

2019 Biomedical Engineering Publications, Conferences and Book Chapters

Table of Contents

COLLINS, D. Louis	2
FUNNELL, W. Robert J.	4
H AidAR, Ahmad	5
JUNCKER, David	6
KEARNEY, Robert E.	8
RUDKO, David	9
PRAKASH, Satya	10
TABRIZIAN, Maryam	11
TARDIF, Christine L.	13

- Albaugh MD, Hudziak JJ, Ing A, Chaarani B, Barker E, Jia T, Lemaitre H, Watts R, Orr C, Spechler PA, Lepage C, Fonov V, **Collins DL**, Rioux P, Evans AC, Banaschewski T, Bokde ALW, Bromberg U, Büchel C, Quinlan EB, Desrivières S, Flor H, Frouin V, Gowland P, Heinz A, Ittermann B, Martinot JL, Nees F, Orfanos DP, Paus T, Poustka L, Fröhner JH, Smolka MN, Walter H, Whelan R, Schumann G, Garavan H, Potter A. (2019) "White matter microstructure is associated with hyperactive/inattentive symptomatology and polygenic risk for attention-deficit/hyperactivity disorder in a population-based sample of adolescents." *Neuropsychopharmacology*; 44(9):1597-1603. doi: [10.1038/s41386-019-0383-y](https://doi.org/10.1038/s41386-019-0383-y).
- Barlow-Krelina E, Turner GR, Akbar N, Banwell B, Lysenko M, Yeh EA, Narayanan S, **Collins DL**, Aubert-Broche B, Till C (2019) "Enhanced Recruitment During Executive Control Processing in Cognitively Preserved Patients with Pediatric-Onset MS." *J Int Neuropsychol Soc*; 25(4):432-442. doi: [10.1017/S135561771800125X](https://doi.org/10.1017/S135561771800125X).
- Cárdenas-de-la-Parra A, Martin-Brevet S, Moreau C, Rodriguez-Herreros B, Fonov VS, Maillard AM, Zürcher NR; 16p11.2 European Consortium, Hadjikhani N, Beckmann JS, Raymond A, Draganski B, Jacquemont S, **Collins DL**. (2019) "Developmental trajectories of neuroanatomical alterations associated with the 16p11.2 Copy Number Variations." *Neuroimage*; 203:116155. doi: [10.1016/j.neuroimage.2019.116155](https://doi.org/10.1016/j.neuroimage.2019.116155).
- Dadar M, Maranzano J, Ducharme S, **Collins DL**; Alzheimer's Disease Neuroimaging Initiative. (2019) "White matter in different regions evolves differently during progression to dementia." *Neurobiol Aging*.; 76:71-79. doi: [10.1016/j.neurobiolaging.2018.12.004](https://doi.org/10.1016/j.neurobiolaging.2018.12.004).
- Duchesne S, Chouinard I, Potvin O, Fonov VS, Khademi A, Bartha R, Bellec P, **Collins DL**, Descoteaux M, Hoge R, McCreary CR, Ramirez J, Scott CJM, Smith EE, Strother SC, Black SE; CIMA-Q group and the CCNA group. (2019) "The Canadian Dementia Imaging Protocol: Harmonizing National Cohorts." *J Magn Reson Imaging*.; 49(2):456-465. doi: [10.1002/jmri.26197](https://doi.org/10.1002/jmri.26197)
- Fadda G, Brown RA, Magliozzi R, Aubert-Broche B, O'Mahony J, Shinohara RT, Banwell B, Marrie RA, Yeh EA, **Collins DL**, Arnold DL, Bar-Or A; Canadian Pediatric Demyelinating Disease Network. (2019) "A surface-in gradient of thalamic damage evolves in pediatric multiple sclerosis." *Ann Neurol*.; 85(3):340-351. doi: [10.1002/ana.25429](https://doi.org/10.1002/ana.25429).
- García-García I, Michaud A, Dadar M, Zeighami Y, Neseliler S, **Collins DL**, Evans AC, Dagher A. (2019) "Neuroanatomical differences in obesity: meta-analytic findings and their validation in an independent dataset." *Int J Obes (Lond)*.; 43(5):943-951. doi: [10.1038/s41366-018-0164-4](https://doi.org/10.1038/s41366-018-0164-4).
- Gueziri HE, Drouin S, Yan CXB, **Collins DL**. (2019) "Toward real-time rigid registration of intra-operative ultrasound with preoperative CT images for lumbar spinal fusion surgery." *Int J Comput Assist Radiol Surg*.; 14(11):1933-1943. doi: [10.1007/s11548-019-02020-1](https://doi.org/10.1007/s11548-019-02020-1).
- Kuijf HJ, Biesbroek JM, de Bresser J, Heinen R, Andermatt S, Bento M, Berseth M, Belyaev M, Cardoso MJ, Casamitjana A, **Collins DL**, Dadar M, Georgiou A, Ghafoorian M, Jin D, Khademi A, Knight J, Li H, Llado X, Luna M, Mahmood Q, McKinley R, Mehrtash A,

- Ourselin S, Park BY, Park H, Park SH, Pezold S, Puybureau E, Rittner L, Sudre CH, Valverde S, Vilaplana V, Wiest R, Xu Y, Xu Z, Zeng G, Zhang J, Zheng G, Chen C, van der Flier W, Barkhof F, Viergever MA, Biessels GJ. (2019) "Standardized Assessment of Automatic Segmentation of White Matter Hyperintensities; Results of the WMH Segmentation Challenge." *IEEE Trans Med Imaging.*; 38(11):2556-2568. doi: [10.1109/TMI.2019.2905770](https://doi.org/10.1109/TMI.2019.2905770).
- Lewis JD, Fonov VS, **Collins DL**, Evans AC, Tohka J; Brain Development Cooperative Group; Pediatric Imaging, Neurocognition; Genetics Study (2019) "Cortical and subcortical T1 white/gray contrast, chronological age, and cognitive performance." *Neuroimage.*; 196:276-288. doi: [10.1016/j.neuroimage.2019.04.022](https://doi.org/10.1016/j.neuroimage.2019.04.022).
- Manera AL, Dadar M, **Collins DL**, Ducharme S; Frontotemporal Lobar Degeneration Neuroimaging Initiative. (2019) "Deformation based morphometry study of longitudinal MRI changes in behavioral variant frontotemporal dementia." *Neuroimage Clin.*; 24:102079. doi: [10.1016/j.nicl.2019.102079](https://doi.org/10.1016/j.nicl.2019.102079).
- Maranzano J, Dadar M, Rudko DA, De Nigris D, Elliott C, Gati JS, Morrow SA, Menon RS, **Collins DL**, Arnold DL, Narayanan S. (2019) "Comparison of Multiple Sclerosis Cortical Lesion Types Detected by Multicontrast 3T and 7T MRI." *AJNR Am J Neuroradiol.*; 40(7):1162-1169. doi: [10.3174/ajnr.A6099](https://doi.org/10.3174/ajnr.A6099).
- Marcotte C, Potvin O, **Collins DL**, Rheault S, Duchesne S (2019) "Brain atrophy and patch-based grading in individuals from the CIMA-Q study: a progressive continuum from subjective cognitive decline to AD." *Sci Rep.*; 9(1):13532. doi: [10.1038/s41598-019-49914-3](https://doi.org/10.1038/s41598-019-49914-3)
- Mexhitaj I, Nyirenda MH, Li R, O'Mahony J, Rezk A, Rozenberg A, Moore CS, Johnson T, Sadovnick D, **Collins DL**, Arnold DL, Gran B, Yeh EA, Marrie RA, Banwell B, Bar-Or A (2019) "Abnormal effector and regulatory T cell subsets in paediatric-onset multiple sclerosis." *Brain.*; 142(3):617-632. doi: [10.1093/brain/awz017](https://doi.org/10.1093/brain/awz017).
- Nguyen TV, Jones SL, Gower T, Lew J, Albaugh MD, Botteron KN, Hudziak JJ, Fonov VS, **Collins D Louis**, Campbell BC, Booij L, Herba CM, Monnier P, Ducharme S, Waber D, McCracken JT (2019) "Age-specific associations between oestradiol, cortico-amygdalar structural covariance, and verbal and spatial skills." *J Neuroendocrinol.*; 31(4):e12698. doi: [10.1111/jne.12698](https://doi.org/10.1111/jne.12698).
- Pandya S, Zeighami Y, Freeze B, Dadar M, **Collins DL**, Dagher A, Raj A (2019) "Predictive model of spread of Parkinson's pathology using network diffusion". *Neuroimage.*; 192:178-194. doi: [10.1016/j.neuroimage.2019.03.001](https://doi.org/10.1016/j.neuroimage.2019.03.001).
- Plazak J, DiGiovanni DA, **Collins DL**, Kersten-Oertel M (2019) "Cognitive load associations when utilizing auditory display within image-guided neurosurgery." *Int J Comput Assist Radiol Surg.*; 14(8):1431-1438. doi: [10.1007/s11548-019-01970-w](https://doi.org/10.1007/s11548-019-01970-w).
- Potvin O, Chouinard I, Dieumegarde L, Bartha R, Bellec P, **Collins DL**, Descoteaux M, Hoge R, Ramirez J, Scott CJM, Smith EE, Strother SC, Black SE, Duchesne S; CIMA-Q group; CCNA group. (2019) "The Canadian Dementia Imaging Protocol: Harmonization validity for morphometry measurements." *Neuroimage Clin.*; 24:101943. doi: [10.1016/j.nicl.2019.101943](https://doi.org/10.1016/j.nicl.2019.101943).
- Sanford R, Strain J, Dadar M, Maranzano J, Bonnet A, Mayo NE, Scott SC, Fellows LK, Ances BM, **Collins DL** (2019) "HIV infection and cerebral small vessel disease are independently associated with brain atrophy and cognitive impairment." *AIDS.*; 33(7):1197-1205. doi: [10.1097/QAD.0000000000002193](https://doi.org/10.1097/QAD.0000000000002193).

- Schoemaker D, Buss C, Pietrantonio S, Maunder L, Freiesleben SD, Hartmann J, **Collins DL**, Lupien S, Pruessner JC. (2019) "The hippocampal-to-ventricle ratio (HVR): Presentation of a manual segmentation protocol and preliminary evidence." *Neuroimage*; 203:116108. doi: [10.1016/j.neuroimage.2019.116108](https://doi.org/10.1016/j.neuroimage.2019.116108)
- Tahaei MS, Reader AJ, **Collins DL** (2019). "Two Novel PET Image Restoration Methods Guided by PET-MR Kernels: Application to Brain Imaging." *Med Phys.*; 46(5):2085-2102. doi: [10.1002/mp.13418](https://doi.org/10.1002/mp.13418).
- Xiao Y, Lau JC, Anderson T, DeKraker J, **Collins DL**, Peters T, Khan AR. (2019) "An accurate registration of the BigBrain dataset with the MNI PD25 and ICBM152 atlases". *Sci Data.*; 6(1):210. doi: [10.1038/s41597-019-0217-0](https://doi.org/10.1038/s41597-019-0217-0)
- Zeighami Y, Fereshtehnejad SM, Dadar M, **Collins DL**, Postuma RB, Dagher A. (2019) "Assessment of a prognostic MRI biomarker in early de novo Parkinson's disease." *Neuroimage Clin.*; 24:101986. doi: [10.1016/j.nicl.2019.101986](https://doi.org/10.1016/j.nicl.2019.101986).

Presentation/Conferences

Collins DL: "Recent Progress in Medical Image Processing and Deep Learning for Multiple Sclerosis". *33rd International congress for Computer Assisted Radiology and Computer Aided Surgery*, Le couvent des Jacobins, Rennes France - June 22, 2019 (Invited speaker)

Collins DL: "Intelligence artificielle, analyse d'images médicales et bias - est-ce qu'il faut s'inquiéter?" *CHU Ponchaillou*, Rennes, France - June 17, 2019 (Public talk)

Patents

Currently under revision.

US Provisional Patent application: *Simultaneous segmentation and grading of structures for state determination*, **D. L. Collins** & Pierrick Coupé, Filed: September 16, 2011. (US 61/535,720 / P1310USPR)

Canadian Patent application: *Simultaneous segmentation and grading of structures for state determination*, **D. L. Collins** & Pierrick Coupé, Filed: September 16, 2011.

FUNNELL, W. Robert J.

Bagatto M, Moodie S, Fitzpatrick E, Kealey C, Campbell B, Aiken S & Canadian Infant Hearing Task Force (2019): "Status of early hearing detection and intervention programs in Canada: Results from a country-wide survey". *Canadian Journal of Speech-Language Pathology and Audiology*; in press

Soleimani M, **Funnell WRJ** & Decraemer WF (2020) "A non-linear viscoelastic model of the incudostapedial joint". *J Assoc Res Otolaryngol.*; 21(1):21-32. doi:[10.1007/s10162-019-00736-0](https://doi.org/10.1007/s10162-019-00736-0)

Akinpelu OV, **Funnell WRJ** & Daniel SJ (2019) "High-frequency otoacoustic emissions in universal newborn hearing screening". *Int J Ped Otorhinolaryngol*; 127:109659.

doi: [10.1016/j.ijporl.2019.109659](https://doi.org/10.1016/j.ijporl.2019.109659)

Presentations/Conferences

Qian D & **Funnell WRJ**: "Finite-element modelling of middle-ear vibrations under pressurization". *42nd Assoc. Res. Otolaryngol. MidWinter Mtg.*, Baltimore, ML - February 9-13th, 2019

Golabbakhsh M, Wang X, MacDougall D, Farrell J, Landry T, **Funnell WRJ** & Adamson R: "Finite-element modelling based on optical coherence tomography and X-ray microCT data for the same human middle ear". *42nd Assoc. Res. Otolaryngol. MidWinter Mtg.*, Baltimore, ML - February 9-13th, 2019

Kose O, **Funnell WRJ** & Daniel SJ: "In-vivo vibration measurements of the gerbil eardrum under quasi-static pressures". *42nd Assoc. Res. Otolaryngol. MidWinter Mtg.*, Baltimore, ML - February 9-13th, 2019

Feizollah S, Soleimani M & **Funnell WRJ**: "Imaging of the gerbil incudostapedial joint". *42nd Assoc. Res. Otolaryngol. MidWinter Mtg.*, Baltimore, ML - February 9-13th, 2019

Haidar, Ahmad

Haidar, Ahmad (2019) "Insulin-and-Glucagon Artificial Pancreas Versus Insulin-Alone Artificial Pancreas: A Short Review." *Diabetes Spectrum*; 32(3):215-221. doi: [10.2337/ds18-0097](https://doi.org/10.2337/ds18-0097).

El Fathi, Anas, Emilie Palisaitis, Benoit Boulet, Laurent Legault, and **Ahmad Haidar** (2019) "An Unannounced Meal Detection Module for Artificial Pancreas Control Systems." *2019 American Control Conference (ACC)*, pp. 4130-4135, Philadelphia, USA - July 10-12, 2019. doi: [10.23919/ACC.2019.8814932](https://doi.org/10.23919/ACC.2019.8814932)

Taleb, Nadine, André C. Carpentier, Virginie Messier, Martin Ladouceur, **Ahmad Haidar**, and Rémi Rabasa-Lhoret (2019) "Efficacy of artificial pancreas use in patients with type 2 diabetes using intensive insulin therapy: a randomized crossover pilot trial." *Diabetes Care*; 42(7):e107-e109. doi: [10.2337/dc18-2406](https://doi.org/10.2337/dc18-2406)

Haidar, Ahmad, Michael Tsoukas, Sarah Bernier-Twardy, Jean Francois Yale, Joanna Rutkowski, Anne Bossy, Evelyne Pytka, Anas El Fathi, Natalia Strauss, and Laurent Legault. "A Novel Dual-Hormone Insulin-and-Pramlintide Artificial Pancreas for Type 1 Diabetes: A Randomized Controlled Crossover Trial". *Diabetes Care*; 43(3):597-606. doi: [10.2337/dc19-1922](https://doi.org/10.2337/dc19-1922).

Presentations/Conferences

Haidar, A. *University of Ottawa Healthcare Symposium*, Ottawa, Canada - January 26, 2019. (Invited speaker)

Haidar A. “Pramlintide in the Artificial Pancreas”. *Advanced Technology and Therapeutics in Diabetes Conference*, Berlin, Germany – February 20-23, 2019 (Invited speaker)

Haidar A. “McGill Artificial Pancreas Research: Combining Drugs with Algorithms”. *Diabetes Technology Center*, University of Virginia, Virginia, USA – July 15-16, 2019. (Invited speaker)

Haidar A. “Pumps, sensors and control algorithms to ameliorate the performance of artificial pancreas”. *Centre of Mathematical Research*, Université de Montréal, Canada - Nov 11, 2019. (Invited speaker)

Haidar A. “Next Technologies for the Treatment of Type 1 Diabetes: Closed-Loop and Open-Loop Insulin Delivery Systems”. *MUHC Combined Endocrine Rounds*, Montreal, Canada – November 28, 2019 (Invited speaker)

Patents

Haidar A. “An Algorithm for Automatic Boluses for the Artificial Pancreas”. Filed 2019

Haidar A. “Insulin and Pramlintide Delivery Systems, Methods, and Devices”. Filed 2019

Haidar A. and El Fathi A. “Method and Server for Determining Whether Diabetic Subject Has Eaten a Meal”. Filed 2019.

JUNCKER, David

P. Goyette, É. Boulais, F. Normandeau, G. Laberge, **D. Juncker**, and T. Gervais (2019) “Microfluidic multipoles: theory and applications”. *Nature Communications*, 10(1):1781. doi: [10.1038/s41467-019-09740-7](https://doi.org/10.1038/s41467-019-09740-7)

K.F.A. Clancy, S. Dery, V. Laforte, P. Shetty, **D. Juncker**, D.V. Nicolau (2019) “Protein Microarray Spots are Modulated by Patterning Method, Surface Chemistry and Processing Conditions”. *Biosensors and Bioelectronics*, 130, 397-407. doi: [10.1016/j.bios.2018.09.027](https://doi.org/10.1016/j.bios.2018.09.027).

J.D. Munzar, A. Ng, and **D. Juncker** (2019) “Duplexed Aptamers: History, Design, Theory, and Application to Biosensing”. *Chemical Society Reviews*, 48(5):1390-1419. doi: [10.1039/c8cs00880a](https://doi.org/10.1039/c8cs00880a).

J.A. Hernández-Castro, K. Li, J. Daoud, **D. Juncker**, and T. Veres (2019) “Two-level submicron high porosity membranes (2LHPM) for the capture and release of white blood cells (WBCs)”. *Lab on a Chip*, 19(4):589-597. doi: [10.1039/c8lc01256c](https://doi.org/10.1039/c8lc01256c).

Presentations/Conferences

M. Yafia, A. Ng, O. Ymbern and **D. Juncker** “Single layer domino capillarics for performing advanced autonomous bioassays”. *Proceedings of MicroTAS 2019, The Twenty-Third*

International Conference on Miniaturized Systems for Chemistry and Life Sciences, Basel, Switzerland - October 28-31, 2019. (Oral and Poster presentation)

O. Ymbern, A. Tavakoli, M. Yafia, A. Ng and **D. Juncker** “3D printed domino capillare circuits with integrated reagents and sample autonomous aliquoting for diagnostics”. *Proceedings of MicroTAS 2019, The Twenty-Third International Conference on Miniaturized Systems for Chemistry and Life Sciences*. Basel, Switzerland - October 28-31, 2019. (Poster presentation)

M. Shen, R. Martel, A. Ng and **D. Juncker** “Extravascular Protein Profiling of Cancer Cell-Derived Exosome Subpopulations Using Antibody Microarrays”. *The conference on Extracellular Vesicles in Cancer, ISEV-MRS joint conference*, Nashville TN - Aug 2-4th, 2019.

A. Al-Ameri, C. Cassel de Camps, J. P. Clément, and **D. Juncker** “Angiogenesis-Primed Microfluidic Device for Organoid Vascularization and Growth”. *Gordon Research Conference (Angiogenesis)*, Salve Regina University, Newport - August 4th - 9th, 2019.

A. Meunier, J. A. Hernández-Castro, S. Kheireddine, S. Al Habyan, B. Péant, T. Veres, L. McCaffrey, D. Provencher, A.M. Mes-Masson, and **D. Juncker** “Gravity-based Microfiltration Reveals Unexpected Prevalence of Circulating Tumor Cell Clusters in Ovarian Cancer”. *European Association for Cancer Research and the European Society for medical oncology*, Bergamo, Italy - May 2019

E. Zhang, A. Alameri, JP. Clement, M. Tuznik, D. Rudko, T. Kennedy and **D. Juncker** “Fabrication of Silicone Elastomer Based Ultra-soft Brain Implant”. *9th International IEEE EMBS Conference on Neural Engineering*, San Francisco, United States - March 2019

E. Zhang, A. Alameri, JP. Clement, M. Tuznik, D. Rudko, T. Kennedy and **D. Juncker** “Fabrication of Silicone Elastomer Based Ultra-soft Brain Implant”. *McGill Neuro Engineering Research Discussion*, Montreal Neurological Institute and Hospital, Montreal, Canada - February 2019

D. Juncker “Antibody Microarrays and Nanoarrays for the Analysis of Proteins and Extracellular Vesicles”. *Next-Generation Protein Analysis and Detection Conference (3rd Edition)*, Belgium - December 2nd, 2019 (Invited speaker)

D. Juncker “3D-printing and Capillary Microfluidics for point-of-care diagnostics, tissue engineering and organ-on-a-chip”. *KUL Biosensors Seminar series*, Louvain, Belgium - December 3rd, 2019 (Invited speaker)

D. Juncker “3D-printing and Capillary Microfluidics for point-of-care diagnostics, tissue engineering and organ-on-a-chip”. Seminar at McMaster University, Hamilton, Canada - October 2nd, 2019 (Invited speaker)

D. Juncker “3D-printing and Capillary Microfluidics for point-of-care diagnostics, tissue engineering and organ-on-a-chip”. *Colloquium at Department of Physics*, University of Ottawa, Ottawa, Canada - September 14th, 2019 (Invited speaker)

D. Juncker “Antibody-based Micro and Nanotechnologies for Multiplexed Protein and Exosome Analysis of Complex Samples”. *Seminar at Faculté de Pharmacie, Université de Montréal, Montreal, Canada - August 20th, 2019* (Invited speaker)

D. Juncker “Micro and Nanotechnologies for the Analysis of Liquid Biopsies” *McGill University 5th BBMESS Symposium, Montreal, Canada - May 14th, 2019* (Invited speaker)

D. Juncker “May the capillary Force Be with You: Microfluidic Capillarie Circuits “. *Harvard Bioengineering Seminar series, Boston, United States - April 25th, 2019* (Invited speaker)

D. Juncker “Antibody-based micro and nanotechnologies for multiplexed protein and exosome analysis of complex samples”. *McGill University Research Centre on Complex Traits (MRCCT), Montreal, Canada - April 03rd, 2019*

D. Juncker “Microfluidics for rapid diagnostics, tissue engineering, and isolation of circulating tumor cell clusters”. *Seminar in Medical Physics Unit, McGill University, Montreal, Canada - January 18th, 2019* (Invited speaker)

Patent

D. Juncker “Nanoarray-in-microarray multiplexed analysis methods and systems, US10300485B2”. Awarded in 2019

D. Juncker “COLOCALIZATION-BY-LINKAGE SANDWICH ASSAYS FOR MULTIPLEXING, Docket No 57392-701.101”. Filed 2. October 2019

KEARNEY, Robert E

Shalish W., Kanbar L., Kovacs L., Chawla S., Keszler M., Rao S., Panaitescu B., Laliberte A., Precup D., Brown K., **Kearney R.E.**, Sant'Anna G.M. (2019) “The Impact of Time Interval between Extubation and Reintubation on Death or Bronchopulmonary Dysplasia in Extremely Preterm Infants”. *J Pediatrics*; 205:70-76.e2. doi: [10.1016/j.jpeds.2018.09.062](https://doi.org/10.1016/j.jpeds.2018.09.062)

Amiri P., **Kearney R.E.** (2019) “Ankle intrinsic stiffness changes with postural sway”. *J Biomech*; 85: 50-58. doi: [10.1016/j.jbiomech.2019.01.009](https://doi.org/10.1016/j.jbiomech.2019.01.009)

Latremouille S., Shalish W., Kanbar L., Lamer P., Rao S., **Kearney R.E.**, Sant'Anna G.M. (2019) “The effects of nasal continuous positive airway pressure and high flow nasal cannula on heart rate variability in extremely preterm infants after extubation: A randomized crossover trial”. *Pediatr Pulmonol*; 54: 788-796. doi: [10.1002/ppul.24284](https://doi.org/10.1002/ppul.24284)

Amiri P., Mohebbi A., **Kearney R.** (2019) “Experimental Methods to Study Human Postural Control”. *J. Vis. Exp.*; 151: e60078. doi:[10.3791/60078](https://doi.org/10.3791/60078)

Shalish W., Kanbar L., Kovacs L., Chawla S., Keszler M., Rao S., Latremouille S., Precup D., Brown K., **Kearney R.E.**, Sant'Anna G.M. (2019) “Assessment of Extubation Readiness

- Using Spontaneous Breathing Trials in Extremely Preterm Neonates". *JAMA Pediatrics*; 174(2):178-185. doi: [10.1001/jamapediatrics.2019.4868](https://doi.org/10.1001/jamapediatrics.2019.4868)
- Amiri P., **Kearney R.E.** (2019) "Patterns of Muscle Activation and Modulation of Ankle Intrinsic Stiffness in Different Postural Operating Conditions". *Journal of Neurophysiology*; 123(2):743-754. doi: [10.1152/jn.00558.2019](https://doi.org/10.1152/jn.00558.2019).
- Amiri P., **Kearney R.E.** (2019) "Ankle Intrinsic Stiffness Changes with Postural Sway". *J. Biomechanics* 85:50-58. doi: [10.1016/j.jbiomech.2019.01.009](https://doi.org/10.1016/j.jbiomech.2019.01.009)
- Latremouille S, Shalish W, Kanbar L, Lamer P, Rao S, **Kearney R**, SANT ANNA G. (2019) "The effects of nasal continuous positive airway pressure and high flow nasal cannula on heart rate variability in extremely preterm infants after extubation: a randomized crossover trial". *Pediatric Pulmonology* 54(6):788-796. doi: [10.1002/ppul.24284](https://doi.org/10.1002/ppul.24284)
- Jowett N., **Kearney R.E.**, Knox C.J., Hadlock T.A. (2019) "Toward the Bionic Face: A novel neuroprosthetic device paradigm for facial reanimation comprising neural blockade and functional electrical stimulation". *Plastic and Reconstructive Surgery* 143(1):62e-76e. doi: [10.1097/PRS.00000000000005164](https://doi.org/10.1097/PRS.00000000000005164)

Presentations/Conferences

Amiri, P. and **R.E. Kearney** "A Closed-Loop Method to Identify EMG-Torque Dynamics in Human Balance Control". *41st Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Berlin, Germany - July 23-27, 2019

Shalish W., Kanbar L., Latremouille S., Chawla S., Lovacs A.L., Keszler M., Rao S., Onu C.C., Precup D., **Kearney R.E.**, Sant Anna G. "Automated Prediction of EXTubation readiness in extremely preterm infants". *APEX multicenter study Pediatric Academic Societies (PAS)*, Baltimore, Maryland - April 27-30, 2019.

Amiri P., **Kearney R.** "EMG-Torque Dynamic Relationships Are Different for Central and Stretch Reflex Contributions to Human Postural Control". *XXVII Congress of the International Society of Biomechanics (ISB2019)*, Calgary, Alberta - 31 July-4 August, 2019

Kearney, R.E. "Using System Identification to Explore Human Joint Stiffness Design of Robotics and Embedded systems". *Analysis, and Modeling Seminar (DREAMS)*, Berkeley, University of California, Berkeley - November 25, 2019

RUDKO, David

- Zha C., Farah C.A., Fonov V., Holt R., Ceroni F., Raggae N., **Rudko D.**, Sossin W.S. (2019) "Disruption of Capn15 in mice leads to brain and eye deficits," *BioRxiv*. doi: [10.1101/763888](https://doi.org/10.1101/763888).
- Maranzano J., Dadar M., **Rudko D.A.**, De Nigris D., Elliott C., Cook S., Wolansky L., Collins D.L., Arnold D.L., Narayanan S. (2019) "Comparison of Multiple Sclerosis Cortical Lesion Types Detected by Multicontrast 3 T and 7 T MRI," *American Journal of Neuroradiology*; 40(7):1162-1169. doi: [10.3174/ajnr.A6099](https://doi.org/10.3174/ajnr.A6099).

Presentations/Conferences

Liu S., Misic B., Gati J.S., Menon R.S., Morrow S., Narayanan S., Arnold D.L., **Rudko D.A.** "Resting State Connectivity Alterations in Multiple Sclerosis Revealed by 7 T MRI," *Montreal Neuroinflammation Symposium*, Montreal, Canada - December 13, 2019 (refereed presentation).

Liu S., Misic B., Gati J.S., Menon R.S., Morrow S., Narayanan S., Arnold D.L., and **Rudko D.A.** "Resting State Connectivity Alterations in Multiple Sclerosis Revealed by 7 T MRI". *MS Society of Canada, 2019 End MS Conference*, Calgary, Canada - December 8-11, 2019 (refereed presentation).

McGillivray S., Tuznik M., Chakravarty M., **Rudko D.A.**, Tardif C.L. "Hypomyelination-related behavioural deficits caused by social isolation in juvenile mice". *McGill University, Integrated Program in Neuroscience Annual Retreat*, Montreal, Canada - September 19-20, 2019 (refereed presentation)

Lis S., Misic B., Gati J.S., Menon R.S., Narayanan S., Arnold D.L., **Rudko D.A.** "Connectomics of Brain Demyelination in Multiple Sclerosis". *International Society for Magnetic Resonance in Medicine 2019 Annual Meeting*, Montreal, Canada – May 11-16, 2019 (refereed presentation).

Wu Z., Leppert I.R., **Rudko D.A.** "Direct Myelin Volume Fraction Mapping with Correction for Magnetization Transfer and Diffusion Effects Using a Four-pool White Matter Model". *International Society for Magnetic Resonance in Medicine 2019 Annual Meeting*, Montreal, Canada – May 11-16, 2019 (refereed presentation).

Jegathambal S.K.B., Mok K., **Rudko D.A.**, Shmuel A.S. "MRI-Guided Hierarchical Sectioning and Stitching of Brain Blocks for Alignment of Digitized Histology to Corresponding MR Images". *International Society for Magnetic Resonance in Medicine 2019 Annual Meeting*, Montreal, Canada – May 11-16, 2019 (refereed presentation).

Rudko D.A. " Principles of MRI and their Application to Novel Quantitative Contrasts". *Montreal Neurological Institute 2 International Training Course on Neuroimaging of Epilepsy*, Montreal, Canada - May 2019.

Rudko D.A. "Pre-Clinical Imaging Using Ultra-High Field MRI". *CIHR Cardiovascular Network (CVN) Summer School*, Montreal, Canada - August 2019.

PRAKASH, Satya

Westfall S, Lomis, Nikita and **Prakash S.** (2019) "A novel synbiotic delays Alzheimer's disease onset via combinatorial gut-brain-axis signaling in *Drosophila melanogaster*". *PLoS One*; 14(4):e0214985. doi: [10.1371/journal.pone.0214985](https://doi.org/10.1371/journal.pone.0214985).

- Westfall S, Lomis, Nikita and **Prakash S.** (2019) "Ferulic Acid Produced by *Lactobacillus fermentum* Influences Developmental Growth Through a dTOR-Mediated Mechanism". *Molecular Biotechnology*; 61(1):1-11.
doi: [10.1007/s12033-018-0119-y](https://doi.org/10.1007/s12033-018-0119-y)
- Tomar V, Kumar N, Tomar R, Sood D, Dhiman N, Dass SK, **Prakash S**, Madan J, Chandra R (2019) "Biological Evaluation of Noscapine analogues as Potent and Microtubule-Targeted Anticancer Agents". *Scientific Report*; 9(1):19542.
doi: [10.1038/s41598-019-55839-8](https://doi.org/10.1038/s41598-019-55839-8)
- Trisna Lim, Wei Ouyang, Christopher John Martoni, Nasri Balit and **Satya Prakash** (2019) "Artificial cell microcapsules containing live bacterial cells and activated charcoal for managing renal failure creatinine: preparation and in-vitro analysis". *EuroBiotech Journal*; Vol 3, issue 4. doi: [10.2478/ebtj-2019-0023](https://doi.org/10.2478/ebtj-2019-0023)

Presentations/Conferences

Prakash, S. "Microbiome in Human Health: Heart to Brain". *European Biotechnology Congress 2019*, Valencia, Spain - April 11-13, 2019 (Keynote speaker)

Patents

Prakash, S, P Arghya, STIM Dominique "Therapeutic viral microparticles for promoting stent biofunctionality and wound healing in vertebrate individuals" US Patent App. 16/105,498. (2019)

Prakash, S, P Arghya, STIM Dominique "Therapeutic Viral Microparticles". European Divisional Patent. Patent Application No. 14783183.8 National phase of PCT/CA2014/050369 number for DIV is 6044.121967EP2. (Filed on 18 April 2019).

TABRIZIAN, Maryam

- M. Rasouli, M. Tabrizian** (2019) "Ultra-Rapid Acoustic Micromixer for Synthesis of Organic Nanoparticles". *Lab Chip*; 19(19):3316-3325. doi: [10.1039/c9lc00637k](https://doi.org/10.1039/c9lc00637k).
- F. R. Castiello, J. Porter, P. Modarres, **M. Tabrizian** (2019) "Interfacial capacitance immunosensing using interdigitated electrodes: effect of the insulation/immobilization chemistry". *Physical Chemistry Chemical Physics*, 21(28):15787-15797. doi: [10.1039/c9cp02129a](https://doi.org/10.1039/c9cp02129a).
- S. Saadia, **M. Tabrizian** (2019) "A QCM-D biosensing strategy for investigating the real-time effects of oxidative stress on the viscoelastic properties of pre-osteoblast cells". *Sensors & Actuators: B. Chemical*, 293:235-246.
doi: [10.1016/j.snb.2019.04.154](https://doi.org/10.1016/j.snb.2019.04.154)
- L. Keller, Y. Idoux-Gillet, P. Schwinté, **L. Benameur, M. Tabrizian**, P. Auvray, F. Bornert, D. Offner, R. M. Gonzalo-Daganzo, E. Gómez Barrera, N. Benkirane-Jessel (2019) "A therapeutic bone wound dressing combined with stem cells for osteoarticular regeneration: the ARTiCAR preclinical safety study". *Nature Communication*; 10(1):2156. doi: [10.1038/s41467-019-10165-5](https://doi.org/10.1038/s41467-019-10165-5).

- S. Chen, A. Auriat, H Ismail, T. Li, A. Galuta, R. Sandarage, R. Wylie, D. X. B. Chen, S. Willerth, M. DeRosa, **M. Tabrizian**, X. Cao, and E. C. Tsai (2019) "Advancements in Canadian Biomaterials and Implications for Neurotraumatic Diagnosis and Therapies". *Processes*, 7(6), 336. doi: [10.3390/pr7060336](https://doi.org/10.3390/pr7060336)
- F. R. Castiello, **M. Tabrizian** (2019) "Gold nanoparticle amplification strategies for multiplex SPRI-based immunosensing of human pancreatic islet hormones". *Analyst*, 144(8):2541-2549. doi: [10.1039/c9an00140a](https://doi.org/10.1039/c9an00140a)
- P. Modarres, **M. Tabrizian** (2019) "Frequency Hopping Dielectrophoresis as a New Approach for Microscale Particle and Cell Enrichment". *Sensors & Actuators: B. Chemical*, 286:493-500. doi: [10.1016/j.snb.2019.01.157](https://doi.org/10.1016/j.snb.2019.01.157)
- K. Jahan, M. Mekhail, **M. Tabrizian** (2019) "A one-step fabrication of nanoapatite-chitosan scaffold as a potential soft and injectable construct for bone tissue engineering: An investigation of structural properties". *Carbohydrate Polymers*, 203:60-70. doi: [10.1016/j.carbpol.2018.09.017](https://doi.org/10.1016/j.carbpol.2018.09.017).
- F. R. Castiello, J. Porter, P. Modarres; **M. Tabrizian** (2019) "Interfacial capacitance immunosensing using interdigitated electrodes: effect of the insulation/immobilization chemistry". *Phys Chem Chem Phys*. 21(28):15787-15797. doi: [10.1039/c9cp02129a](https://doi.org/10.1039/c9cp02129a)
- N. DiStasio, H. Salmon, M. R. Rasouli, **M. Tabrizian** (2019) "Fast, inexpensive, and biocompatible fabrication protocol of 3D Endothelium-on-Chip using soft thermoplastic elastomer and wire molds". *MicroTAS*, Basel, Switzerland – October 27-31, 2019.
- M. R. Rasouli, **Maryam Tabrizian** (2019) "An Ultra-rapid Acoustic Micromixer by Boundary-driven Microstreaming of Integrated, Sharp-edges and Bubbles". *MicroTAS*, Basel, Switzerland – October 27-31, 2019.

Presentations/Conferences

- M. Tabrizian** "Applications of Hybrid Chitosan-Based Nanomaterials in Regenerative and Nano-medicine". *International Conference and Exhibition on Advanced & Nano Materials (ICANM)*, Montreal, Canada - August 12-14th 2019 (Keynote speaker)
- M. Tabrizian** "Microfluid perfusion systems for secretion fingerprint analysis of pancreatic islets", *Rachmiel Levine-Arthur Riggs Diabetes Research Symposium*, Pasadena, USA, April 10-13, 2019 (Keynote speaker)
- M. Tabrizian** "Chitosan-based nanomaterials for regenerative medicine and nanomedicine", *Faculty of Dentistry Research Seminar*, Montreal, Canada, October 30, 2019.
- M. Tabrizian** "Surface Plasmon Resonance Detection of Legionella Pneumophila", *DecBio'2019: Detection of Electrically Charged Biomolecules – workshop*, Sherbrooke, Canada, June 17-18, 2019.
- M. Saad, **M. Tabrizian**, S. Faucher "Discovery of two aptamers that bind to Legionella pneumophila", *CSM Conference*, Sherbrooke, Canada, June 10-13, 2019.

M. R. Rasouli, **M. Tabrizian** “An Ultra-rapid Acoustic Micromixer by Boundary-driven Microstreaming of Integrated, Sharp-edges and Bubbles”. *MicroTAS*, Basel, Switzerland, October 27 -31, 2019.

N. DiStasio, H. Salmon, M. R. Rasouli, **M. Tabrizian** “Fast, inexpensive, and biocompatible fabrication protocol of 3D Endothelium-on-Chip using soft thermoplastic elastomer and wire molds”. *MicroTAS*, Basel, Switzerland, October 27 -31, 2019.

K. Jahan, M. Murshed, **M. Tabrizian** “Injectable Chitosan Sponge for Cellular Encapsulation in Bone Repair Applications”. *Dentistry Research Day*, Montreal, Canada, April 12th, 2019.

Badan, C. Agnes, N. Ouatik, **M. Tabrizian** “A New Approach to the Treatment of Dental Caries Using Nano Silver Fluoride”. *NSF* April 2019

N. DiStasio, S. Lehoux, **M. Tabrizian** “VCAM-1 Targeted Poly (β -Amino Ester) Nanoparticles for Gene Delivery Under Flow and to the Endothelium”. *Society for Biomaterials (SFB) meeting*, Seattle, USA April 3-6, 2019.

C. Agnes, T. Baudequin, **M. Tabrizian** “Osteoblasts and Endothelial Cells co-Culture in Chitosan/ GDP Scaffold to Improve Angiogenesis and Osteogenesis in the Treatment of Critical Size Bone Defects”. *Society for Biomaterials (SFB) meeting*, Seattle, USA April 3-6, 2019.

J. Porter, R. F. Castiello, **M. Tabrizian** “Interfacial capacitance immunosensing using interdigitated electrodes: effect of the insulation/immobilization chemistry”. *ENBENG 2019*, Lisbon, Portugal, February 22–23, 2019.

R. Rasouli, **M. Tabrizian** “Rapid Microfluidic Mixer by Using Boundary-Driven Acoustic Streaming”. *ENBENG 2019*, Lisbon, Portugal, February 22–23, 2019.

TARDIF, Christine

Tullo, S., Patel, R., Devenyi, G.A., Salaciak, A., Bedford, S.A., Farzin, S., Wlodarski, N., **Tardif, C.L.**, Breitner, J.C.S., Chakravarty, M.M., the PREVENT-AD Research Group, (2019) “MR-based age-related effects on the striatum, globus pallidus and thalamus in healthy individuals across the adult lifespan”. *Human Brain Mapping*; 40(18): 5269-5288. doi: [10.1002/hbm.24771](https://doi.org/10.1002/hbm.24771).

Huck, J., Wanner, Y., Fan, A.P., Jäger, A.-T., Grahl, S., Schneider, U., Villringer, A., Steele, C.J., **Tardif, C.L.**, Bazin, P.-L., Gauthier, C.J., (2019) “High resolution atlas of the venous brain vasculature from 7 T quantitative susceptibility maps”. *Brain Structure and Function* 224(7): 2467-2485. doi: [10.1007/s00429-019-01919-4](https://doi.org/10.1007/s00429-019-01919-4)

Presentations/Conferences

Tardif, CL “Intracortical Myelin Imaging Using Inhomogeneous Magnetization Transfer Imaging” *CEST (Chemical exchange saturation transfer) Imaging Symposium*, Siemens

Healthineers and Ryerson University, Toronto, Canada, November 20, 2019

Tardif, CL “T1 mapping and T1-weighted/T2-weighted imaging”. *Educational lecture, International Society for Magnetic Resonance in Medicine*, Montreal, Canada, May 11, 2019

Tardif, CL “Multi-modal MRI of Cerebral Myelin “. *Annual Biomedical Engineering Symposium*, McMaster University, Hamilton, Ontario, April 26, 2019

Andrews D., Campbell J.S.W , Leppert I.R., Park D.J., Pike G.B., Polimeni J., **Tardif C.L.** “Efficient Whole Brain Tract-specific T1 Mapping with Slice-shuffled Inversion-recovery Diffusion-weighted Imaging at 3T”. Proceedings of the *Annual Meeting of the International Society for Magnetic Resonance in Medicine*, Montreal, Canada – May 11-16, 2019

Makowski, C., Lewis, J. D., Khundrakpam, B., **Tardif, C. L.**, Palaniyappan, L., Joobar, R., Malla, A. K., Shah, J., Bodnar, M., Chakravarty, M. M., Evans, A. C., Lepage, M., “Altered Hippocampal Centrality in Relation to Coordinated Changes of Intracortical Microstructure in First Episode Psychosis”. Proceedings *Congress of the Schizophrenia International Research Society*, Orlando, USA – April 10-14, 2019

Huck, J., Steele, C.J., Jäger, A.-T., Fan, A.P., Grahl, S., **Tardif, C.L.**, Schneider, U., Villringer, A., Bazin, P.-L., Gauthier, C.J., “The influence of draining veins on apparent grey matter volume changes caused by hypercapnia”. Proceedings of the *Annual Meeting of the International Society for Magnetic Resonance in Medicine*, Montreal, Canada - May 11-16, 2019

Makowski, C., Lewis, J. D., Khundrakpam, B., **Tardif, C. L.**, Palaniyappan, L., Joobar, R., Malla, A. K., Shah, J., Bodnar, M., Chakravarty, M. M., Evans, A. C., Lepage, M., “Altered Hippocampal Centrality of Coordinated Changes in Intracortical Microstructure in Psychosis”. Proceedings *Annual Meeting of the Organization for Human Brain Mapping (OHBM)*, Rome, Italy – June 9-13, 2019

Kwan, C, Bédard, D, Kang, M, Nuara, SG, Gourdon, JC, Mathieu, A, **Tardif, CL**, Massarweh, G, Durcan, Hamadjida, Fon, EA, Rosa-Neto, P, Frey, S, Huot, P, “Towards the development of a marmoset model of Parkinson's disease based on the spreading of human alpha-synuclein pre-formed fibrils”, *Neuroscience*, Chicago, USA – October 19-23, 2019

Huot, P, Kang, M, Bdair, H, Bédard, D, Nuara, SG, Gourdon, JC, Ross, K, Hopewell, R, Mathieu, A, Tardif, CL, Soucy, J-P, Massarweh, G, Rosa-Neto, P, Hamadjida, “A, Binding of [11C]-JNJ-42491239 in the marmoset brain: A positron emission tomography study”, *Neuroscience*, Chicago, USA - October 19-23, 2019