Andrade J, Ginsberg M, Derry WB, Kahn ML, Marchuk DA, Awad IA. (2019). Comprehensive Transcriptome Analysis of Cerebral Cavernous Malformation Across Multiple Species and Genotypes. *JCI Insight*. 4(3): e126167.
Published
Refereed?: Yes, Open Access?: Yes

19. Chapman, E., Ohashi, Y., Yu, B., Schertzberg, M., Go., C., Dogra, D., Koskimäki, J., Girard, R., Li, Y., Fraser, A.G., Awad, I.A., Abdelilah-Seyfried, S., Gingras, A.C. & Derry, W.B. (2019). A conserved CCM complex promotes apoptosis non-autonomously by regulating zinc homeostasis in *C. elegans*. *Nature Communications*. 10: 1-18.
Published
Refereed?: Yes, Open Access?: Yes
20. Tran AT, Chapman, EM, Flamand MN, Yu B, Krempel SJ, Duchaine TF, Eroglu M, & Derry WB. (2019). MiR-35 buffers apoptosis thresholds in the *C. elegans* germline by antagonizing both MAPK and core apoptosis pathways. *Cell Death and Differentiation*. 26(12): 2637-2651.
Published
Refereed?: Yes, Open Access?: No

Book Chapters

1. Flemming K, Smith E, Marchuk D, Derry WB. (2023). Familial Cerebral Cavernous Malformations. In: *GeneReviews*, University of Washington, Seattle. Adam MP, Mirzaa GM, Pagon RA, Wallace SE, Bean LJH, Gripp KW, Amemiya A. *GeneReviews*® [Internet]. 2003 Feb 24 [Updated 2023 Jul 27]: 1-47.
Published, University of Washington, United States of America
2. Popiel, E. & Derry, W.B. (2020). Affinity Purification and Preparation of Peptides for Mass Spectrometry From *C. elegans*. Trabalzini, L., Finetti, F. & Retta, S. *Methods in Molecular Biology. Cerebral Cavernous Malformations (CCM)(2152)*: 479-485.
Published, Humana, United States of America
3. Popiel, E. & Derry, W.B. (2020). Generation and Analysis of CCM Phenotypes in *C. elegans*. Trabalzini L., Finetti F. & Retta S. *Methods in Molecular Biology. Cerebral Cavernous Malformations (CCM)(2152)*: 191-205.
Published, Humana, United States of America

Intellectual Property

Patents

1. Methods for identifying novel therapeutics and diagnostics in the p53 pathway (UC Case No.2000-028-1). United States of America. 2001/05/16.
Patent Status: Granted/Issued
Year Issued: 2007

Presentations

1. (2025). Transgenerational inheritance of protein aggregates reprogram germ cell fates in *C. elegans*. 11th Annual Canadian Conference on Epigenetics, Canada
Main Audience: Researcher
Invited?: No, Keynote?: No
2. (2024). From the worm to the brain - a twisted journey to understand and treat cerebral cavernous malformation. 20th International CCM Scientific Meeting, Canada
Main Audience: Researcher
Invited?: Yes, Keynote?: Yes
3. (2024). Transgenerational inheritance of protein aggregates feminize the *C. elegans* germline. Cold Spring Harbor - 14th biennial meeting on Germ Cells, United States of America
Main Audience: Researcher
Invited?: No, Keynote?: No

4. (2023). The role of innate immunity in cerebral cavernous malformations. Immunology 2023: The Ontogeny and Functioning of the Immune System - Lessons from Non-Mammalian Systems, United States of America
Main Audience: Researcher
Invited?: Yes, Keynote?: No

Knowledge and Technology Translation

2008/1 - 2015/12 Member, Executive Steering Committee, Consultation Service
Activity Description: Member of the executive steering committee that oversees design, construction and operation of the Peter Gilgan Centre for Research and Learning (SickKids Research Institute). Responsible for wet and dry laboratory design, and implementation of Leadership in Energy and Environmental Design (Gold level). Project budget: \$400M.

Student/Postdoctoral Supervision

Master's Thesis [n=1]

2022/9 - 2024/8 Jacob McAuley, University of Toronto
Principal Supervisor Thesis/Project Title: Role of aggresomes in the transmission of biological information over generations.
Present Position: Entrepreneur

Doctorate [n=9]

2024/1 - 2029/6 Chien-Hui Chang, University of Toronto
Principal Supervisor Thesis/Project Title: Role of oxidative stress in pathogenesis of cerebral cavernous malformation
Present Position: Graduate student

2022/1 - 2027/8 Autumn Zocher, University of Toronto
Principal Supervisor Thesis/Project Title: Composition and 3D structures of protein aggregates (herasomes) that transmit traits across multiple generations.
Present Position: Graduate student

2022/1 - 2027/8 Rhea Ahluwalia, University of Toronto
Co-Supervisor Thesis/Project Title: Role of alternative polyadenylation in neuroblastoma
Present Position: Graduate student

2020/1 - 2026/8 Ran (Tony) Cheng, University of Toronto
Principal Supervisor Thesis/Project Title: Role of Golgi protein USO1 in endothelial cell behaviour and C. elegans excretory canal extension.
Present Position: Graduate student

2019/1 - 2025/8 Samuel Krempel, University of Toronto
Principal Supervisor Thesis/Project Title: Integration of CCM1 and CCM3 signaling pathways and cooperative role in barrier formation.
Present Position: Graduate Student

2018/1 - 2023/12 Dr. Rachel Webster, University of Toronto
Co-Supervisor Thesis/Project Title: Regulation of nuclear size, senescence and lifespan by CDK4/Rb/E2F.
Present Position: Business analyst, Lifescience Dynamics

- 2017/4 - 2024/2
Principal Supervisor Dr. Evelyn Popiel, University of Toronto
Thesis/Project Title: Role of MRCK-1 in seamless tube development
Present Position: Postdoctoral fellow, The Hospital for Sick Children
- 2016/4 - 2022/3
Principal Supervisor Dr. Matthew Eroglu, University of Toronto
Thesis/Project Title: Role of ZFAND3/5 orthologues MSTR-1 and MSTR-2 in transgenerational sex determination through inheritance of protein aggregates.
Present Position: Postdoctoral fellow, Columbia University
- 2012/11 - 2018/8
Principal Supervisor Dr. Eric Chapman, University of Toronto
Thesis/Project Title: Genetic elucidation of the kri-1/CCM1 signalling pathway.
Present Position: Business Analyst