

Nicoletta Eliopoulos, B.Sc., M.Sc., Ph.D.

Investigator and Assistant Professor
Lady Davis Institute and McGill University
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ACADEMIC AND RESEARCH POSITIONS

- **Assistant Professor**, McGill University, Department of Surgery, Division of Surgical Research, Montreal, Quebec (QC). Sept. 2009 – Present.
- **Investigator**, Lady Davis Institute for Medical Research, Jewish General Hospital (JGH), Montreal, QC. Sept. 2009 – Present.
- **Laboratory Director**, JGH Cell Processing Center (Cleanroom), GMP Cell Handling Facility for the preparation of patient cells for cell and gene therapy clinical trials, Montreal, QC. March 2005 – Present.
- **Project Director**, Lady Davis Institute for Medical Research, JGH, Montreal, QC. March 2005 – Sept. 2009.

UNIVERSITY EDUCATION

- **Postdoctoral Fellowship**, Lady Davis Institute for Medical Research, JGH, McGill University, Montreal, QC. 1999-2005. Supervisor: Dr. Jacques Galipeau.
- **Ph.D. in Pharmacology**, Université de Montréal, Montreal, QC. 1994-1999. Supervisor: Dr. Richard L. Mompalmer.
Title of Ph.D. thesis: "*Preclinical Evaluation of the Cytidine Deaminase Gene for Chemoprotection in Cancer Therapy*". Thesis and defense rated as top 5%.
- **M.Sc. in Pharmacology**, Université de Montréal, Montreal, QC. 1991-1993. Supervisor: Dr. Ibrahim Yousef.
Title of M.Sc. thesis: "*Effet de la sulfatation de l'acide taurocholique sur la formation de la bile chez le rat*".
- **B.Sc. in Physiology**, McGill University, Montreal, QC. 1987-1990.

POSTDOCTORAL FELLOWSHIP AWARDS

- Postdoctoral fellowship award (50 000\$US/year) by the Department of Defense Breast Cancer Research Program, U.S. Army Congressionally Directed Medical Research Programs (CDMRP). 2002-2005.
- Postdoctoral fellowship award (35 000\$/year) by the Leukemia Research Fund of Canada. 2000-2002.
- Postdoctoral fellowship award (35 000\$/year) by the Cancer Research Society of Canada (declined since accepted Leukemia Research Fund of Canada award) 2000.

OTHER AWARDS, SCHOLARSHIPS, DISTINCTIONS

- One of the best presentation awards at the 23rd World Congress on Advances in Oncology and 22nd International Symposium on Molecular Medicine, Athens, Greece, September 2018.
- Travel award for the Professional Development Seminar by the American Society of Nephrology, San Diego. October 2009.
- Travel award to participate and present research at the International Networking for Young Scientists workshop “Stem Cell Research: Opportunities and Challenges in Collaboration”, Cambridge, UK. January 2005.
- First prize award by BioContact/Canadian Institutes of Health Research (CIHR), Next Generation Award competition, for presentation of research at the BioContact meeting, Quebec City, October 2003.
- American Association of Cancer Research, Edward A. Smuckler Award for Outstanding Abstract in Basic Science. July 2002.
- Third prize award by BioContact/Canadian Institutes of Health Research (CIHR), Next Generation Award competition, for presentation of research at the BioContact meeting, Quebec City. October 2001.
- Travel award to participate and present research (as one of 12 trainees selected across Canada). BioFinance/Canadian Institutes of Health Research (CIHR) meeting, Toronto. May 2001.
- Ph.D. thesis rated as top 5% by Université de Montréal. 1999.
- Scholarship award from the Telethon of Research into Children’s Diseases, St. Justine Hospital. 1997–1999.
- Scholarship awards from the Department of Pharmacology, Université de Montréal, Faculty of Graduate Studies. 1994-1998.

MEMBERSHIPS/COMMITTEES (RECENT)

- Serving as an active member of the Molecular and Regenerative Medicine Axis of the Lady Davis Institute for Medical Research. 2016-Present.
- Serving as an active member of the McGill University Stem Cells and Regenerative Medicine Network. 2014-Present.
- Serving as an active member of the *Fonds de recherche du Québec – Santé* (FRQS)-funded Cell and Tissue Therapy Network “*ThéCell*” in the province of Quebec, Canada. 2009-Present.
- Serving on graduate student annual committee meetings and evaluations. 2009-Present.
- Serving as an internal reviewer for grant applications by colleagues. 2009-Present.
- Served as an invited reviewer on the Canadian Institutes of Health Research (CIHR) Peer Review Committee “Bourses de recherche – Post-PhD” 2015-2016 Fellowships Competition.
- Served as an invited reviewer for the Dutch Kidney Foundation, Kidney Regeneration grant 15RNO6, 2015-2016.

RESEARCH GRANTS (RECENT)

Awarded Grants as Principal Investigator

- Research grant by the Kidney Foundation of Canada (KFC), Biomedical Research Grant Award. Proposal titled *Treatment of Renal Cell Carcinoma Using Gene-Modified Mesenchymal Stem Cells*. 100 000\$ total. 2018-2020.
- Research grant by the Canadian Institutes of Health Research (CIHR). Proposal titled *A Study of Novel Anti-Cancer Immunomodulatory Fusion Proteins and Transgenic Cell Therapy*. 803 302\$ total. 2011-2016.
- Research grant by the Roche Foundation for Anemia Research (RoFAR), “Special Grant” competition. One grant awarded. Proposal titled *Cell and Gene Therapy with Erythropoietin-Secreting Marrow Stem Cells for Kidney Repair*. 805 650 CHF (i.e. ~710 000\$) total. 2007-2011.

Awarded Grants as Co-Applicant

- Research grant by FRQS-funded network ThéCell. Proposal titled *Development of Cell Therapy for Diabetes Using Mesenchymal Stem Cells Expressing Islet Neogenesis-Associated Protein (INGAP)*. 10 000\$ (of 30 000\$). 2017-2018.
Principal Investigator: Dr. Lawrence Rosenberg.
- Research grant by Genome Quebec. Proposal titled *Cell Therapy of Cystinosis*. 90 000\$ (of 494 480\$) total. 2010-2013. Principal Investigator: Dr. Lawrence Rosenberg.

PUBLICATIONS

1. Guber, S., Ebrahimian, T., Heidari, M., **Eliopoulos, N.**, and Lehoux, S. Endothelial Nitric Oxide Synthase Overexpressing Human Early Outgrowth Cells Inhibit Coronary Artery Smooth Muscle Cell Migration Through Paracrine Functions. *Scientific Reports*, 8:877, 2018.
2. Maria, O.M., **Eliopoulos, N.**, and Muanza, T. Radiation-Induced Oral Mucositis. *Frontiers in Oncology*, 7 (May 22):89, 2017.
3. Bautista-López, N.L., Galipeau, J., Cuerquis, J., Lalu, M.M., and **Eliopoulos, N.** Induction of Increased Levels of Matrix Metalloproteinase-2 (MMP-2) and -9 in Human Breast Cancer Cell Lines by Activation of GM-CSF Receptor β c via c-Fos – ERK 1/2 Signaling. *Journal of Clinical and Experimental Oncology*, 6(March 21):2, 2017.
4. Maria, O.M., Syme, A., **Eliopoulos, N.**, and Muanza, T. Single-Dose Radiation-Induced Oral Mucositis Mouse Model. *Frontiers in Oncology*, 6(June 27): 154, 2016.

5. Maria, O.M., Shalaby, M., Syme, A., **Eliopoulos, N**, and Muanza, T. Adipose Mesenchymal Stromal Cells Minimize and Repair Radiation-Induced Oral Mucositis. *Cytotherapy*. 18(9): 1129-1145, 2016.
6. Maria, O.M., Kumala, S., Heravi, M., Syme, A., **Eliopoulos, N**, and Muanza, T. Adipose Mesenchymal Stromal Cells Response to Ionizing Radiation. *Cytotherapy*, 18(3):384-401, 2016.
7. Zhao, J., Young, Y.K., Fradette, J., and **Eliopoulos, N**. Melatonin Pre-Treatment of Human Adipose Tissue-Derived Mesenchymal Stromal Cells Enhances their Pro-survival and Protective Effects on Human Kidney Cells. *American Journal of Physiology - Renal Physiology*, 308(12): 1474-1483, 2015.
8. Cuerquis, J., Romieu-Mourez, R., François M., Routy, J.P., Young, Y.K., Zhao, J., and **Eliopoulos, N**. Human Mesenchymal Stromal Cells Transiently Increase Cytokine Production by Activated T Cells Before Suppressing T Cell Proliferation: Effect of Interferon- γ and Tumor Necrosis Factor- α Stimulation. *Cytotherapy*, 16(2): 191-202, 2014.
9. Iglesias, D.M., El- Kares, R., Taranta, A., Bellomo, F., Emma, F., Besouw, M., Levtchenko, E., Toelen, J., Van den Heuvel, L., Chu, L., Zhao, J., Young, Y.K., **Eliopoulos, N**, and Goodyer, P. Stem Cell Microvesicles Transfer Cystinosin to Human Cystinotic Cells and Reduce Cystine Accumulation *In Vitro*. *PLoS One*, 7(8):e42840, 2012.
10. **Eliopoulos, N.***, Zhao, J., Forner, K., Birman, E., Young, Y.K., and Bouchentouf M. Erythropoietin Gene-Enhanced Marrow Mesenchymal Stromal Cells Decrease Cisplatin-Induced Kidney Injury and Improve Survival of Allogeneic Recipient Mice. *Molecular Therapy* 19(11): 2072-2083, 2011. ***First and Corresponding Author**.
11. Zhang, Z., Iglesias, D., **Eliopoulos, N**, El Kares, R., Chu, L.L., Romagnani, P., and Goodyer, P. A Variant OSR1 Allele which Disturbs OSR1 mRNA Expression in Renal Progenitor Cells is Associated with Reduction of Newborn Kidney Size and Function. *Human Molecular Genetics* 20(21): 4167-4174, 2011.
12. Corcos, J., Loutochin, O., Campeau, L., **Eliopoulos, N**, Bouchentouf, M., Blok, B., and Galipeau, J. Bone Marrow Mesenchymal Stromal Cell Therapy for External Urethral Sphincter Restoration in a Rat Model of Stress Urinary Incontinence. *Neurourology and Urodynamics* 30(3): 447-455, 2011.
13. **Eliopoulos, N.***, Zhao, J., Bouchentouf, M., Forner, K., Birman, E., Yuan, S., Boivin, M.N., and Martineau D. Human Marrow-Derived Mesenchymal Stromal Cells Decrease Cisplatin Renotoxicity *In Vitro* and *In Vivo*, and Enhance Survival of Mice Post Intraperitoneal Injection. *American Journal of Physiology - Renal Physiology* 299(6): F1288-1298, 2010. ***First and Corresponding Author**.
14. Benabdallah, B.F., Allard, E., Yao, S., Friedman, G., Gregory, PD, **Eliopoulos, N**, Fradette, J., Spees, J.L., Holmes, M.C., and Beauséjour, C.M. Targeted Gene Addition to Human Mesenchymal Stromal Cells as a Cell-Based Plasma-Soluble Protein Delivery Platform. *Cytotherapy* 12(3): 394-397, 2010.
15. **Eliopoulos, N**, Francois, M., Boivin, M.N., Martineau, D., and Galipeau, J. Neo-Organoid of Marrow Mesenchymal Stromal Cells Secreting Interleukin-12 for Breast Cancer Therapy. *Cancer Research* 68(12): 4810-4818, 2008.

16. El-Ayoubi, R., **Eliopoulos, N.**, DiRaddo, R., Galipeau, J., and Yousefi, A.M. Design and Fabrication of 3D Porous Scaffolds to Facilitate Cell-Based Gene Therapy. *Tissue Engineering Part A*, 14(6): 1037-1048, 2008.
17. Copland, I.B., Jolicoeur, E.M., Gillis, M.A., Cuerquis, J., **Eliopoulos, N.**, Annabi, B., Calderone, A., Tanguay, J.F., Ducharme, A., and Galipeau, J. Coupling Erythropoietin Secretion to Mesenchymal Stromal Cells Enhances their Regenerative Properties. *Cardiovascular Research* 79(3): 405-415, 2008.
18. Copland, I., Sharma, K., Lejeune, L., **Eliopoulos, N.**, Stewart D., Liu, P., Lachapelle, K., and Galipeau, J. CD34 Expression on Murine Marrow-derived Mesenchymal Stromal Cells: Impact on Neovascularization. *Experimental Hematology* 36(1): 93-103, 2008.
19. **Eliopoulos, N.**, Gagnon, R., Francois, M., and Galipeau, J. Erythropoietin Delivery by Genetically Engineered Bone Marrow Stromal Cells for Correction of Anemia in Mice with Chronic Renal Failure. *Journal of the American Society of Nephrology* 17(6): 1576-1584, 2006.
20. Stagg, J., Pommey, S., **Eliopoulos, N.**, and Galipeau, J. Interferon- γ -Stimulated Marrow Stromal Cells: A New Type of Non-Hematopoietic Antigen Presenting Cell. *Blood* 107(6):2570-2577, 2006.
21. **Eliopoulos, N.**, Stagg, J., Lejeune, L., Pommey, S., and Galipeau, J. Allogeneic Marrow Stromal Cells are Immune Rejected by MHC Class I and II Mismatched Recipient Mice. *Blood* 106(13):4057-4065, 2005.
22. **Eliopoulos, N.**, Lejeune, L., Martineau, D., and Galipeau, J. Human-Compatible Collagen Matrix for Prolonged and Reversible Systemic Delivery of Erythropoietin in Mice from Gene-Modified Marrow Stromal Cells. *Molecular Therapy* 10(4):741-748, 2004.
23. Annabi, B., Naud, E., Lee, Y.T., **Eliopoulos, N.**, and Galipeau, J. Vascular Progenitors Derived from Murine Bone Marrow Stromal Cells are Regulated by Fibroblast Growth Factor and are Avidly Recruited by Vascularizing Tumors. *Journal of Cellular Biochemistry* 91(6):1146-1158, 2004.
24. Annabi, B., Lee, Y.T., Turcotte, S., Naud, E., Desrosiers, R.R., Champagne, M., **Eliopoulos, N.**, Galipeau, J., and Béliveau, R. Hypoxia Promotes Murine Bone Marrow-Derived Stromal Cell Migration and Tube Formation. *Stem Cells* 21(3): 337-347, 2003.
25. Annabi, B., Thibeault, S., Lee, Y.T., Bousquet-Gagnon, N., **Eliopoulos, N.**, Barrette, S., Galipeau, J., and Béliveau, R. Matrix Metalloproteinase Regulation of Sphingosine-1-Phosphate-Induced Angiogenic Properties of Bone Marrow Stromal Cells. *Experimental Hematology* 31(7): 640-649, 2003.
26. **Eliopoulos, N.**, Al-Khaldi, A., Crosato, M., Lachapelle, K., and Galipeau, J. A Neovascularized Organoid Derived from Retrovirally-Engineered Bone Marrow Stroma Leads to Prolonged *In Vivo* Systemic Delivery of Erythropoietin in Non-Myeloablated, Immunocompetent Mice. *Gene Therapy* 10(6): 478-489, 2003.
27. Al-Khaldi, A., **Eliopoulos, N.**, Martineau, D., Lejeune, L., Lachapelle, K., and Galipeau, J. Postnatal Bone Marrow Stromal Cells Elicit a Potent VEGF-Dependent Neo-Angiogenic Response. *Gene Therapy* 10(8): 621-629, 2003.

28. **Eliopoulos, N.**, Al-Khaldi, A., Beausejour, C.M., Momparler, R.L., Momparler, L.F., and Galipeau, J. Human Cytidine Deaminase as an Ex Vivo Drug Selectable Marker in Gene-Modified Primary Bone Marrow Stromal Cells. *Gene Therapy* 9(7): 452-462, 2002.
29. **Eliopoulos, N.** and Galipeau, J. Green fluorescent protein in retroviral vector constructs as marker and reporter of gene expression for cell and gene therapy applications. *Methods Mol Biol.* 183:353-71, 2002.
30. Beausejour, C.M., **Eliopoulos, N.**, Momparler, L.F., Le, N.L.O., and Momparler, R.L. Selection of Drug-Resistant Transduced Cells with Cytosine Nucleoside Analogs Using the Human Cytidine Deaminase Gene. *Cancer Gene Therapy* 8(9): 669-676, 2001.
31. Wang, J.S., Shum-Tim, D., Galipeau, J., Chedrawy, E., **Eliopoulos, N.**, and Chiu, R.C.J. Marrow Stromal Cells for Cellular Cardiomyoplasty: Feasibility and Clinical Advantages. *Journal of Thoracic and Cardiovascular Surgery* 120(5): 999-1005, 2000.
32. Jaalouk, D.E., **Eliopoulos, N.**, Couture, C., Mader, S., and Galipeau, J. Glucocorticoid-Inducible Retrovector for Regulated Transgene Expression in Genetically Engineered Bone Marrow Stromal Cells. *Human Gene Therapy* 11(13):1837-1849, 2000.
33. Momparler, R.L., **Eliopoulos, N.**, and Ayoub, J. Evaluation of an inhibitor of DNA methylation, 5-aza-2'-deoxycytidine, for the treatment of lung cancer and the future role of gene therapy. *Adv Exp Med Biol.* 465:433-46, 2000.
34. **Eliopoulos, N.**, Beausejour, C., and Momparler, R.L. Chemoprotection against cytosine nucleoside analogs using the human cytidine deaminase gene. *Prog Exp Tumor Res.* 36:124-42, 1999.
35. **Eliopoulos, N.**, Bovenzi, V., Le, N.L.O., Momparler, L.F., Greenbaum M., Létourneau, S., Cournoyer, D., and Momparler, R.L. Retroviral Transfer and Long-Term Expression of Human Cytidine Deaminase cDNA in Hematopoietic Cells Following Transplantation in Mice. *Gene Therapy* 5(11): 1545-1551, 1998.
36. **Eliopoulos, N.**, Cournoyer, D., and Momparler, R.L. Drug Resistance to 5-Aza-2'-deoxycytidine, 2',2'-Difluorodeoxycytidine, and Cytosine Arabinoside Conferred by Retroviral-Mediated Transfer of Human Cytidine Deaminase cDNA Into Murine Cells. *Cancer Chemotherapy and Pharmacology* 42(5): 373-378, 1998.
37. Momparler, R.L., Côté, S., and **Eliopoulos, N.** Pharmacological approach for optimization of the dose schedule of 5-Aza-2'-deoxycytidine (Decitabine) for the therapy of leukemia. *Leukemia* 11 Suppl 1:S1-6, 1997 and *Leukemia* 11(2):175-80, 1997.
38. Momparler, R.L., **Eliopoulos, N.**, Bovenzi, V., Létourneau, S., Greenbaum, M., and Cournoyer, D. Resistance to Cytosine Arabinoside by Retrovirally Mediated Gene Transfer of Human Cytidine Deaminase into Murine Fibroblast and Hematopoietic Cells. *Cancer Gene Therapy* 3(5): 331-338, 1996.
39. Momparler, R.L., Laliberté, J., **Eliopoulos, N.**, Beausejour, C., and Cournoyer, D. Transfection of Murine Fibroblast Cells with Human Cytidine Deaminase cDNA Confers Resistance to Cytosine Arabinoside. *Anti-Cancer Drugs* 7(3): 266-274, 1996.