

PRESENT POSITION

Professeur titulaire

Département de biologie moléculaire, de biochimie médicale et de pathologie
Faculté de médecine, Université Laval, Québec, QC
Canada, G1V 0A6

and

Chercheur régulier, Axe Oncologie

Centre de recherche du CHU de Québec - CHUL
2705 Boulevard Laurier, Québec, QC
Canada, G1V 4G2

Tel: (418) 525-4444 Ext: 46378

Email: Guy.Poirier@crchudequebec.ulaval.ca

EDUCATION

B.Sc. (Biochemistry) Laval University, Québec, QC, Canada, 1970

Ph.D. (Molecular Endocrinology) Laval University, Québec, Canada 1973

Postdoctoral studies:

University of Sussex, England, under the direction of Professor Gordon H. Dixon, 1973-1974.

University of Calgary, Alberta, Canada, under the direction of Professor Gordon H. Dixon, 1974-1975.

RECENT RECOGNITIONS

2019 Cozzarelli Prize

Proceedings of the National Academy of Sciences of the United States of America

2017 Prix du mentor scientifique 2017

Club de recherche clinique du Québec (CRCQ)

2015 Prix d'excellence en protéomique au Canada - Prix Tony Pawson 2015

Canadian National Proteomics Network (CNP)

2014 Doctorat *Honoris Causa*

Université de Rennes I, France

2014 Prix Diamant du CHU de Québec - Recherche fondamentale

CHU de Québec - CHUL

PEER-REVIEWED ARTICLES (last 5 years)

1: O'Sullivan J, Tedim Ferreira M, Gagné JP, Sharma AK, Hendzel MJ, Masson JY, Poirier GG. Emerging roles of eraser enzymes in the dynamic control of protein ADP-ribosylation. *Nat Commun.* **2019** Mar 12;10(1):1182.

2: Wang Z, Tacchelly-Benites O, Noble GP, Johnson MK, Gagné JP, Poirier GG, Ahmed Y. A Context-Dependent Role for the RNF146 Ubiquitin Ligase in Wingless/Wnt Signaling in *Drosophila*. *Genetics.* **2019** Mar;211(3):913-923.

3: Moquin DM, Genois MM, Zhang JM, Ouyang J, Yadav T, Buisson R, Yazinski SA, Tan J, Boukhali M, Gagné JP, Poirier GG, Lan L, Haas W, Zou L. Localized protein biotinylation at DNA damage sites identifies ZPET, a repressor of homologous recombination. *Genes Dev.* **2019** Jan 1;33(1-2):75-89.

4: Kam TI, Mao X, Park H, Chou SC, Karuppagounder SS, Umanah GE, Yun SP, Brahmachari S, Panicker N, Chen R, Andrabi SA, Qi C, Poirier GG, Pletnikova O, Troncoso JC, Bekris LM, Leverenz JB, Pantelyat A, Ko HS, Rosenthal LS, Dawson TM, Dawson VL. Poly(ADP-ribose) drives pathologic α -synuclein neurodegeneration in Parkinson's disease. *Science.* **2018** Nov 2;362(6414).

5: Wahner Hendrickson AE, Menefee ME, Hartmann LC, Long HJ, Northfelt DW, Reid JM, Boakye-Agyeman F, Kayode O, Flatten KS, Harrell MI, Swisher EM, Poirier GG, Satele D, Allred J, Lensing JL, Chen A, Ji J, Zang Y, Erlichman C, Haluska P, Kaufmann SH. A Phase I Clinical Trial of the Poly(ADP-ribose) Polymerase Inhibitor Veliparib and Weekly Topotecan in Patients with Solid Tumors. *Clin Cancer Res.* **2018** Feb 15;24(4):744-752.

6: Cloutier N, Allaey I, Marcoux G, Machlus KR, Mailhot B, Zufferey A, Levesque T, Becker Y, Tessandier N, Melki I, Zhi H, Poirier G, Rondina MT, Italiano JE, Flamand L, McKenzie SE, Cote F, Nieswandt B, Khan WI, Flick MJ, Newman PJ, Lacroix S, Fortin PR, Boilard E. Platelets release pathogenic serotonin and return to circulation after immune complex-mediated sequestration. *Proc Natl Acad Sci USA.* **2018** Feb 13;115(7):E1550-E1559.

7: Bertolin G, Bulteau AL, Alves-Guerra MC, Burel A, Lavault MT, Gavard O, Le Bras S, Gagné JP, Poirier GG, Le Borgne R, Prigent C, Tramier M. Aurora kinase A localises to mitochondria to control organelle dynamics and energy production. *Elife.* **2018** Aug 2;7.

8: Dionne U, Chartier FJM, López de Los Santos Y, Lavoie N, Bernard DN, Banerjee SL, Otis F, Jacquet K, Tremblay MG, Jain M, Bourassa S, Gish GD, Gagné JP, Poirier GG, Laprise P, Voyer N, Landry CR, Doucet N, Bisson N. Direct Phosphorylation of SRC Homology 3 Domains by Tyrosine Kinase Receptors Disassembles Ligand-Induced Signaling Networks. *Mol Cell.* **2018** Jun 21;70(6):995-1007.

9: Perreault M, Wunsch E, Bialek A, Trottier J, Verreault M, Caron P, Poirier GG, Milkiewicz P, Barbier O. Urinary Elimination of Bile Acid Glucuronides under Severe Cholestatic Situations: Contribution of Hepatic and Renal Glucuronidation Reactions. *Can J Gastroenterol Hepatol*. **2018** Apr 11;2018:8096314.

10: Gagné JP, Langelier MF, Pascal JM, Poirier GG. Hydrofluoric Acid-Based Derivatization Strategy To Profile PARP-1 ADP-Ribosylation by LC-MS/MS. *J Proteome Res*. **2018** Jul 6;17(7):2542-2551.

11: Gagné JP, Lachapelle S, Garand C, Tsofack SP, Coulombe Y, Caron MC, Poirier GG, Masson JY, Lebel M. Different non-synonymous polymorphisms modulate the interaction of the WRN protein to its protein partners and its enzymatic activities. *Oncotarget*. **2016** Dec 27;7(52):85680-85696.

12: Velic D, Couturier AM, Ferreira MT, Rodrigue A, Poirier GG, Fleury F, Masson JY. DNA Damage Signalling and Repair Inhibitors: The Long-Sought-After Achilles' Heel of Cancer. *Biomolecules*. **2015** Nov 20;5(4):3204-59.

13: Strickfaden H, McDonald D, Kruhlak MJ, Haince JF, Th'ng JP, Rouleau M, Ishibashi T, Corry GN, Ausio J, Underhill DA, Poirier GG, Hendzel MJ. Poly(ADP-ribosylation)-dependent Transient Chromatin Decondensation and Histone Displacement following Laser Microirradiation. *J Biol Chem*. **2016** Jan 22;291(4):1789-802.

14: Cieślak A, Kelly I, Trottier J, Verreault M, Wunsch E, Milkiewicz P, Poirier GG, Droit A, Barbier O. Selective and sensitive quantification of the cytochrome P450 3A4 protein in human liver homogenates through multiple reaction monitoring mass spectrometry. *Proteomics*. **2016** Nov;16(21):2827-2837.

15: Ismail IH, Gagné JP, Genois MM, Strickfaden H, McDonald D, Xu Z, Poirier GG, Masson JY, Hendzel MJ. The RNF138 E3 ligase displaces Ku to promote DNA end resection and regulate DNA repair pathway choice. *Nat Cell Biol*. **2015** Nov;17(11):1446-57.

16: Chesnel F, Hascoet P, Gagné JP, Couturier A, Jouan F, Poirier GG, Le Goff C, Vigneau C, Danger Y, Verite F, Le Goff X, Arlot-Bonnemains Y. The von Hippel-Lindau tumour suppressor gene: uncovering the expression of the pVHL172 isoform. *Br J Cancer*. **2015** Jul 14;113(2):336-44.

17: Gagné JP, Ethier C, Defoy D, Bourassa S, Langelier MF, Riccio AA, Pascal JM, Moon KM, Foster LJ, Ning Z, Figeys D, Droit A, Poirier GG. Quantitative site-specific ADP-ribosylation profiling of DNA-dependent PARPs. *DNA Repair (Amst)*. **2015** Jun;30:68-79.

18: Genois MM, Plourde M, Éthier C, Roy G, Poirier GG, Ouellette M, Masson JY. Roles of Rad51 paralogs for promoting homologous recombination in *Leishmania infantum*. *Nucleic Acids Res*. **2015** Mar 11;43(5):2701-15.

19: Abdou I, Poirier GG, Hendzel MJ, Weinfeld M. DNA ligase III acts as a DNA strand break sensor in the cellular orchestration of DNA strand break repair. *Nucleic Acids Res.* **2015** Jan;43(2):875-92.

20: Fouquerel E, Goellner EM, Yu Z, Gagné JP, Barbi de Moura M, Feinstein T, Wheeler D, Redpath P, Li J, Romero G, Migaud M, Van Houten B, Poirier GG, Sobol RW. ARTD1/PARP1 negatively regulates glycolysis by inhibiting hexokinase 1 independent of NAD⁺ depletion. *Cell Rep.* **2014** Sep 25;8(6):1819-1831.

21: Brotherton MC, Bourassa S, Légaré D, Poirier GG, Droit A, Ouellette M. Quantitative proteomic analysis of amphotericin B resistance in *Leishmania infantum*. *Int J Parasitol Drugs Drug Resist.* **2014** May 16;4(2):126-32.

22: Andrabi SA, Umanah GK, Chang C, Stevens DA, Karuppagounder SS, Gagné JP, Poirier GG, Dawson VL, Dawson TM. Poly(ADP-ribose) polymerase-dependent energy depletion occurs through inhibition of glycolysis. *Proc Natl Acad Sci USA.* **2014** Jul 15;111(28):10209-14.

23: Ismail IH, Davidson R, Gagné JP, Xu ZZ, Poirier GG, Hendzel MJ. Germline mutations in BAP1 impair its function in DNA double-strand break repair. *Cancer Res.* **2014** Aug 15;74(16):4282-94.

24: Gallaud E, Caous R, Pascal A, Bazile F, Gagné JP, Huet S, Poirier GG, Chrétien D, Richard-Parpaillon L, Giet R. Enscosin/Map7 promotes microtubule growth and centrosome separation in *Drosophila* neural stem cells. *J Cell Biol.* **2014** Mar 31;204(7):1111-21.

25: Wang Z, Gagné JP, Poirier GG, Xu W. Crystallographic and biochemical analysis of the mouse poly(ADP-ribose) glycohydrolase. *PLoS One.* **2014** Jan 21;9(1):e86010.

GRANT SUPPORT (last 5 years)

CURRENT FUNDING

- Centre de recherche sur le cancer, Subvention, Institutionnel - BDR, BDR - Centres de recherche reconnus, 1996-05-01, 2023-04-30 \$100 000/year.
- Centre hospitalier universitaire de Québec - Université Laval, Subvention, Centre hospitalier universitaire de Québec - Université Laval, Centres de recherche affiliés, 2017-01-01, 2019-12-31.
- Cibler l'instabilité génomique en tant que vulnérabilité essentielle du cancer de l'ovaire, Subvention, Fonds de recherche du Québec - Santé, ONCOPOLE EMC2: Équipes multi-institutionnelles contre le cancer, 2018-05-01, 2021-04-30 \$500,000/year.

- Functions of poly(ADP-ribose) polymerases in DNA double-strand break processing and pathway choice., Subvention, Instituts de recherche en santé du Canada, Subvention de fonctionnement, 2014- 2019.
- PROTEO, le regroupement québécois de recherche sur la fonction, l'ingénierie et les applications des protéines (PROTEO), Subvention, Fonds de recherche du Québec - Nature et technologies, Regroupements stratégiques NT, 2015-04-01, 2021-03-31.
- Regroupement québécois de recherche sur la fonction, la structure et l'ingénierie des protéines, Subvention, Institutionnel - BDR, BDR - Centres de recherche reconnus, 2014-05-01, 2020-04-01.
- International collaboration in Proteomics :National Science and Engineering Council of Canada(NSERC) NSERC/CTRI 2017/9-2019/12 Co-Applicant Total Funding :\$160,000.

COMPLETED FUNDING

Coupling metabolic and proteomic approaches in profiling endobiotics metabolism
National Sciences and Engineering Research Council of Canada(NSERC) 2012-2017
Total Funding \$195 000.

PI : Barbier O., Droit A., Poirier GG

Targeted Proteomics Principal Investigator
Canadian Institutes of Health Research (CIHR) 2009-2016
Research Chair Tier1
Total Funding \$1 400 000.

Human and Microbial Integrative Proteomics
2013/4 -2016/3
CFI : \$7 138 552
I am one of the co-applicants

Molecular mechanisms of cell death induced by poly(ADP-ribosylation)
CIHR operating Grant : \$629 605 ; 2001/1-2015/3
Total funding : \$629,605 PI

Mayo Clinic Spore Grant in ovarian Cancer
National Institute of Health (NIH) USA
Collaborator Subaward
Total funding \$10 000 000

