

Annual Report
Division of Endocrinology
Department of Medicine - Jewish General Hospital
January 1 - December 31, 2018

SUMMARY

Introduction

The Division of Endocrinology and Metabolism has continued its pursuit of excellence in patient care, research and training.

Clinical Activities:

Endocrinology is largely an outpatient specialty. Including the Gestational Diabetes Clinic and Bone and Osteoporosis Clinics that do not function in our premises, the number of visits per year exceeded 23,300. Outpatient clinics are run daily around the week by GFT's. Non-GFT's run outside the hospital at several locations. We also have established a triage system to see first those patients in most urgent need (e.g. decompensated diabetics, thyrotoxic patients). We have been limited by secretarial time available, which has not increased in over 7 years in spite the doubling of the numbers of patient visits. Although all staff physicians see patients spanning the whole spectrum of endocrine and metabolic diseases, some clinics are focused on a particular condition.

In-patient activities are centered on the Endocrine Consulting Service, attended by our staff physicians in a 2-week rotating schedule through the year. The endocrine service is largely covered by 9 of the 11 GFT's, including the physician scientists- with a minimum of 6 weeks per year. Volume of consults is approximately 1814/year. In addition, some of our staff is actively involved in CTU rotations. The Division does not have assigned beds and endocrine patients are admitted to general wards.

The Diabetes Lifeskills Program of self-management education for patients with diabetes has continued to function regularly with private donations. No additional resources have been provided this year for the essential program.

Outpatient Clinics:

Monday AM: General Endocrinology (Karaplis, Trifiro, Schweitzer); Thyroid Biopsies (Tamilia)
Monday PM: General Endocrinology (Karaplis, Assimakopoulos)

Tuesday AM: Thyroid (Tamilia); General Endocrinology (Assimakopoulos, Christopoulos, Schiffrin, Karaplis); Gestational Diabetic, Pav. H (Majdan)

Tuesday PM: General Endocrinology (Assimakopoulos, Schiffrin, Richards, Peters); Thyroid (Tamilia)

Wednesday AM: General Endocrinology (Majdan, Tamilia, Schweitzer, Trifiro, Karaplis); Gestational Diabetic, Pav. H (Kader)

Wednesday PM: General Endocrinology (Richards, Majdan, Tamilia); Lipid Clinic (Schweitzer), Osteoporosis (Karaplis, Berkson)

Thursday AM: General Endocrinology (Schiffrin, Tamilia, Christopoulos, Assimakopoulos, Majdan, Yu); Residents' General Endocrinology Clinic (Thursday or Friday)

Thursday PM: General Endocrinology (Schiffrin Assimakopoulos, Schweitzer), Diabetes Clinic (Peters)

Friday AM: General Endocrinology (Schweitzer, Trifiro, Christopoulos, Majdan, Yu); Resident's General Endocrinology Clinic (Thursday or Friday)

Friday PM: General Endocrinology (Yu)

Out Patient Clinic

Assimakopoulos

Half days per week

5 half days per week

Christopoulos

4-5 half days per week

Kader

N/A – relocated to LMC Clinic

Karaplis

3 half days per week

Majdan

5 half days per week + 1 half day Gestational Diabetes Clinic

Peters

2 half days per week + 1 half day Gestational Diabetes Clinic

Richards

2 half days per week

Schiffrin

4 half days per week

Schweitzer

5 half days per week

Tamilia

9 half days per week

Trifiro

4 half days per week

Yu

3 to 4 half days per week

1. Research and publications:

Research projects and publications are listed under Section II. Research activities and publications continue on the rise (see individual reports for details).

2. Teaching and learning (undergraduate and graduate):

The Division has continued to play an active role in joint activities with the other McGill Hospitals counterparts, such as Med-I Endocrine Physiology Course and Calcium Homeostasis, as well as hosting the Lipid-, Thyroid McGill Lectureships.

Our members continue to teach in McGill Graduate and Undergraduate courses such as Physiology, Advanced Endocrinology and Neuroendocrinology.

Dr. Christopoulos developed a tool validated by Diabetes Quebec for diabetes sick day management.

Dr. Michael Tamilia has continued to receive the recognition of our young colleagues and students as a truly exceptional teacher. Drs. Tina Kader, Peter Assimakopoulos, Stavroula Christopoulos, Agnieszka Majdan and Morris Schweitzer continue to be remarkably active in CME activities primarily addressed to general practitioners, internists and specialists.

Overall, the Division of Endocrinology is one of the most active in contributing its staff to teaching (Professional Skills and Introduction to Internal Medicine and Physiology), Clinical Teaching Unit (CTU) and Consult Service coverage within the Department of Medicine at the Jewish General Hospital:

Clinical Teaching Unit (CTU)	Weeks per year
Christopoulos	2 weeks
Karaplis	2 weeks
Majdan	4 weeks
Trifiro	4 weeks

Consult Service	Weeks per year
Assimakopoulos	5 weeks
Christopoulos	8 weeks
Karaplis	4 weeks
Majdan	8 weeks
Peters	2 weeks
Richards	6 weeks
Tamilia	8 weeks
Trifiro	10 weeks
Yu	11 weeks

Research Trainees Supervision

Christopoulos: As well as having taken over the role of Site Director for the Endocrinology Post-Graduate Training Program Committee at the Jewish General Hospital, she is also running a continuity clinic with Endocrine Fellow Suhaib Radi until June of 2020.

Karaplis: In Collaboration with Dr. Mark Lipman, supervised postdoctoral fellows: Drs. Xiuying Bai, Dibeyendu Panda and Hans Christian Zaun. A member of the Ph. D. Thesis Committee for Rui Zhang who is a graduate student for Dr. Richard Kremer.

Richards: Postdoctoral fellow: Stephanie Ross;
 PhD students: John Morris (Human Genetics), Despoina Manousaki (Human Genetics) and Agustin Cerani (Epidemiology), Tomoko Nakanishi
 Clinical Fellows: Adil Harroud (Neurology) and Tricia Peters (Endocrinology)
 INDS-301 – 18 hours

Tamilia: 2 Endocrine Residents: Endocrine Tumour Research: Vincent Larouche & Suhaib Radi

Trifiro: Co-Supervisor to 3 MSc. Students; 1 PhD student

Medical Students

- (i) Metabolic Bone Disease in Unit 5, Med I; preparation of lecture notes, case study, and quiz for students and organizing small group tutors.
- (ii) One 1-hour lecture on metabolic bone disorders and two 1.5-hour small group sessions
- (iii) Adrenal Lectures in Unit 4, Med I – **Dr. Stavroula Christopoulos** – 2 half days per year
- (iv) Physiology, Med I, II, III; small group sessions – **Dr. Agnieszka Majdan** 5-6 half days per year
- (v) Thyroid physiology and pathophysiology in clinical medicine, Med I – **Dr. Michael Tamilia** – 2 hour lecture

Residents

- (i) Core lectures in Endocrinology – **Dr. Stavroula Christopoulos** (2 half days per year)
- (ii) Simulated oral examination in Internal Medicine

Postgraduate Students

- (i) Advances in Human Genetics: A post graduate course offered by the Department of Human
- (ii) Genetics: Three 1.5-hr lectures on the genetics of metabolic bone diseases.
- (iii) Advanced Endocrinology II – Dr. Michael Tamilia – 3 hours
- (iv) Endocrine Tumour Fellowship - Dr. **Michael Tamilia** – Dalal Almedmadi until June 30, 2019

Endocrine Residents (Fellows) and Medical Residents doing elective rotations participate in all our clinical activities. They are under the direct supervision of the Attending on service. Residents must attend clinics while not busy with the in-patient service and patients in Emergency. Some clinics are compulsory: Gestational Diabetes, Thyroid, Lipid and Diabetes Clinic. Our Division has become very popular for elective rotations among residents and students. All trainees rotating through the Division must attend Endocrine Grand Rounds (every Thursday from 11:30-12:30). The McGill Endocrine Teaching Program at large is highly rated by the trainees. Our weakest mark is on premises and facilities for Endocrine Residents.

In addition to these tutorial activities, our Division offers a yearly cycle of lectures on essential endocrinology for residents and non-endocrinologists in general. Our Division also actively participates in the undergraduate teaching of Endocrine Physiology and Calcium Homeostasis (Med-I Physiology) with members being small group tutors this year (Assimakopoulos, Kader, Karaplis, Majdan, Schiffrin, and Trifiro). Our GFTs' have also been very active on CME accredited activities. Dr. Tina Kader has been traditionally active in CME to various groups of physicians, paramedical personnel, as well as in giving talks to the community at large on the prevention of obesity and diabetes. Ms. Joyce Arsenault (Nurse, Certified Diabetes Educator), Ms. Laura Bergmame (Nurse, Certified, Diabetes Educator) and Ms. Sondra Sherman (Dietitian, Certified Diabetes Educator) have worked together with Dr. Tina Kader in this latter endeavor.

Endocrine Grand Rounds, under the direction of Dr. Mark Trifiro, have continued to be a great success because of the timeliness of the subjects, the sensible balance of basic and clinical science and the quality of the invited speakers. Endocrine Grand Rounds are given weekly on Thursdays from September to June.

3. Involvement in the community:

Both Laura Bergmame (Nurse) and Sondra Sherman (Dietitian) participated in the JDRF (Juvenile Diabetes Research Foundation) TELUS Walk to Cure Diabetes in 2017.

Sondra Sherman is member of national Executive Marketing Committee and Co-Chair of Montreal Diabetes Education Chapter of Diabetes Canada. She co-chaired the November 12, 2017 Diabetes GPS Conference, first of its kind in Montreal, for patients with Type I and II diabetes at Ruby Foo's Hotel. In April-May of 2017, Sondra Sherman was a guest speaker at diabetes chapter in Nova Scotia and New Brunswick

4. Partnerships:

Dr. Trifiro and Dr. Tamilia are collaborating in redeveloping new and novel therapeutics in the treatment of thyroid cancer both early stage and late stage disease. This research uses nanotechnology therapeutics developed in Dr. Trifiro's laboratory; specifically it incorporates multiwall carbon nanotubes decorated with anti TSH receptor antibodies or recombinant TSH to direct the nanotubes to a thyroid cell surface. Once targeted simple near infra-red exposure triggers significant heat generation between the nanoparticles to destroy cells. This work is ongoing.

The JGH Division of Endocrinology participates in the quarterly combined Endocrine Rounds held by the McGill Endocrine Division.

5. Milestones:

In October of 2018, we gained a formidable Clinician-Scientist named Dr. Tricia Peters.

6. Honours, awards, and prizes:

Dr. J. Brent Richards was one of two Canadians who were elected as a member of the American Society of Clinical Investigations. "The ASCI is an honor society of physician-scientists, those who translate findings in the laboratory to the advancement of clinical practice.

Dr. J. Brent Richards was elected to the Royal Society of Canada College of New Scholars, Artists and Scientists. Dr. Richards studies the genetic determinants of common, aging-related endocrine diseases, and the ways in which these findings can be applied to improving clinical care.

The Department of Medicine awarded **Dr. Oriana Yu** a Clinical Research Award in the amount of \$12,000 (March 2017-April 2019).

Dr. Oriana Yu was also given a Fonds de recherche du Québec – Santé Salary Award Junior 1 (\$136,363.00 over 4 years: January 2019-December 2022)

Ms. Sondra Sherman, Dietitian received the Canadian Diabetes Association 2016-2017 Diabetes Educator of the Year Award.

7. Fundraising: None reported

SECTION I - DIVISION STATUS UPDATE

1. Mission and objectives of the Division

The division continues to place a high priority on patient care and in doing so seeks new clinical recruits either as full-time or as part time members.

Other priorities include the expansion of both clinical research and basic research personnel. This will be a very arduous task given the many roadblocks at the university, government and hospital level; however the Division remains confident that when the right recruits come along, it will find the mechanisms to have them join its staff.

2. A nominative list of academic staff, their academic rank

Dr. Mark A. Trifiro - Chief, Professor (GFT-U)
Dr. Peter Assimakopoulos - Associate Professor (GFT-H)
Dr. Stavroula Christopoulos - Assistant Professor (GFT-H)
Dr. Tina Kader - Associate Professor (GFT-H)
Dr. Andrew Karaplis - Professor (GFT-U)
Dr. Agnieszka Majdan - Assistant Professor (GFT-H)
Dr. John Brent Richards - Associate Professor (GFT-U)
Dr. Alicia Schiffrin - Professor (GFT-U)
Dr. Morris Schweitzer - Associate Professor (GFT-H)
Dr. Michael Tamilia - Associate Professor (GFT-H)
Dr. Oriana Yu - Assistant Professor (GFT-H)
Dr. Tricia Peters – Assistant Professor (GFT-H)
Dr. Miltiadis Paliouras – Assistant Professor

SECTION II - GRANTS, PUBLICATIONS, AND SERVICE OUTSIDE OF MCGILL

1. Grants and awards received

Andrew Karaplis

- 1) CHIR Project Grant, September 15, 2017 competition.
CYP24A1 Enzymatic Activity in FGF23-Mediated Renal Phosphate Wasting Disorders
5-Year Support. Role: PI. Amount Received: \$895,050.
- 2) Kidney Foundation of Canada
CYP24A1 Enzymatic Activity in FGF23-Mediated Renal Phosphate Wasting Disorders (declined due to overlap)
2 Year Support. Role: PI. Amount Received: \$100,000.

Tricia Peters

- 1) LDI Operating Grant. \$50,000 per year for 3 years.
- 2) JGH Department Salary Award \$50,000 per year for 3 years

Oriana Yu

- 1) Co-applicant Use of Levothyroxine for Subclinical Hypothyroidism in Pregnancy
2018/1 - 2020/1 Canadian Institutes of Health Research (CIHR)
Project Grant
Total Funding - 175,950 (Canadian dollar)
Funding Competitive?: Yes
- 2) Co-applicant Incretin-based Drugs and the Risk of Adverse Renal Outcomes
2016/3 - 2018/3 Canadian Institutes of Health Research (CIHR)
Project scheme
Total Funding - 215,000 (Canadian dollar)
Funding Competitive?: Yes
- 3) Principal Applicant: Research Scholar Junior 1 Salary Award
2019/1-2022/12 Fonds de Recherche Santé Québec (FRSQ)
Research Scholar Junior 1 Salary Award
Total Funding- (Canadian Dollar)
Funding Competitive?: Yes
- 4) Clinical Research Award \$12,000 over one year, awarded by the Department of Medicine at the Jewish General Hospital (March 2017-April 2019)

Miltiadis Paliouras

- 1) Cancer Research Society
10/2018-09/2020
Role: Principle Investigator
Amount: \$120,000
- 2) McGill – Global Health Program
06/2018-12/2019
Role: Co-applicant
Amount: \$75,000
- 3) PSVT – Ministère de l'Économie, de la Science et de l'Innovation – Guzzo Nano-Research Corp.
04/2018-03/2019
Role: Co-Principle Investigator
Amount: \$183,000

Michael Tamilia

- 1) Received support from the Department of Medicine of the Jewish General Hospital \$18,000 for 2 years.

Morris Schweitzer

- 1) Characterization of the PCSK9 gene and structure/function analysis of the PCSK9 protein in a family with very low LDL-cholesterol
Pfizer
Principle Investigator
Amount: \$30,000 March 2017-March 2019
- 2) Impact of PCSK9 neutralizing antibodies on hepatic steatosis in a mouse model
Department of medicine
Principle Investigator
Amount: \$24,000
- 3) Epigenetic and Proteomic Modification in Abdominal Aortic Aneurysms
Principle Investigator
Amount: \$30,000, March 2016-Maych 2018

Mark Trifiro

- 1) PSVT
Principle Investigator
Amount: \$250,000 for 2 years
- 2) TransmedTec PI \$600,000 for 2 years
- 3) Cancer Research Society
Co-Principle Investigator
Amount: \$200,000 for 2 years
- 4) Planetary Health Seed McGill Grant
Principle Investigator
Amount: \$75,000 for 1 year

Brent Richards

- 1) Canadian Institutes of Health Research (CIHR) Project Grant. Genetically Identified and Validated Biomarkers for Osteoporosis.
Principle Investigator: Brent Richards
Collaborators: Celia Greenwood, Michael Pollack
Amount: \$983, 026 over 3 years
- 2) Biogen Grant. GWAS for Cognition and Cognitive Decline.
Principle Investigator: Brent Richards
Initiated Grant: \$85, 150 over 1 year

2. Scholarly works published in the 2018 calendar year:

Assimakopoulos, Peter

- 1) Goldenberg RM, **Assimakopoulos P**, Gilbert JD, Gottesman IS, Yale JF. (2018). A Practical Approach and Algorithm for Intensifying Beyond Basal Insulin in Type 2 Diabetes. *Diabetes Obes Metab.* 2018 Sep;20(9):2064-2074. doi: 10.1111/dom.13337. Epub 2018 May 24.

Karaplis, Andrew

- 1) Zhu Q, Zhou X, Zhu M, Wang Q, Goltzman D, **Karaplis A**, Miao D. (2018). Endogenous Parathyroid Hormone-Related Protein Compensates for the Absence of Parathyroid Hormone in Promoting Bone Accrual In Vivo in a Model of Bone Marrow Ablation. *J Bone Miner Res.* 2018 Dec;33(12):2239-2241. doi: 10.1002/jbmr.3582. Epub 2018 Nov 12.
- 2) Zhang Y, Chen G, Gu Z, Sun H, **Karaplis A**, Goltzman D, Miao D. (2018). DNA damage checkpoint pathway modulates the regulation of skeletal growth and osteoblastic bone formation by parathyroid hormone-related peptide. *Int J Biol Sci.* 2018 Apr 5;14(5):508-517. doi: 10.7150/ijbs.23318. eCollection 2018.
- 3) Panda DK, Bai X, Sabbagh Y, Zhang Y, Zaun HC, Karellis A, Koromilas AE, Lipman ML, **Karaplis AC**. (2018). Defective interplay between mTORC1 activity and endoplasmic reticulum stress-unfolded protein response in uremic vascular calcification. *Am J Physiol Renal Physiol.* 2018 Jun 1;314(6):F1046-F1061. doi: 10.1152/ajprenal.00350.2017. Epub 2018 Jan 10.

Peters, Tricia

- 1) **Peters TM**, Haidar A. (2018). Dual-hormone artificial pancreas: benefits and limitations compared with single-hormone systems. *Diabetic Medicine* 2018 Apr;35(4):450-459. doi: 10.1111/dme.13581. Epub 2018 Feb 11.
- 2) **Peters TM**, Pilote L. (2018). Le sexe, le diabète et les maladies cardiovasculaires : le fardeau psychosocial supérieur chez les femmes atteintes de diabète et du syndrome coronarien aigu prématuré. *Les Actualités du cœur*, 20(2):9-12, 2018.
<http://www.coeuretavc.ca/ce-que-nous-faisons/publications>

Richards, Brent

- 1) Harroud A, **Richards JB**. (2018). Mendelian randomization in multiple sclerosis: A causal role for vitamin D and obesity? *Multiple Sclerosis*. [IF: 4.8]. 24(1):80-85. doi: 10.1177/1352458517737373.
- 2) Moayyeri A, Cheung CL, Tan KC, Morris JA, Cerani A, Mhoney RP, **Richards JB**, Hammond C, Spector TD, Menni C. (2018). Metabolomic pathways to osteoporosis in middle-aged women: A genome-metabolome-wide Mendelian randomization study. *J Bone Miner Res.* [IF: 6.3]. 33(4):643-650. doi: 10.1002/jbmr.3358.

- 3) Baird DA, Evans DS, Kamanu FK, Gregory JS, Saunders FR, Giuraniuc CV, Barr RJ, Aspden RM, Jenkins D, Kiel DP, Orwoll ES, Cummings SR, Lane NE, Mullin BH, Williams FM, **Richards JB**, Wilson SG, Spector TD, Faber BG, Lawlor DA, Grundberg E, Ohlsson C, Pettersson-Kymmer U, Capellini TD, Richard D, Beck TJ, Evans DM, Paternoster L, Karasik D, Tobias JH. (2018). Identification of novel loci associated with hip shape: a meta-analysis of genome-wide association studies. *J Bone Miner Res* [IF 6.314]. doi: 10.1002/jbmr.3605.
- 4) Medina-Gomez C, Kemp JP, Trajanoska K, Luan J, Chesi A, Ahluwalia TS, Mook-Kanamori DO, Ham A, Hartwig FP, Evans DS, Joro R, Nedeljkovic I, Zheng HF, Zhu K, Atalay M, Liu CT, Nethander M, Broer L, Porleifsson G, Mullin BH, Handelman SK, Nalls MA, Jessen LE, Heppel DHM, **Richards JB**, Wang C, Chawes B, Schraut KE, Amin N, Wareham N, Karasik D, Van der Velde N, Ikram MA, Zemel BS, Zhou Y, Carlsson CJ, Liu Y, McGuigan FE, Boer CG, Bønnelykke K, Ralston SH, Robbins JA, Walsh JP, Zillikens MC, Langenberg C, Li-Gao R, Williams FMK, Harris TB, Akesson K, Jackson RD, Sigurdsson G, den Heijer M, Van der Eerden BCJ, Van de Peppel J, Spector TD, Pennell C, Horta BL, Felix JF, Zhao JH, Wilson SG, De Mutsert R, Bisgaard H, Styrkársdóttir U, Jaddoe VW, Orwoll E, Lakka TA, Scott R, Grant SFA, Lorentzon M, Van Duijn CM, Wilson JF, Stefansson K, Psaty BM, Kiel DP, Ohlsson C, Ntzani E, Van Wijnen AJ, Forgetta V, Ghanbari M, Logan JG, Williams GR, Bassett JHD, Croucher PI, Evangelou E, Uitterlinden AG, Ackert-Bicknell CL, Tobias JH, Evans DM, Rivadeneira F. Life-Course Genome-wide Association Study Meta-analysis of Total Body BMD and Assessment of Age-Specific Effects. (2018). *Am J Human Genet.* [IF: 9.0]. 102(1):88-102. doi: 10.1016/j.ajhg.2017.12.005.
- 5) Morris J A, Kemp J P, Youlten S E, Laurent L, Logan J G, Chai R, Vulpescu NA, Forgetta V, Kleinman A, Mohanty S, Sergio CM, Quinn J, Nguyen-Yamamoto L, Luco A, Vijay J, Simon M, Aamatarova, Medina-Gomez C, Trajanoska K, Ghirardello EJ, Butterfield NC, Curry KF, Leitch VD, Sparkes PC, Adoum A, Mannan NS, Komla-Ebri D, Pollard AS, Dewhurst HF, Hassell T, Beltejar MG, Adams DJ, Vaillancourt SM, Kaptoge S, Baldock P, Cooper C, Reeve J, Ntzani E, Evangelou E, Ohlsson C, Karasik D, Rivadeneira F, Kiel DP, Tobias JH, Gregson CL, Harvey NC, Grundberg E, Goltzman D, Adams DJ, Lelliott CJ, Hinds DA, Ackert-Bicknell CL, Hsu Y, Maurano MT, Croucher PI, Williams GR, Bassett JD, Evans DM, **Richards JB**. (2018). An Atlas of Human and Murine Genetic Influences on Osteoporosis. *Nature Genetics.* [IF: 40.3]. In press
- 6) Sun J, Oualkacha K, Forgetta V, Zheng HF, **Richards JB**, Evans DS, Orwoll E, Greenwood CMT. (2018). Exome-wide rare variant analyses of two bone mineral density phenotypes: the challenges of analyzing rare genetic variation. *Sci Rep.* [IF: 4.3]. 8(1):220. doi: 10.1038/s41598-017-18385-9.
- 7) Trajanoska K, Morris JA, Oei L, Zheng H, Forgetta V, Leong A, Ahmad O, Laurin C, Mokry L, Ross S, Elks C, Bowden J, Warrington N, Kleinman A, Willems S, Wright D, Day F, Ruth K, Murray A, Tsilidis K, Ackert-Bicknell, Bassett J, Van der Eerden B, Gautvik K, Reppe S, Williams G, Medina-Gomez C, K Estrada, Amin N, Bis J, Breda S, Chasman D, Demissie S, Enneman A, Hsu Y, Ingvarsson T, Kähönen M, Kammerer C, LaCroix A, Li G, Liu C, Liu Y, Lorentzon M, Mägi R, Mihalov E, Milani L, Moayyeri A, Nielson C, Sham P, Sigurdsson G, Siggeirsdottir K, Stefansson K, S Trompet, G Thorleifsson, L Vandenput, Van der Velde N,

Viikari J, Xiao S, Zhao J, Åkesson K, Andersen M, Atanasovska B, Balcells S, Eriksson J, Formosa M, Garcia-Ibarbia C, Garcia-Giralt N, Gonzalez-Macias J, Hallmans G, Karlsson M, Khusainova R, Kim B, Kwok T, Lee S, Leung P, Mallmin H, Masi M, Melin B, Mencej Bedrac S, Nethander M, Olmos J, Panagoula K, Prezelj J, Van Schoor N, Svensson O, Szulc P, Valero C, Woo J, Brandi M, Cheng S, Chapurlat R, Christiansen C, Cooper C, Dedoussis G, Eisman J, Frost M, Giroux S, Grinberg D, Goltzman D, Hocking L, Van Hul W, Koh J, Rejnmark L, Jensen J, Langdahl B, Lewis J, Lorenc R, Khusnutdinova E, Marc J, McGuigan F, Mellström D, Michaelsson K, Nogues X, Nordström P, Obermayer-Pietsch B, Pettersson-Kymmer U, Prince R, Reeve J, Reid D, Riancho J, Rousseau F, Tang N, Xuereb-Anastasi A, William L, Evans D, Cummings S, Cauley, Van Duijn C, Brown M, Duncan E, De Groot L, Esko T, Gudnason V, Harris T, Jackson R, Jukema J, Ikram A, Karasik D, Kaptoge S, Khaw K, Kung A, Lehtimäki T, Lips P, Luben R, Metspalu A, Lyytikäinen L, Van Meurs J, Minster R, Orwoll E, Oei E, Psaty B, Raitakari O, Ralston S, Ridker P, Robbins J, Smith A, Spector T, Styrkarsdottir U, Tranah G, Thorsteinsdottir U, Uitterlinden A, Zmuda J, Zillikens C, Ntzani E, Evangelou E, Ioannidis J, Perry J, Hinds D, Tung J, Scott R, Evans D, Kiel D, Ohlsson C, **Richards JB**, Rivadeneira F (2018). Assessment of the genetic and clinical determinants of fracture risk: a Mendelian randomization approach. *BMJ* [IF: 23]. 362:k3225. doi:10.1136/bmj.k3225. This paper received lay press coverage from the Telegraph Newspaper and other news sources.

- 9) Tanaka KI, Xue Y, Nguyen-Yamamoto L, Morris JA, Kanazawa I, Sugimoto T, Wing SS, **Richards JB**, Goltzman D. (2018). FAM210A is a novel determinant of bone and muscle structure and strength. (*PNAS* [IF: 9.7]. 115(16): E3759-E3768. doi: 10.1073/pnas.1719089115.
- 10) Timpson N, Greenwood C, Soranzo N, Lawson DJ, **Richards JB**. Genetic architecture: The shape of genetic contribution to human traits and disease. (2018). *Nature Reviews Genetics* [IF: 40.3]. 19(2):110-124. doi: 10.1038/nrg.2017.101.
- 11) Timpson NJ, Greenwood CMT, Soranzo N, Lawson DJ, **Richards JB**. (2018). Heritable contributions versus genetic architecture. *Nat Rev Genet.* [IF: 40.3]. 19(3):185. doi: 10.1038/nrg.2018.7.
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3. Academic and Community Engagement Service Outside of McGill by Individual Members of the Unit (See 3. Involvement in the Community)

Submitted by:

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