

Annual Report
Division of Endocrinology
Department of Medicine - Jewish General Hospital
January 1 - December 31, 2012

SUMMARY

With a view towards becoming more environmentally responsible and coming into the electronic age, this year our department completed the process of converting from paper files to electronic records. Our patients also now have the privilege of registering themselves on our Self-Registration System.

As diabetes goes to epidemic proportions, a multi-faceted approach is essential for the care of patient. We have been able to establish and maintain an exercise program for our diabetic patients.

Introduction

Clinical Services

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 for this year exceeded 25,000.

Outpatient clinics are run around the week by GFT's. Non-GFT's run clinics on Monday and Thursday mornings. The increase in the number of patients is still very high. Constraints in space and support personnel as well RAMQ policy restricting the recruitment of endocrinologists have resulted in physician-scientists increasing their clinical hours and reducing their research time. A triage system has been established to prioritize appointments for new patients in most urgent need (e.g. decompensated diabetics, thyrotoxic patients). The clerical staff has not increased despite the patient load doubling over the past 7 years resulting in staff burn out. Although all staff physicians see patients spanning the whole spectrum of endocrine and metabolic diseases, some clinics are focused on a particular condition, as shown in the table below. .

The Survival Skills 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.

Dr. Michael Tamilia has been able to accomplish the following:

- Risk assessment for thyroid nodules with TIRAD sonography system applied to all patients referred for thyroid nodule biopsies.
- Ultrasound-guided needle biopsies still offered without charge to patients with thyroid nodules/masses.
- Collaboration with Dr. George Chong from Department of Pathology to apply genetic mutation analysis in the diagnosis of thyroid nodules.
- Collaboration with Dr. Mark Trifiro and Dr. Elliot Mittmaker to characterize gene mutations in stored thyroid tumor specimens

In-patient activities are centered on the Endocrine Consulting Service, attended by our staff physicians for a total commitment at a minimum of 6 weeks in 2-week blocks scheduled through the year, Volume of in-patient endo consults is approximately 1200/year. Another responsibility is the triage of outpatient consultations; urgent ones are fast-tracked, the balanced distributed among the members of the division. In addition, our staff is actively involved in CTU rotations. The Division does not have assigned beds and endocrine patients are admitted to general wards.

Clinics:

Monday AM: Diabetic Clinic (Kader); General Endocrinology (Schweitzer, Karaplis, Trifiro)

Monday PM: General Endocrinology (Karaplis, Assimakopoulos,)

Tuesday AM: Thyroid (Tamilia); General Endocrinology (Trifiro, Assimakopoulos, Schiffrin)

Tuesday PM: General Endocrinology (Assimakopoulos, Schiffrin, Christopoulos, Richards)

Wednesday AM: General Endocrinology (Trifiro, Majdan, Karaplis); Diabetic Foot Care (Dr. R. Chaytor); Osteoporosis I (Trifiro); Gestational Diabetic, Pav.H (Kader)

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

Thursday AM: General Endocrinology (Schiffrin, Tamilia, Majdan, Christopoulos, Clamen, Rizzo);

Thursday PM: General Endocrinology (Assimakopoulos, Schweitzer)

Friday AM: General Endocrinology (Schiffrin, Schweitzer, Trifiro, Christopoulos, Majdan)

1. Research and publications:

Our young physicians, John Brent Richards and Agnieszka Majdan, continue to perform as superb academic physicians; Dr. Brent Richards has in short order achieved already much acclaim in his young career. Senior researchers are also active. 2012 was an outstanding year for Endocrine Research Studies. A part-time Clinical Research Nurse was hired to aid with the seven (7) clinical studies conducted at the new treatment center (see list below). Ninety-nine patients participated in these trials over the year.

Research projects and publications are listed under Section II.

2. Teaching and learning (undergraduate and graduate):

Medical Students

-Metabolic Bone Disease in Unit 5, Med I; preparation of lecture notes, case study, and quiz for students and organizing small group tutors.

-One 1-hour lecture on metabolic bone disorders and two 1.5-hour small group sessions

Residents

-Core lectures in Endocrinology

-Simulated oral examination in Internal Medicine

Postgraduate Fellows

Advances in Human Genetics: A post graduate course offered by the Department of Human Genetics: Three 1.5-hr lectures on the genetics of metabolic bone diseases

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. Some clinics such as : Gestational Diabetes, Thyroid, Lipid and Osteoporosis Clinic are compulsory. 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). This past year we have had an unusually high number of Endocrine Residents, and the same is expected for the next academic year. In addition to McGill Medical Students doing elective rotations, we have received students from UK, Germany, China, and Thailand during the last year. Notably, the majority of McGill candidates to McGill Endocrine Residents have come from our Internal Medicine training program over the last several years, a reflection of the positive influence of our staff on the Residents. The McGill Endocrine Teaching Program at large was highly rated by the trainees with our Division receiving the highest ratings in a large number of items, notably conferences, bedside and outpatient teaching, integration with basic sciences.

In addition to these tutorial activities, divisional members lecture extensively on essential endocrinology for residents and non-endocrinologists in general and prevention of obesity and diabetes.

Our Division also actively participates in the undergraduate teaching of Endocrine Physiology and Calcium Homeostasis (Med-I Physiology) with 6 of our members being small group tutors this year (Assimakopoulos, Beitel, Kader, Karaplis, Schiffrin, and Trifiro). All GFT's 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 Ms. Joyce Arsenault (Nurse, Certified Diabetes Educator), Ms. Maria Di Narzo (nurse, Certified, Diabetes Educator) and Ms. Sondra Sherman (Dietitian) have worked together with Dr. Tina Kader in this latter endeavour.

Dr. Michael Tamilya has continued to receive the recognition of our young colleagues and students as a truly exceptional teacher. Drs. Tina Kader and Morris Schweitzer continue to be remarkably active in CME activities primarily addressed to general practitioners, internists and specialists. Thus, the JGH Endocrine Division has reached a high profile at the university, national and international levels.

In addition, 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. Endo Grand Rounds are given weekly from September to June.

Overall, the Division of Endocrinology is one of the most, if not the most, active in contributing its staff to teaching (Professional Skills and Introduction to Internal Medicine and Physiology) and CTU coverage within the Department of Medicine at the Jewish General Hospital.

3. Involvement in the community:

In addition to these tutorial activities, the Division of Endocrinology 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 6 of our members being small group tutors this year (Assimakopoulos, Beitel, Kader, Karaplis, Schiffrin, and Trifiro). All GFT's 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 prevention of obesity and diabetes. Ms. Joyce Arsenault (Nurse, Certified Diabetes Educator), Ms. Maria Di Narzo (nurse, Certified, Diabetes Educator) and Ms. Sondra Sherman (Dietitian) have worked together with Dr. Tina Kader in this latter endeavour.

4. Partnerships:

Dr. Tamilia collaborated with Dr. George Chong from Department of Pathology to apply genetic mutation analysis in the diagnosis of thyroid nodules and with Dr. Mark Trifiro and Dr. Elliot Mittmaker to characterize gene mutations in stored thyroid tumor specimens. Dr. Tamilia is developing the Thyroid Cancer Program in association with Head and Neck Oncology for McGill University.

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

5. Milestones:

An exercise program has been established and maintained for diabetic patients with a Kinesiotherapist, Maxime Lavoie. This program has proven itself to be of tremendous assistance in helping patients keep active and thereby control their glucose levels. A part-time Clinical Research Nurse was hired to aid with the seven (7) clinical studies conducted at the new treatment center. There have been no changes in medical staffing over the past year.

6. Honours, awards, and prizes:

-Joyce Arsenault, Nurse, CDE, JGH Department of Nursing 2012 Excellence in Nursing Community Service award.

-Sondra Sherman, Registered dietitian, Winner JGH Award for Excellence Among Allied Health Professionals

-Evelyn Herzog, a JGH volunteer, was honored as CJAD hero for her dedication and commitment to helping others with utter selflessness and as an inspiration to others.

7. Fundraising: None

SECTION I - DIVISION STATUS UPDATE

1. Mission and objectives of the Division

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

Dr. Tamilia's other major objective was to develop the Thyroid Cancer Program in association with Head and Neck Oncology for McGill University at the Jewish General Hospital, as well as to expand and update teaching material for the three levels of trainees (students, residents and fellows).

Other objectives include the expansion of both clinical research and basic research personnel that will start in the next few years. 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 - Assistant Professor (GFT-U)
Dr. Alicia Schiffrin - Professor (GFT-U)
Dr. Morris Schweitzer - Associate Professor (GFT-H)
Dr. Michael Tamilia - Associate Professor (GFT-H)
Dr. Marvin Clamen - Faculty Lecturer (P/T)
Dr. Lilian Jukier - Adjunct Professor (P/T)
Dr. Arturo Rizzo - Assistant Professor (P/T)
Lenore Beitel, PhD - Assistant Professor

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

1. Grants and awards received

J. Brent Richards

-2010-2013: Ministère du Développement économique, Innovation et Exportation du Québec.
CiPhER : Consortium International Pour l'identification des gènes de fracturEostéopoRotique.
Role: Principal Investigator. \$491,231 over 3 years.

-2009-201: Fonds de Recherche de la Santé du Québec. Établissement de jeunes chercheurs – Juniors 1. Role: Principal Investigator.\$30,000 over 4 years.

-2009-2014: Canadian Institutes of Health Research, Operating Grant. Canadian Longitudinal Study on Aging. Role: Co-Investigator. \$23,500,000 over 5 years.

-2010-2013: Ministère du développement économique, Innovation et Exportation du Québec. CiPhER: Consortium International pour l'identification des gènes de facture ostéorobotique. Rôle: Principal Investigator. \$491,231 over 3 years.

-2012-2016: Canadian Institutes of Health Research (CIHR): Pinpointing Causal Variants for Osteoporosis. Role: Nominated Principal Investigator (Co-PI: Tomi Pastinen). \$816,608 over 4 years. This grant ranked first for the CIHR Genetics panel.

-2011-2013: Canadian Institutes of Health Research (CIHR).Can Québec Consortium for Drug Discovery (CQDM).Identification of Critical Drug Targets for Auto-Immune Disease. Role: Principal Investigator. \$300,000 over 2 years.

-2011-2013: Canadian Cancer Society Research Institute. Effects of metformin on colorectal epithelial cell proliferation. Role : Co-Investigator. \$195,000 over 2 years.

-2011-2016: Canadian Institutes of Health Research (CIHR).Canadian Multicentre Osteoporosis Study. Role: Co-Applicant. \$3,422,052 over 5 years

Mark A. Trifiro

-2010-2015: Canadian Institutes of Health Research (CIHR) Innovative approaches to functional characterization of the androgen receptor in prostate cancer; P.I. Mark Trifiro, Co-Applicants: Miltiadis Paliouras and Edwin Wang; Operating Grant: total \$560,279

-2009-2012: “Biosenseurs génétiquement modifiés à haute sélectivité et sensibilité” Fonds Québécois de la recherche sur la Nature et les Technologies, Operating \$48,760/yr (Co-PI)

-2009-2012: “Nanoporous silicon catheter device with real-time optical monitoring of bacterial contaminants during hemodialysis”; Canadian Institute for Photonics Innovation (CIPI), \$29,900 total

2012 Pharmaceutical Research Studies:

The 7 studies included: one Phase II interdepartmental trial involving Endocrinology, Gastroenterology and Oncology; Two Phase III trials; three Phase IV trials including one sponsored by the CIHR; and one in-house study conducted by one of our Endocrinologists. In addition, we also did some dynamic testing, and insulin pump starts.

-NovoNordisk IV ANA-3786 Addition of Bolus Insulin in T2DM Stepwise versus complete therapy Concluded 2012. Principal Investigator: T. Kader, Sub-investigators: M. Trifiro, A. Majdan

-Boehringer Ingelheim III Protocol 1245.36 Study of BI- 10773 in T2DM with renal impairment and poor control Concluded 2012 – Principal Investigator: M. Trifiro – Sub-investigators: A. Majdan, T. Kader

-CIHR IV MITY- Metformin in Women with T2DM in Pregnancy Trial Ongoing. Principal Investigator: T.Kader

-In house Insulin Therapy in T2DM-, study to evaluate insulin response at different c-peptide levels Concluded 2012. Principal Investigator: T. Kader

-CCSRI II EMCP 2011-1 Effects of Metformin on colon proliferation Ongoing. Principal Investigator: M. Pollack, Subinvestigators: M. Trifiro, J.B. Richards

-Amgen IV Protocol 2010128- Prolia Ongoing. Principal Investigator: A. Karaplis

-Amgen III Protocol 20110142- Efficacy/Safety of AMG 785 in treatment of postmenopausal Women with Osteoporosis. Ongoing Principal Investigator: A. Karaplis

2. **Scholarly works published in the 2012 calendar year:**

Karaplis, Andrew

--Panda DK, Goltzman D, **Karaplis AC**. Defective postnatal endochondral bone development by chondrocyte-specific targeted expression of parathyroid hormone type 2 receptor. *Am J Physiol Endocrinol Metab*. 2012 Dec 15;303(12):E1489-501

--**Karaplis AC**, Bai X, Falet JP, Macica CM. Mineralizing enthesopathy is a common feature of renal phosphate-wasting disorders attributed to FGF23 and is exacerbated by standard therapy in Hyp mice. *Endocrinology*. 2012 Dec;153(12):5906-17

--Gu Z, Liu Y, Zhang Y, Jin S, Chen Q, Goltzman D, Karaplis A, Miao D. Absence of PTHrP nuclear localization and carboxyl terminus sequences leads to abnormal brain development and function. *PLoS One*. 2012;7(7):e41542. Epub 2012 Jul 23.

--Xue Y, Xiao Y, Liu J, Karaplis AC, Pollak MR, Brown EM, Miao D, Goltzman D. The calcium-sensing receptor complements parathyroid hormone-induced bone turnover in discrete skeletal compartments in mice. *Am J Physiol Endocrinol Metab*. 2012 Apr 1;302(7):E841-5.

Richards, J. Brent

--Ladouceur M, Zheng HF, Greenwood CM, **Richards JB**. The Empirical Power of Deep Sequencing to Associate Very Rare Variants with Common Traits and Disease: Results from Sanger Sequencing 1,998 Individuals. *European Journal of Human Genetics*. In Press, November 22, 2012

--Zheng HF, Ladouceur M, Greenwood CM, **Richards JB**. Effect of genome-wide genotyping and reference panels on rare variants imputation. *Journal of Genetics and Genomics*. 2012 Oct

20;39(10):545-50. doi: 10.1016/j.jgg.2012.07.002. Epub 2012 Jul 24.

--**Richards JB.** , Zheng HF, Spector TD. Genetics of Osteoporosis from Genome-Wide Association Studies: Advances and Challenges. *Nature Reviews Genetics*. 2012 Jul 18;13(8):576-88. doi: 10.1038/nrg3228.

--Li R, Brockschmidt FF, Kiefer AK, Stefansson H, Nyholt DR, Song K, Vermeulen SH, Kanoni S, Glass D, Medland SE, Dimitriou M, Waterworth D, Tung JY, Geller F, Heilmann S, Hillmer AM, Bataille V, Eigelshoven S, Hanneken S, Moebus S, Herold C, den Heijer M, Montgomery GW, Deloukas P, Eriksson N, Heath AC, Becker T, Sullem P, Mangino M, Vollenweider P, Spector TD, Dedoussis G, Martin NG, Kiemeny LA, Mooser V, Stefansson K, Hinds DA, Nöthen MM, **Richards JB.** Six novel susceptibility Loci for early-onset androgenetic alopecia and their unexpected association with common diseases. *PLoS Genetics*. 2012, 8(5):e1002746. Epub 2012 May 31. doi:10.1371/journal.pgen.1002746 This paper was a "Most Viewed" paper in *PLoS Genetics*. This article was cited as a notable paper by the Faculty of 1000.

--Dastani Z, Rui Li, **Richards JB.** , Genetic Regulation of Vitamin D Levels. *Calcified Tissue International*. 1 Nov 2012, DOI: 10.1007/s00223-012-9660-z

--Chew S, Dastani Z, Brown SJ, Lewis JR, Dudbridge F, Soranzo N, Surdulescu GL, Richards JB, Spector TD, Wilson SG. Copy number variation of the APC gene is associated with regulation of bone mineral density. *Bone* 2012 Nov;51(5):939-43. doi: 10.1016/j.bone.2012.07.022

--Koller DL, Zheng HF, Karasik D, Yerges-Armstrong L, Liu CT, McGuigan F, Kemp JP, Giroux S, Lai D, Edenberg HJ, Peacock M, Czerwinski SA, Choh AC, McMahon G, St Pourcain B, Timpson NJ, Lawlor DA, Evans DM, Towne B, Blangero J, Carless MA, Kammerer C, Goltzman D, Kovacs CS, Prior JC, Spector TD, Rousseau F, Tobias JH, Akesson K, Econs MJ, Mitchell BD, **Richards JB.** , Kiel DP, Foroud T. Meta-analysis of genome-wide studies identifies WNT16 and ESR1 SNPS associated with bone mineral density in premenopausal women. *J Bone Miner Res*. 2012 Oct 16. doi: 10.1002/jbmr.1796.

--Liu CT, Estrada K, Yerges-Armstrong LM, Amin N, Evangelou E, Li G, Minster RL, Carless MA, Kammerer CM, Oei L, Zhou Y, Alonso N, Dailiana Z, Eriksson J, García-Giralt N, Giroux S, Husted LB, Khusainova RI, Koromila T, Kung AW, Lewis JR, Masi L, Mencej-Bedrac S, Nogue X, Patel MS, Prezelj J, **Richards JB.** , Sham PC, Spector T, Vandenput L, Xiao SM, Zheng HF, Zhu K, Balcells S, Brandi ML, Frost M, Goltzman D, González-Macías J, Karlsson M, Khusnutdinova EK, Kollia P, Langdahl BL, Ljunggren O, Lorentzon M, Marc J, Mellström D, Ohlsson C, Olmos JM, Ralston SH, Riancho JA, Rousseau F, Urreiziti R, Van Hul W, Zarrabeitia MT, Castano-Betancourt M, Demissie S, Grundberg E, Herrera L, Kwan T, Medina-Gómez C, Pastinen T, Sigurdsson G, Thorleifsson G, Vanmeurs JB, Blangero J, Hofman A, Liu Y, Mitchell BD, O'Connell JR, Oostra BA, Rotter JI, Stefansson K, Streeten EA, Styrkarsdottir U, Thorsteinsdottir U, Tyllavsky FA, Uitterlinden A, Cauley JA, Harris TB, Ioannidis JP, Psaty BM, Robbins JA, Zillikens MC, Vanduijn CM, Prince RL, Karasik D, Rivadeneira F, Kiel DP, Cupples LA, Hsu YH. Assessment of gene-by-sex interaction effect on bone mineral density. *J Bone Miner Res*. 2012 Jun 12. doi: 10.1002/jbmr.1679.

--Sanseau P, Agarwal P, Barnes MR, Pastinen T, **Richards JB.** , Cardon LR, Mooser V. Use of genome-wide association studies for drug repositioning. *Nature Biotechnology*. 2012 Apr 10;30(4):317-20. *Nat Biotechnol*. 2012 doi: 10.1038/nbt.2151

--Xu C, Ladouceur M, Dastani Z, **Richards JB.** , Ciampi A, Greenwood CM. Multiple regression methods show great potential for rare variant association tests. *PLoS One*. 2012;7(8):e41694. Epub 2012 Aug 8.

--Zheng HF,* Tobias JH,* Duncan E,* Evans DM,* Eriksson J, Paternoster L, Yerges-Armstrong LM, Lehtimäki T, Bergström U, Kähönen M, Leo PJ, Raitakari O, Laaksonen M, Nicholson GC, Viikari J, Ladouceur M, Lyytikäinen LP, Medina-Gomez C, Rivadeneira F, Prince RL, Sievanen H, Leslie WD, Mellström D, Eisman JA, Movérare-Skrtic S, Goltzman D, Hanley DA, Jones G, St Pourcain B, Xiao Y, Timpson NJ, Smith GD, Reid IR, Ring SM, Sambrook PN, Karlsson M, Dennison EM, Kemp JP, Danoy P, Sayers A, Wilson SG, Nethander M, McCloskey E, Vandenput L, Eastell R, Liu J, Spector T, Mitchell BD, Streeten EA, Brommage R, Pettersson-Kymmer U, Brown MA, Ohlsson C,* **Richards JB.** ,* Lorentzon M.* WNT16 Influences Bone Mineral Density, Cortical Bone Thickness, Bone Strength, and Osteoporotic Fracture Risk. *PLoS Genet*. 2012 Jul;8(7):e1002745. doi:10.1371/journal.pgen.1002745

--Medina-Gomez C, Kemp JP, Estrada K, Eriksson J, Liu J, Reppe S, Evans DM, Happe DH, Vandenput L, Herrera L, Ring SM, Kruihof CJ, Timpson NJ, Zillikens MC, Olstad OK, Zheng HF, **Richards JB.** , St Pourcain B, Hofman A, Jaddoe VW, Smith GD, Lorentzon M, Gautvik KM, Uitterlinden AG, Brommage R, Ohlsson C, Tobias JH, Rivadeneira F. Meta-Analysis of Genome-Wide Scans for Total Body BMD in Children and Adults Reveals Allelic Heterogeneity and Age-Specific Effects at the WNT16 Locus. *PLoS Genet*. 2012 Jul;8(7):e1002718.

--K Estrada, U Styrkarsdottir, E Evangelou, Y Hsu, EL Duncan, EE Ntzani, L Oei, OME Albagha, N Amin, JP Kemp, DL Koller, G Li, C Liu, RL Minster, A Moayyeri, L Vandenput, D Willner, S Xiao, LM Yergesarmstrong, H Zheng, N Alonso, J Eriksson, CM Kammerer, SK Kaptoge, PJ Leo, G Thorleifsson, SG Wilson, JF Wilson, V Aalto, M Alen, AK Aragaki, T Aspelund, JR Center, Z Dailiana, DJ Duggan, M Garcia, N Garcigiralt, S Giroux, G Hallmans, LJ Hocking, L Bjerre, KA Jameson, R Khusainova, G Su, C Kooperberg, T Koromila, M Kruk, M Laaksonen, AZ Lacroix, S Hun, PC Leung, JR Lewis, L Masi, S Mencejbedrac, TV Nguyen, X Nogues, MS Patel, J Prezelj, LM Rose, S Scollen, K Siggeirsdottir, AV Smith, O Svensson, S Trompet, O Trummer, NM Van, J Woo, K Zhu, S Balcels, M Luisa, BM Buckley, S Cheng, C Christiansen, C Cooper, G Dedoussis, I Ford, M Frost, D Goltzman, M Karlsson, E Khusnutdinova, J Koh, P Kollia, B Lomholt, WD Leslie, P Lips, O Ljunggren, RS Lorenc, J Marc, D Mellstroam, B Obermayerpietsch, JM Olmos, U Petterssonkymmer, DM Reid, JA Riancho, PM Ridker, F Rousseau, P Eline, NLS Tang, R Urreiziti, W Van, J Viikari, MT Zarrabeitia, YS Aulchenko, M Castanobetancourt, E Grundberg, L Herrera, T Ingvarsson, H Johannsdottir, T Kwan, R Li, R Luben, C MedinagMez, S Reppe, JI Rotter, G Sigurdsson, JBJ , D Verlaan, FMK , AR Wood, Y Zhou, KM Gautvik, T Pastinen, S Raychaudhuri, JA Cauley, DI Chasman, GR Clark, SR Cummings, P Danoy, EM Dennison, R Eastell, JA Eisman, V Gudnason, A Hofman, RD Jackson, G Jones, J Wouter, K Khaw, T Lehtimäki, Y Liu, M

Lorentzon, E McCloskey, BD Mitchell, K Nandakumar, GC Nicholson, BA Oostra, M Peacock, HAP Pols, RL Prince, O Raitakari, IR Reid, J Robbins, PN Sambrook, P Chung, AR Shuldiner, FA Tylavsky, CM Van, NJ Wareham, L Adrienne, MJ Econs, DM Evans, TB Harris, A Wai, BM Psaty, J Reeve, TD Spector, EA Streeten, M Carola, U Thorsteinsdottir,* C Ohlsson,* D Karasik,* JB Richards,* MA Brown,* K Stefansson,* AG Uitterlinden,* SH Ralston,* JPA Ioannidis,* DP Kiel,* F Rivadeneira.* Genome-wide meta-analysis identifies 56 bone mineral density loci and reveals 14 loci associated with risk of fracture. *Nature Genetics*. 2012 Apr 15. 44(5):491-501 doi: 10.1038/ng.2249.

--Berger C, Greene-Finestone LS, Langsetmo L, Kreiger N, Joseph L, Kovacs CS, **Richards JB.** , Hidioglou N, Sarafin K, Davison KS, Adachi JD, Brown J, Hanley DA, Prior JC, Goltzman D; the CaMos Research Group. Temporal trends and determinants of longitudinal change in 25-Hydroxyvitamin D and parathyroid hormone levels. *J of Bone Mineral Research*. 2012 Jun;27(6):1381-9. doi: 10.1002/jbmr.1587.

--Mather KJ, Christophi CA, Jablonski KA, Knowler WC, Goldberg RB, Kahn SE, Spector T, Dastani Z, Waterworth D, **Richards JB.** , Funahashi T, Pi-Sunyer FX , Pollin TI, Florez JC,, and Franks PW,, for the Diabetes Prevention Program Research Group*. Common variants in genes encoding adiponectin (ADIPOQ) and its receptors (ADIPOR1/2), adiponectin concentrations, and diabetes incidence in the Diabetes Prevention Program. *Diabetic Medicine*, 2012 Mar 24. doi: 10.1111/j.1464-5491.2012.03662.x.

--Z Dastani,* —F Hivert,* N Timpson,* JRB Perry,* X Yuan,* RA Scott,* P Henneman,* I M. Heid,* JR Kizer,* L-P Lyytikäinen,* C Fuchsberger,* T Tanaka, A P Morris, K Small, A Isaacs, M Beekman, S Coassin, K Lohman, L Qi, S Kanoni, J S Pankow, H-W Uh, Y Wu, A Bidulescu, L J Rasmussen-Torvik, CMT Greenwood, M Ladouceur, J Grimsby, AK Manning, C-T Liu, J Kooner, VE Mooser, P Vollenweider, KA Kapur, J Chambers, NJ Wareham, C Langenberg, R Frants, K Willems-vanDijk, BA Oostra, S M Willems, C Lamina, Thomas Winkler, BM Psaty, RP Tracy, J Brody, I Chen, J Viikari, M Kähönen, PP Pramstaller, M Evans, B St Pourcain, N Sattar, A Wood, S Bandinelli, Olga D. Carlson, JM Egan, S Böhringer, D van Heemst, L Kedenko, K Kristiansson, —L Nuotio, B-M Loo, T Harris, M Garcia, A Kanaya, M Haun, N Klopp, HE Wichmann, P Deloukas, E Katsareli, DJ Couper, BB Duncan, M Kloppenburg, LS Adair, JB Borja, DIAGRAM+ Consortium, MAGIC Consortium, GLGC Investigators, MuTHER Consortium, JG Wilson, S Musani, X Guo, T Johnson, R Semple, TM Teslovich, MA Allison, S Redline, SG Buxbaum, KL Mohlke, I Meulenbelt, CM Ballantyne, GV Dedoussis, FB Hu, Y Liu, B Paulweber, TD Spector, PE Slagboom, L Ferrucci, A Jula, M Perola, O Raitakari, JC Florez, V Salomaa,** JG Eriksson, TM Frayling,** AA Hicks,** T Lehtimäki,** GD Smith,** DS Siscovick,** F Kronenberg,** C van Duijn,** RJF Loos,** DM Waterworth,** JB Meigs,** J Dupuis,** **JB Richards****. Novel Loci for Adiponectin Levels and their Influence on Type 2 Diabetes and Metabolic Traits: A Multi-Ethnic Meta-Analysis of 45,891 Individuals. *PLoS Genetics* 2012 8(3): e1002607. doi:10.1371/journal.pgen.1002607

Trifiro, Mark

--Su H, Velly AM, Salah MH, Benarroch M, **Trifiro M**, Schipper HM, Gornitsky M. Altered redox homeostasis in human diabetes saliva. *J Oral Pathol Med* 41:235-241, 2012.

3. Academic and community engagement service outside of McGill by individual members of the unit

Members of the Division continue to serve in committees of granting agencies, editorial boards and to participate in other high level academic activities at national and international levels. Members have succeeded in the competing renewal of their grants as well as in obtaining additional support from peer-reviewed granting agencies.

SECTION III - CONFIDENTIAL INFORMATION

1. Consulting activities: None reported

Submitted by:

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