



UNIVERSITY
OF TURKU

TURKU COLLEGIUM FOR SCIENCE AND MEDICINE Annual Report 2018

TCSM – For future leaders in science

University of Turku
2019

► Contents

TCSM – Mission and Vision	3
Ten Years of Research Excellence in Science and Medicine	4
TCSM Previous Calls	5
Received External Funding 2016-2018 by TCSM Collegium Researchers.	6
TCSM Researchers 2018	7
Faculty of Science and Engineering	7
Faculty of Medicine	13
Postdoctoral Researchers	17
Faculty of Science and Engineering	17
Faculty of Medicine	23
Management Board of TCSM	26
Further Information	26
Publications by TCSM Researchers 2018	27

Front cover photograph by TCSM Postdoctoral Researcher Sophie Reichert,
Department of Biology

► TCSM – Mission and Vision

TCSM has originally been founded to support the most talented scientists in early phases of their independent research careers. After its ten years of existence, this mission still remains as the main mission of TCSM. To keep up with this mission, the collegium researchers have been selected from highly competitive international calls and the chosen scientists have settled down in the most suitable environments at the University of Turku according to their scientific fields. TCSM values multi- and inter-disciplinarity in science as it believes that interactions over the usual boundaries have high potential to create ground-breaking discoveries. To facilitate these types of interactions, TCSM arranges joint meetings to its members on a frequent basis – not forgetting to reserve time for informal interactions besides the formal presentations. The coordinator of TCSM works in close contact with the researchers to provide them with help, instructions and advice whenever needed. Moreover, the board members of TCSM contribute to the success of the researchers in the best possible ways providing intellectual and practical support. Although the resources of TCSM are more limited than in some leading universities, TCSM tries its best to create a scientifically stimulating and supporting platform for the future scientific leaders.

Sirpa Jalkanen

Professor, Chair of the TCSM Board

May 2019

sirjal@utu.fi

► Ten Years of Research Excellence in Science and Medicine

The Turku Collegium for Science and Medicine (TCSM) was launched with funding from the Consortium comprising the University of Turku and the Turku School of Economics in 2008. During its years of operation, TCSM has become an integral and permanent part of the University of Turku. TCSM selects its researchers through an international competition, which is open to all researchers in the fields of Science and Medicine. TCSM establishes a multidisciplinary, interactive research platform for young dynamic scientists that strengthens research excellence at the University of Turku.

TCSM researchers are appointed for fixed-term positions at the University of Turku including postdoctoral and mid-career (collegium) researcher stages. The positions are funded for 3 years at the time, with a possibility for a two-year extension for Collegium Researchers. TCSM Collegium Researchers receive a €20 000 starting grant for three years for their research costs.

TCSM has recruited Collegium Researchers every other year during its operational years. During this time, 30 Collegium Researchers have been recruited in total. In 2016, the university's new postdoctoral research programme started and the first five postdoctoral researchers were recruited.

In 2018, the TCSM consisted of 25 Researchers, 10 Collegium Researchers and 15 Postdoctoral Researchers. The Academy of Finland granted three TCSM researchers Academy Research Fellow positions in the year 2018. The Faculty of Science and Engineering hosted six Collegium Researchers and 10 Postdoctoral Researchers. The Faculty of Medicine hosted four Collegium Researchers and five Postdoctoral Researchers.

TCSM celebrated its 10th anniversary with an open anniversary seminar in December 2018. The seminar covered the time when the Collegium was established and its present and future perspectives. The seminar included speeches from current and former Collegium Researchers and two keynote speakers were invited to the seminar to present their research careers, Professor of Radiology Anna-Liisa Brownell from Harvard Medical School and Academy Professor, Academician of Science Eva-Mari Aro. For further details, see "[Turku Collegium for Science and Medicine Celebrates its 10th Anniversary](#)".

Call Announcements for Collegium and Postdoctoral Researcher positions are planned to be announced in early autumn 2019.

► TCSM Previous Calls

Collegium Researchers

Collegium Researcher is an ambitious young researcher who wants to start independent research work, has gained a doctoral degree certificate a minimum of three years and a maximum of nine years before the expiry of the application submission deadline, and has international research experience (significant post-doctoral research work abroad is essential).

Previous calls for TCSM Collegium Researcher positions

Year	Applications	Positions	Percentage
2008	87	6	6.8
2009	65	4	6.1
2011	66	7	10.6
2013	85	5	5.9
2015	166	6	3.6
2017	156	4	2.6

* The success rates for each call.

Postdoctoral Researchers

The person to be appointed to the postdoctoral researcher position is required to hold a doctoral degree, which may not have been completed more than five years before the expiry of the application submission deadline. Particular attention is paid to the candidate's international research experience. The successful candidate should have a linkage with the research activities of the University of Turku and should, as a rule, be able to join an existing research group or work under the supervision of a senior researcher at the University of Turku.

Previous calls for TCSM Postdoctoral Researcher positions

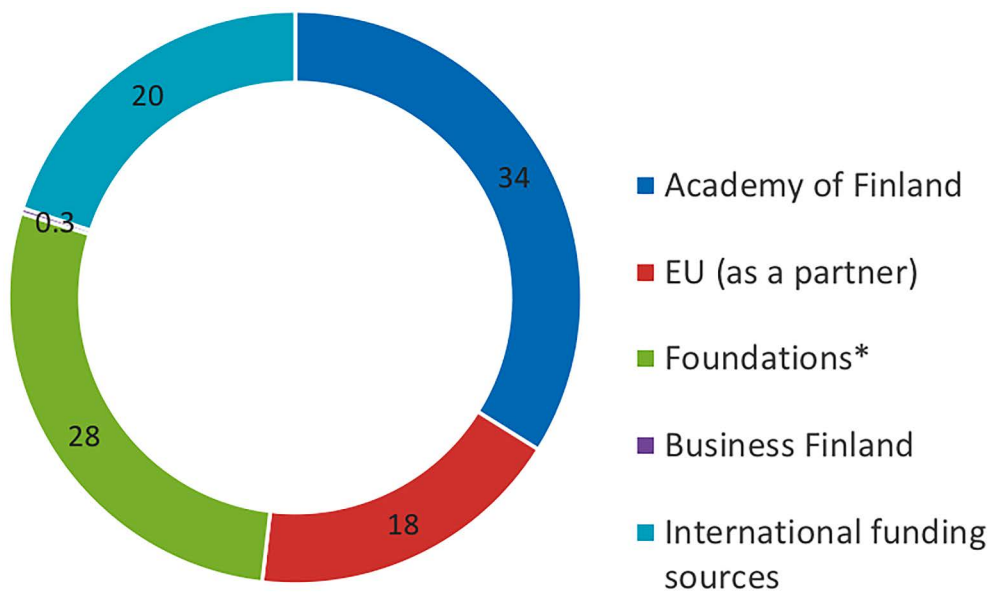
Year	Applications	Positions	Percentage*
2016	125	5	4.0
2017	175	5	2.9
2017	119	5	4.2

* The success rates for each call.

► Received External Funding 2016–2018 by TCSM Collegium Researchers

TCSM Collegium Researchers have received €3.49 million of external funding in total between 2016 and 2018.

Funding Sources, percentage



*Kone Foundation, Sigrid Juselius Foundation, Emil Aaltonen Foundation, Jenny and Antti Wihuri Foundation, Juho Vainio Foundation, Finnish Culture Foundation, Paavo Nurmi Foundation, Urmas Pekkala Foundation, EDUFI Fellowships and Finnish Medical Foundation

Faculty of Science and Engineering

Collegium Researchers



KATJA ANTILA

Physiology and Genetics, Department of Biology
PhD University of Oulu

Postdoc period at University of British Columbia,
Canada

Total number of publications: 34 refereed journal
articles, 2 book chapters

Anttila Lab

"The research in my group is focusing mostly on cardio-vascular functions and metabolic rate of fishes and other aquatic animals from molecular to functional

level. We are studying how animals can respond to different environmental challenges including climate change, hypoxia, toxins and their interactions."

Five selected publications

Nikinmaa M, Suominen E & Anttila K (2019) Water-soluble fraction of crude oil affects variability and has transgenerational effects in *Daphnia magna*. *Aquat Toxicol* 211: 137–140

Anttila K, Farrell AP, Patterson DA, Hinch SG & Eliason EJ (2019) Cardiac SERCA activity in sockeye salmon populations: an adaptive response to migration conditions. *Can J Fish Aquat Sci* 76: 1–5

Anttila K, Mauduit F, Le Floch S, Claireaux G & Nikinmaa M (2017) Influence of crude oil exposure on cardiac function and thermal tolerance of juvenile rainbow trout and European seabass. *Environ Sci Poll Res* 24: 19624–19634

Eliason E & Anttila K (2017) Temperature and the Cardiovascular System. In a book: *Fish Physiology*. Ed. Gamperl AK, Gillis TE, Farrell AP & Brauner CJ. Springer. pp. 235–297

Anttila K, Lewis M, Prokkola JM, Kanerva M, Seppänen E, Kolari I & Nikinmaa M (2015) Warm acclimation and oxygen depletion induce species-specific responses in salmonids. *J Exp Biol* 218: 1471–1477

HELI HIETALA

Space Research Laboratory, Department of Physics
and Astronomy

PhD University of Helsinki

Postdoc period at Space and Atmospheric Physics
Group, Imperial College London, UK

Researcher at Department of Earth, Planetary
and Space Sciences, University of California,
Los Angeles, USA

Total number of publications: 50 refereed journal
articles



"I study structure formation and particle energization in different space plasma processes, such as shock waves and magnetic reconnection, by combining multi-spacecraft observations and modelling."

Five selected publications

Archer MO, Hietala H, Hartinger MD, Plaschke F & Angelopoulos V (2019) Direct observations of a surface eigenmode of the dayside magnetopause. *Nature Comm* 10, 615

Hietala H, Phan TD, Angelopoulos V, Oieroset M, Archer MO, Karlsson T & Plaschke F (2018) In situ observations of a magnetosheath high-speed jet triggering magnetopause reconnection. *Geophys Res Lett* 45: 1732–1740

Hietala H, Drake JF, Phan TD, Eastwood JP & McFadden JP (2015) Ion temperature anisotropy across a magnetotail reconnection jet. *Geophys Res Lett* 42: 7239–7247

Hietala H, Sandroos A & Vainio R (2012) Particle acceleration in shock-shock interaction: model to data comparison. *Ap J Lett* 751, L14

Hietala H, Laitinen TV, Andréová K, Vainio R, Vaivads A, Palmroth M, Pulkkinen TI, Koskinen HEJ, Lucek EA & Rème H (2009) Supermagnetosonic jets behind a collisionless quasiparallel shock. *Phys Rev Lett* 103, 245001



TALVIKKI HOVATTA

Tuorla Observatory, Department of Physics and Astronomy

Current position: Academy of Finland Research Fellow, Finnish Centre for Astronomy with ESO, 1.9.2018–

DSc (Tech) Helsinki University of Technology

Postdoc period at Department of Physics, Purdue University, USA, in Owens Valley Radio Observatory, California Institute of Technology, USA and in Metsähovi Radio Observatory, Aalto University

Total number of publications: 129 refereed journal articles

“My main research interest is in active galaxies and their relativistic plasma jets. In my research, I use observations at all wavelengths from radio to very-high-energy gamma rays to constrain the physical processes responsible for their extreme brightness and variability.”

Five selected publications

Hovatta T, O’Sullivan S, Martí-Vidal I, Savolainen T & Tchekhovskoy A (2019) Magnetic field at a jet base: extreme Faraday rotation in 3C 273 revealed by ALMA. *Astron Astrophys* 623, A111

Liodakis I, Hovatta T, Huppenkothen D, Kiehlmann S, Max-Moerbeck W & Readhead ACS (2018) Constraining the limiting brightness temperature and doppler factors for the largest sample of radio-bright blazars. *Astrophys J* 866, 137

MAGIC Collaboration, including T. Hovatta as one corresponding author (2018) The broad-band properties of the intermediate synchrotron peaked BL Lac S2 0109+22 from radio to VHE gamma-rays. *Mon Notices Royal Astron Soc* 480, 879

Homan D, Hovatta T, Kovalev Y, Lister M, Pushkarev A & Savolainen T (2018) Constraints on particles and fields from full stokes observations of AGN. *Galaxies* 6, 17

Cohen MH, Aller HD, Aller MF, Hovatta T, Kharb P, Kovalev YY, Lister ML, Meier DL, Pushkarev AB & Savolainen T (2018) Reversals in the direction of polarization rotation in OJ 287. *Astrophys J* 862, 1

ERKKI KANKARE

Tuorla Observatory, Department of Physics and Astronomy

PhD University of Turku

Postdoc period at Astrophysics Research Centre, Queen's University Belfast, UK

Total number of publications: 93 refereed journal articles

My research page



"My research interests include astrophysical transients such as core-collapse supernova explosions that mark the end of the life cycles of massive stars, and their usage as cosmological probes of the star formation history of the Universe. I have also recently focused on the new field of multi-messenger astronomy making use of gravitational-wave and neutrino detections in addition to the conventional observations in electromagnetic wavelengths."

Five selected publications

- Kankare E, Huber M, Smartt SJ, Chambers K, Smith KW, McBrien O et al. (2019) Search for transient optical counterparts to high-energy IceCube neutrinos with Pan-STARRS1. *Astron Astrophys*, Accepted
- Mattila S, Pérez-Torres M, Efstathiou A, Mimica P, Fraser M, Kankare E et al. (2018) A dust-enshrouded tidal disruption event with a resolved radio jet in a galaxy merger. *Science* 361: 482–485
- Kankare E, Kotak R, Mattila S, Lundqvist P, Ward MJ, Fraser M et al. (2017) A population of highly energetic transient events in the centres of active galaxies. *Nat Astron* 1, 865
- Smartt SJ, Chen T-W, Jerkstrand A, Coughlin M, Kankare E, Sim SA et al. (2017) A kilonova as the electromagnetic counterpart to a gravitational-wave source. *Nature* 551: 75–79
- Kankare E, Kotak R, Pastorello A, Fraser M, Mattila S, Smartt SJ et al (2015) On the triple peaks of SNHunt248 in NGC 5806. *Astron Astrophys* 581, L4



PERE PUIGBO

Physiology and Genetics, Department of Biology
PhD Biochemistry and Biotechnology Department,
Rovira i Virgili University

Postdoc/Research Fellow at National Center for
Biotechnology Information, National Library of
Medicine, National Institute of Health, Bethesda,
Maryland, USA

Total number of publications in PubMed: 24 refereed
journal articles

[P. Puigbo's research page](#)

"The main goal of my group is to understand the evolution of microbial genomes and the mechanisms of adaptation to natural and artificial selection. I am a computational biologist with several years of experience in the field of microbial evolutionary genomics and phylogenomics."

Five selected publications

Puigbò P, Makarova KS, Kristensen DM, Wolf YI & Koonin EV (2017) Reconstruction of the evolution of microbial defense systems. *Genome Biology and Evolution*, 17: 94

Puigbo P, Lobkovsky AE, Kristensen DM, Wolf YI & Koonin EV (2014) Genomes in turmoil: Quantification of genome dynamics in prokaryote supergenomes. *BMC Biol* 12: 66

Puigbò P#, Das SR#, Hensley SE, Hurt DE, Bennink JR & Yewdell JW (2010) Glycosylation focuses sequence variation in the influenza A virus H1 hemagglutinin globular domain. *PLoS Pathog* 6:e1001211. #Equal contribution.

Puigbò P, Wolf Y & Koonin EV (2009) Search for a 'Tree of Life' in the thicket of the phylogenetic forest. *J Biol* 8: 59

Puigbò P, Guzman E, Romeu A & Garcia-Vallve S (2007) OPTIMIZER: a web server for optimizing the codon usage of DNA sequences. *Nucleic Acids Res* 35: W126–W131

JING TANG

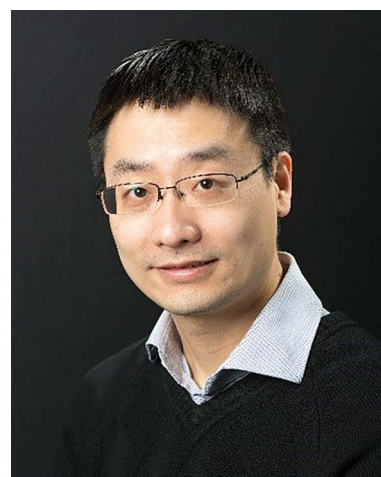
Department of Mathematics and Statistics

Current position: Tenure-track Assistant Professor in Statistics, Academy of Finland Research Fellow, Faculty of Medicine, University of Helsinki, 1.9.2018–

PhD Department of Mathematics and Statistics, University of Helsinki

Postdoc period at VTT Technical Research Center of Finland and Institute for Molecular Medicine Finland

Total number of publications: 42 refereed journal articles



Tang Lab

@NetPharMed

Tang Group

"Our mission is to develop mathematical, statistical and informatics tools to tackle biomedical questions that may potentially lead to breakthroughs in drug discovery. We are focusing on network pharmacology modeling, aiming at a systems-level understanding of how cancer signaling pathways can be inhibited by synergistic drug combinations through multi-target perturbations. These methods offer an improved efficiency to identify more effective cancer treatments for personalized medicine."

Five selected publications

Zagidullin B, Aldahdooh J, Zheng S, Wang W, Wang Y, Saad J, Malyutina A, Mohieddin J, Tanoli Z, Pessia A & Tang J (2019) DrugComb – an integrative cancer drug combination data portal. *Nucleic Acids Res.* In press.

Malyutina A, Majumder MM, Wang W, Pessia A, Heckman C & Tang J (2019) Drug combination sensitivity scoring facilitates the discovery of synergistic and efficacious drug combinations in cancer. *PLoS Comput Biol.* In press.

Cazaly E, Saad J, Wang W, Heckman C, Ollikainen M & Tang J (2019) Making sense of the epigenome using data integration approaches. *Front Pharmacol* 10:126

Yadav B, Wenerberg K, Aittokallio T & Tang J (2015) Searching for drug synergy in complex dose-response landscapes using an interaction potency model. *Comput Struct Biotechnol J* 13: 504–513

Hanage WP, Fraser C, Tang J, Connor TR & Corander J (2009) Hyper-recombination, diversity, and antibiotic resistance in pneumococcus. *Science* 324: 1454–1457

Faculty of Medicine

Collegium Researchers



ILKKA HEINONEN

Turku PET Centre and Department of Clinical Physiology and Nuclear Medicine

PhD University of Turku

Postdoc period at Thorax Center, Department of Cardiology, Erasmus University Medical Center Rotterdam, Rotterdam, the Netherlands and at School of Sport Science, Exercise and Health, Faculty of Science, University of Western Australia, Australia

Total number of publications: 58 refereed journal articles

"My primary general research interest is to elucidate acute and long-term cardiovascular and metabolic adaptations of physical activity and exercise in health and disease. Novel aspects in this area are pursued by studying broad range of human activity levels, ranging from total inactivity at the epidemiological scale to extreme activities of highly training and performing endurance athletes. These studies are complemented by investigating physiological responses of environmental challenges."

Five selected publications

*Sorop O, *Heinonen I, van Kranenburg M, van de Wouw J, de Beer VJ, Nguyen ITN, Octavia Y, van Duin RWB, Stam K, van Geuns RJ, Wielopolski PA, Krestin GP, van den Meiracker AH, Verjans R, van Bilsen M, Danser AHJ, Paulus WJ, Cheng C, Linke WA, Joles JA, Verhaar MC, van der Velden J, Merkus D & Duncker DJ (2018) Multiple common comorbidities produce left ventricular diastolic dysfunction associated with coronary microvascular dysfunction, oxidative stress, and myocardial stiffening. *Cardiovasc Res* 114: 954–964 *shared first authorship.

Heinonen I, Koga S, Kalliokoski KK, Musch TI & Poole DC (2015) Heterogeneity of muscle blood flow and metabolism: influence of exercise, aging, and disease states. *Exerc Sport Sci Rev* 43: 117–24

Heinonen I, Kalliokoski KK, Hannukainen JC, Duncker DJ, Nuutila P, & Knuuti J (2014) Organ-specific physiological responses to acute physical exercise and long-term training in humans. *Physiology* 29: 421–36

Heinonen I, Kudomi N, Kemppainen J, Kiviniemi A, Noponen T, Luotolahti M, Luoto P, Oikonen V, Sipilä HT, Kopra J, Mononen I, Duncker DJ, Knuuti J & Kalliokoski KK (2014) Myocardial blood flow and its transit time, oxygen utilization, and efficiency of highly endurance-trained human heart. *Basic Res Cardiol* 109: 413

Heinonen I, Helajärvi H, Pakkala K, Heinonen OJ, Hirvensalo M, Pälve K, Tammelin T, Yang X, Juonala M, Mikkilä V, Kähönen M, Lehtimäki T, Viikari J & Raitakari OT (2013) Sedentary behaviours and obesity in adults: the Cardiovascular Risk in Young Finns Study. *BMJ Open*. 20;3(6). pii: e002901

JIANWEI LI

MediCity

PhD University of Groningen, The Netherlands

Postdoc period at Department of Chemistry, University of Oxford, UK

Total number of publications: 23 refereed journal articles

Jianwei Li research group

"We are working in an emerging area called Systems Chemistry, trying to understand the fundamentals of molecular properties and dynamics in synthetic complex systems, and explore their advanced application in areas such as drug delivery, bioimaging, targeting, gene delivery, photodynamic therapy for cancer therapy."



Five selected publications

Nowak P, Colomb-Delsuc M, Otto S * & Li J* (2015) Template-triggered emergence of a self-replicator from a dynamic combinatorial library. *J Am Chem Soc* 137: 10965–10969

Li J, Nowak P & Sijbren Otto (2015) An allosteric receptor by simultaneous "Casting" and "Molding" in a dynamic combinatorial library. *Angew Chem Int Ed*. 54: 833–837

Li J, Nowak P, Fanlo-Virgós H & Otto S (2014) Catenanes from catenanes: quantitative assessment of cooperativity in dynamic combinatorial catenation. *Chem Sci* 5: 4968–4974

Li J, Nowak P & Otto S (2013) Dynamic combinatorial chemistry: from exploring molecular recognition to systems chemistry. *J Am Chem Soc* 135: 9222–9239

Li J, Carnall JMA, Stuart MCA & Otto S (2011) Hydrogel formation upon photoinduced covalent capture of macrocycle stacks for dynamic combinatorial libraries. *Angew Chem Int Ed* 50: 8384–8386



MIHO NAKAMURA

Institute of Biomedicine

PhD Department of Hard Tissue Engineering, Tokyo Medical and Dental University, Japan

Postdoc period at Tokyo Medical and Dental University (worked as an Assistant Professor and as Associate Professor), and at University of Oulu (Visiting Professor)

Total number of publications: 60 refereed journal articles, 18 proceedings, 4 reviews, and 10 books

"Main goal of our research is to find a solution for bone diseases in elderly population, such as osteoarthritis and osteoporosis. My current research interest includes (1) bio-inspired biomaterials to enhance bone regeneration by the manipulation of bone cells, (2) new parameters for the evaluation of bone quality using knowledge of materials science and (3) mechanism of osteolysis in aseptic loosening."

Five selected publications

Nakamura M, Hori N, Ando H, Namba S, Toyama T, Nishimiya N & Yamashita K (2016) Surface free energy predominates in cell adhesion to hydroxyapatite through wettability. *Mater Sci Eng C* 62: 283–292

Nakamura M, Hiratai R, Hentunen T, Salonen J & Yamashita K (2016) Hydroxyapatite with high carbonate substitutions promotes osteoclast resorption through osteocyte-like cells. *ACS Biomater Sci Eng* 2: 259–267

Nakamura M, Hentunen T, Salonen J, Nagai A & Yamashita K (2013) Characterization of bone mineral-resembling biomaterials for optimizing human osteoclast differentiation and resorption. *J Biomed Mater Res A* 101A: 3141–3151

Nakamura M, Hiratai R & Yamashita K (2012) Bone mineral as an electrical energy reservoir. *J Biomed Mater Res A* 100A: 1368–1374

Nakamura M, Soya T, Hiratai R, Nagai A, Hashimoto K, Morita I & Yamashita K (2012) Endothelial cell migration and morphogenesis on silk fibroin scaffolds including hydroxyapatite electret. *J Biomed Mater Res A* 100A: 969–977

TEEMU NIIRANEN

Internal Medicine, Department of Clinical Medicine
MD, PhD Department of Clinical Medicine, University
of Turku

Postdoc period at Framingham Heart Study, Boston
University, USA

Total number of publications: 97 refereed journal
articles



"My research has focused on the epidemiology of hypertension in large-scale population cohorts. My prior studies focused on blood pressure monitoring, but more recently I have moved into examining the relation between hypertension and omics (genome, metagenome and metabolome)."

Five selected publications

Niiranen TJ, McCabe EL, Larson MG, Henglin M, Lakdawala NK, Vasani RS & Cheng S (2017) Risk for hypertension crosses generations in the community: a multi-generational cohort study. *Eur Heart J* 38: 2300–2308

Niiranen TJ, McCabe EL, Larson MG, Henglin M, Lakdawala NK, Vasani RS & Cheng S (2017) Heritability and risks associated with early onset hypertension: multi-generational, prospective analysis in the Framingham Heart Study. *BMJ* 357: j1949

Niiranen TJ, Larson MG, McCabe EL, Xanthakis V, Vasani RS & Cheng S (2017) Prognosis of prehypertension without progression to hypertension. *Circulation* 136: 1262–1264

Niiranen TJ, Henglin M, Claggett B, Muggeo VMR, McCabe E, Jain M, Vasani RS, Larson MG & Cheng S (2018) Trajectories of blood pressure elevation preceding hypertension onset: an analysis of the Framingham Heart Study original cohort. *JAMA Cardiol* 3: 427–431

Niiranen TJ, Hänninen MR, Johansson J, Reunanen A & Jula AM (2010) Home-measured blood pressure is a stronger predictor of cardiovascular risk than office blood pressure: the Finn-Home study. *Hypertension* 55: 1346–1351

► Postdoctoral Researchers

Faculty of Science and Engineering

THOMAS BULLOCK

Turku Centre for Quantum Physics, Department of Physics and Astronomy
PhD Mathematical Physics, Department of Mathematics, University of York, UK
Total number of publications: 4
Supervisor: Professor Sabrina Maniscalco

Three selected publications

- Bullock T & Busch P (2018) Measurement uncertainty relations: characterizing optimal error bounds for qubits. *J Phys A* 51, 283001
- Bullock T, Cosco F, Haddara M, Raja SH, Kerppo O, Leppäjärvi L, Siltanen O, Talarico NW, De Pasquale A, Giovannetti V & Maniscalco S (2018) Entanglement protection via period environment resetting in continuous-time quantum dynamical processes. *Phys Rev A* 98, 042301
- Bullock T & Busch P (2014) Focusing in Arthurs-Kelly-type joint measurements with correlated probes. *Phys Rev Let* 113, 120401

PEDRO DINIS

Department of Biochemistry
PhD University of Southampton, UK
Postdoc period at University of Southampton, UK
Total number of publications: 7
Supervisor: Associate Professor Mikko Metsä-Ketelä

ABELAB

Three selected publications

- Dinis P, Suess DL, Fox SJ, Harmer JE, Driesener RC, De La Paz L, Swartz JR, Essex JW, Britt RD & Roach PL (2015) X-ray crystallographic and EPR spectroscopic analysis of HydG, a maturase in [FeFe]-hydrogenase H-cluster assembly. *Proc Natl Acad Sci U S A* 112: 1362–1367
- Grocholski T, Dinis P, Niiranen L, Niemi J & Metsä-Ketelä M (2015) Divergent evolution of an atypical S-adenosyl-L-methionine-dependent monooxygenase involved in anthracycline biosynthesis. *Proc Natl Acad Sci U S A* 112: 9866–9871
- Dinis P, Wandt BN, Grocholski T & Metsä-Ketelä M (2019). Chimeragenesis for Biocatalysis. In *Advances in Enzyme Technology* (pp. 389–418). Elsevier

JAROSLAV ICHA

Turku Bioscience

PhD Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany

Total number of publications: 9

Supervisor: Professor Johanna Ivaska

[@IchaJaroslav](#)

Three selected publications

Moreno-Layseca P*, Icha J*, Hamidi H* & Ivaska J (2019) Integrin trafficking in cells and tissues. *Nat Cell Biol* 2: 122-132 (*equal contribution)

Daniel K*, Icha J*, Horenburg C, Muller D, Norden C & Mansfeld J (2018) Conditional control of fluorescent fusion protein degradation by an auxin-dependent nanobody. *Nat Commun* 9, 3297 (*equal contribution)

Icha J, Kunath C, Martins M R & Norden C (2016) Independent modes of ganglion cell translocation ensure correct lamination of the zebrafish retina. *J Cell Biol* 215: 259–275

AINO KALSKE

Department of Biology

PhD Department of Biology, University of Turku

Postdoc period at Department of Ecology and Evolutionary Biology, Cornell University, USA

Total number of publications: 8

Supervisor: Academy Research Fellow Satu Ramula

[Google Scholar Profile](#)

Three selected publications

Kessler A & Kalske A (2018) Plant secondary metabolite diversity and species interactions. *Annu Rev Ecol Evol Syst* 49: 115–138

Kalske A, Leimu R, Scheepens JF & Mutikainen P (2016) Spatiotemporal variation in local adaptation of a specialist insect herbivore to its long-lived host plant. *Evolution* 70: 2110–2122

Kalske A, Mutikainen P, Muola A, Scheepens JF, Laukkanen L, Salminen J-P & Leimu R (2014) Simultaneous inbreeding modifies inbreeding depression in a plant–herbivore interaction. *Ecol Lett* 7: 229–238

LOKESH KESAVAN

Department of Chemistry

PhD Department of Chemistry, Cardiff University, UK

Postdoc period at Aalto University, at Trinity University, Texas, USA, and at Åbo Akademi University

Total number of publications: 15

Supervisor: Professor Carita Kvarnström

Materials Chemistry Research Group

Three selected publications

Sobhanadhas LSS, Kesavan L & Fardim P (2018) Topochemical engineering of cellulose-based functional materials. *Langmuir* 34: 9857–9878

Sobhanadhas LSS, Kesavan L, Lastusaari M & Fardim P (2019) Layered double hydroxide-cellulose hybrid beads: a novel catalyst for topochemical grafting of pulp fibers. *ACS Omega* 4: 320–330

Sobhana L, Kesavan L, Gustafsson J & Fardim P (2019) Topochemical engineering of composite hybrid fibers using layered double hydroxides and abietic acid. *Beilstein J Nanotechnol* 10: 589–605

MIKYOUNG LEE

Department of Mathematics and Statistics

PhD Department of Mathematical Sciences, Seoul National University

Postdoc period at Korea Advanced Institute of Science and Technology (KAIST), Korea

Total number of publications: 7

Supervisor: Professor Peter Hästö

ResearchGate Profile

Three selected publications

Lee M, Sun-Sig Byun & Ok J (2018) Nondivergence parabolic equations in weighted variable exponent spaces. *Transactions of American Mathematical Society* 370: 2263–2298

Lee M & Sun-Sig Byun (2015) Weighted estimates for nondivergence parabolic equations in Orlicz spaces. *J Funct Anal* 269: 2530–2563

Lee M (2018) Weighted Orlicz regularity estimates for fully nonlinear elliptic equations with asymptotic convexity. *Commun Contemp Math* 21, 1850024

NICOLINO LO GULLO

Department of Physics and Astronomy

PhD University College Cork, Ireland

Postdoc period at Università della Calabria, Cosenza, Italy, at Università degli studi di Milano, Italy and at Università degli studi di Padova, Italy

Total number of publications: 22

Supervisor: Professor Sabrina Maniscalco

Turku Quantum Technology Research Group

Three selected publications

Talarico NW, Maniscalco S & Lo Gullo N (2019) A scalable numerical approach to the solution of the Dyson equation for the non-equilibrium single-particle Green's function. *Phys Status Solidi B* 1800501

Settino J, Lo Gullo N, Sindona A, Goold J & Plastina F (2017) Signatures of the single-particle mobility edge in the ground-state properties of Tonks-Girardeau and noninteracting Fermi gases in a bichromatic potential. *Phys Rev A* 95, 033605

Lo Gullo N & Dell'Anna L (2016) Self-consistent Keldysh approach to quenches in weakly interacting Bose-Hubbard model. *Phys Rev B* 94, 184308

JARKKO PELTOMÄKI

Department of Mathematics and Statistics

PhD Turku Centre for Computer Science, Department of Mathematics and Statistics

Total number of publications: 13

Peltomäki's home page

Three selected publications

Massuir A, Peltomäki J & Rigo M (2019) Automatic sequences based on Parry or Bertrand numeration systems. *Adv Appl Math* 108: 11–30

Peltomäki J & Whiteland MA (2017) A square root map on Sturmian words. *Electron J Comb* 24.1 #P1.54

Fici G, Langiu A, Lecroq T, Lefebvre A, Mignosi F, Peltomäki J & Prieur-Gaston É (2016) Abelian powers and repetitions in Sturmian words. *Theor Comput Sci* 635: 16–34

SOPHIE REICHERT

Department of Biology

PhD University of Strasbourg, France

Postdoc period at University of Sheffield, UK and at University of Glasgow, UK

Total number of publications: 18

Supervisor: Professor Virpi Lummaa

ResearchGate Profile

Three selected publications

Reichert S*, Berger V* (*shared first authors), Jackson J, Mar K & Lummaa V (2019) Effects of maternal age on offspring life history trajectories in the Asian elephant. *J Animal Ecol*

Reichert S & Stier A (2017) Does oxidative stress shorten telomeres in vivo? A review. *Biol Lett* 13, 20170463

Reichert S, Criscuolo F, Zahn S, Arrive M, Bize P & Massemin S (2015) Immediate and delayed effects of growth conditions on ageing parameters in nestling zebra finches. *J Exp Biol* 218: 491–499

MATTEO ROSSI

Department of Physics and Astronomy

PhD Department of Physics, University of Milan, Italy

Total number of publications: 18

Supervisor: Professor Sabrina Maniscalco

Turku Quantum Technology Research Group

Three selected publications

Rossi MAC, Benedetti C & Paris MGA (2014) Engineering decoherence for two-qubit systems interacting with a classical environment. *Int. J Quantum Inform* 12, 1560003

Albarelli F, Rossi MAC, Tamascelli D, Genoni MG (2018) Restoring Heisenberg scaling in noisy quantum metrology by monitoring the environment. *Quantum* 2, 110

Rossi MAC, Paris MGA (2015) Entangled quantum probes for dynamical environmental noise. *Phys Rev A* 92, 010302

ANTOINE STIER

Department of Biology

PhD IPHC, University of Strasbourg, France

Postdoc period at French Polar Institute, Université d'Angers, France and at University of Glasgow, UK

Total number of publications: 25

Supervisor: Academy Research Fellow Suvi Ruuskanen

[Stier's home page](#)

Three selected publications

Reichert S & Stier A (2017) Does oxidative stress shorten telomeres? A review. *Biol Lett* 13: 20170463

Stier A, Romestaing C, Schull Q, Lefol E, Robin JP, Roussel D & Bize P (2017) How to measure mitochondrial function in birds using red blood cells: a case study in the king penguin and perspectives in ecology and evolution. *Methods Ecol Evol* 8: 1172–1182

Stier A, Bize P, Schull Q, Zoll J, Singh F, Geny B, Gros F, Royer C, Massemin S & Criscuolo F (2013) Avian erythrocytes have functional mitochondria, opening novel perspectives for birds as animal models in the study of ageing. *Front Zool* 10: 33



Photograph by TCSM Postdoctoral Researcher Antoine Stier, Department of Biology

Faculty of Medicine

ANU AUTIO

MediCity Research Laboratory, Department of Biomedicine

PhD Turku PET Centre, University of Turku

Postdoc period at University of Turku, PET Centre and Harvard Medical School, Beth Israel Deaconess Medical Centre and Brigham and Women's Hospital, USA

Total number of publications: 21

Supervisor: Professor Sirpa Jalkanen

[LinkedIn profile](#)

Three selected publications

Autio A, Vainio PJ, Suilamo S, Mali A, Vainio J, Saanijoki T, Noponen T, Ahtinen H, Luoto P, Teräs M, Jalkanen S & Roivainen A (2013) Preclinical Evaluation of a Radioiodinated Fully Human Antibody for In Vivo Imaging of Vascular Adhesion Protein-1 Positive Vasculature in Inflammation. *J Nucl Med* 54: 1–5

Aalto K*, Autio A*, Kiss EA, Elima K, Nymalm Y, Veres TZ, Marttila-Ichihara F, Elovaara H, Saanijoki T, Crocker PR, Maksimow M, Bligt E, Salminen TA, Salmi M, Roivainen A & Jalkanen S (2011) Siglec-9 is a novel leukocyte ligand for vascular adhesion protein-1 and can be utilized in PET-imaging of inflammation and cancer. *Blood* 118:3725–3733. *Equal contribution.

Autio A, Ujula T, Luoto P, Salomäki S, Jalkanen S, Roivainen A (2010) PET imaging of inflammation and adenocarcinoma xenografts using vascular adhesion protein-1 targeting peptide 68Ga-DOTAVAP-P1 – comparison with 18F-FDG. *Eur J Nucl Med Mol Imaging* 37: 1918–25

YU CAO

MediCity

PhD Chemistry College, Nanjing University

Postdoc period at Centre Interdisciplinaire de Nanoscience de Marseille, France

Total number of publications: 11

Supervisor: Collegium Researcher Jianwei Li

Three selected publications

Cao Y, Hu X-Y, Li Y, Zou X, Xiong S, Lin C, Shen Y-Z & Wang L (2014) Multistimuli-responsive supramolecular vesicles based on water-soluble pillar[6]arene and SAINT complexation for controllable drug release. *J Am Chem Soc* 136: 10762–10769

Cao Y, Li Y, Hu X-Y, Zou X, Xiong S, Lin C, & Wang L (2015) Supramolecular nanoparticles constructed by DOX-based prodrug with water soluble pillar[6]arene for self-catalyzed rapid drug release. *Chem Mater* 27: 1110–1119

Duan Q, Cao Y, Li Y, Hu X, Xiao T, Lin C, Pan Y & Wang L (2013) pH-responsive supramolecular vesicles based on water-soluble pillar[6]arene and ferrocene derivative for drug delivery. *J Am Chem Soc* 135: 10542–10549

PETTERI RINNE

Research Center for Integrative Physiology and Pharmacology, Institute of Biomedicine

Current position: Academy of Finland Research Fellow, 1.9.2018–

PhD Department of Pharmacology, Drug Development and Therapeutics, University of Turku

Postdoc period at Turku PET Centre and Ludwig-Maximilians University Munich, Germany

Total number of publications: 20

Supervisor: Professor Eriika Savontaus

Three selected publications

Rinne P, Guillamat-Prats R, Rami M, Ring L, van der Vorst EPC, Raitoharju E, Oksala N, Lehtimäki T & Steffens S (2018) Palmitoylethanolamide promotes a pro-resolving macrophage phenotype and attenuates atherosclerotic plaque formation. *Arterioscler Thromb Vasc Biol* 38: 2562–2575

Rinne P, Kadiri J, Velasco-Delgado M, Nuutinen S, Viitala M, Hollmén M, Rami M, Savontaus E & Steffens S (2018) Melanocortin 1 receptor deficiency promotes atherosclerosis in apolipoprotein E $-/-$ mice. *Arterioscler Thromb Vasc Biol* 38: 313–323

Rinne P, Rami M, Nuutinen SL, Santovito D, van der Vorst EPC, Guillamat-Prats R, Lyytikäinen LP, Raitoharju E, Oksala N, Ring L, Cai M, Hruby VJ, Lehtimäki TJ, Weber C & Steffens S (2017) Melanocortin 1 receptor signaling regulates cholesterol transport in macrophages. *Circulation* 136: 83–97

LIHUA SUN

Turku PET Center

PhD Behavioral Neurology, University of Tampere

Total number of publications: 7

Supervisor: Assistant Professor Lauri Nummenmaa

[Lihua's home page](#)

Three selected publications

Sun L, Peräkylä J, Holm K, Haapasalo J, Lehtimäki K, Ogawa KH, Peltola J & Hartikainen KM (2017) Vagus nerve stimulation improves working memory performance. *J Clin Exp Neuropsychol* 39: 954–964

Sun L, Peräkylä J & Hartikainen KM (2017) Frontal alpha asymmetry, a potential biomarker for the effect of neuromodulation on brain's affective circuitry—preliminary evidence from a deep brain stimulation study. *Frontiers in Human Neuroscience* 11: 584

Sun L, Peräkylä J, Polvivaara M, Öhman J, Peltola J, Lehtimäki K, Huhtala H & Hartikainen KM (2015) Human anterior thalamic nuclei are involved in emotion-attention interaction. *Neuropsychologia* 78: 88–94

JETRO TUULARI

FinnBrain Birth Cohort Study, Department of Psychiatry, Institute of Clinical Medicine

Current position: Department of Psychiatry, University of Oxford 1.4.2019 – current PhD Neurology, Faculty of Medicine, University of Turku (Adj. Professor 2018)

Postdoc period FinnBrain NeuroImaging Lab

Supervisor: Professor Hasse Karlsson

Total number of publications: 26

ORCID

Three selected publications

Pulli EP, Kumpulainen V, Kasurinen JH, Korja R, Merisaari H, Karlsson L, Parkkola R, Saunavaara J, Lähdesmäki T, Scheinin NM, Karlsson H & Tuulari JJ (2019) Prenatal exposures and infant brain: Review of magnetic resonance imaging studies and a population description analysis. Hum Brain Mapp 40: 1987–2000. Review.

Tuulari JJ, Scheinin NM, Lehtola S, Merisaari H, Saunavaara J, Parkkola R, Sehlstedt I, Karlsson L, Karlsson H & Björnsdotter M (2019) Neural correlates of gentle skin stroking in early infancy. Dev Cogn Neurosci 35: 36–41

Tuulari JJ, Tuominen L, de Boer FE, Hirvonen J, Helin S, Nuutila P & Nummenmaa L (2017) Feeding releases endogenous opioids in humans. J Neurosci 37: 8284–8291



Photograph by TCSM Postdoctoral Researcher Jarkko Peltomäki, Department of Mathematics and Statistics

► Management Board of TCSM

Chair

Professor Sirpa Jalkanen, Academician, Institute of Biomedicine, Faculty of Medicine

Members

Professor Kalle-Antti Suominen, Vice-Rector for Research, Faculty of Science and Engineering

Professor Luis Alvarez Esteban, Turku School of Economics

Professor Jyrki Heino, Department of Biochemistry, Faculty of Science and Engineering

Professor Virpi Lummaa, Department of Biology, Faculty of Science and Engineering

Professor Heikki Minn, Department of Oncology and Radiotherapy, Faculty of Medicine

► Further Information

For further information please visit [Turku Collegium for Science and Medicine website](#) or contact TCSM Coordinator [Kaisa Hakkila](#).

► Publications by TCSM Researchers 2018

A1 Journal article – refereed

Cold temperature represses daily rhythms in the liver transcriptome of a stenothermal teleost under decreasing day length (2018) Journal of Experimental Biology. Jenni M. Prokkola, Mikko Nikinmaa, Mario Lewis, **Katja Anttila**, Mirella Kanerva, Kaisa Ikkala, Eila Seppänen, Irma Kolari, Erica H. Leder

A Comparative 68Ga-Citrate and 68Ga-Chloride PET/CT Imaging of Staphylococcus aureus Osteomyelitis in the Rat Tibia (2018) Contrast Media and Molecular Imaging. Petteri Lankinen, Tommi Noponen, **Anu Autio**, Pauliina Luoto, Janek Frantzèn, Eliisa Löyttyniemi, Antti J. Hakanen, Hannu T. Aro, Anne Roivainen

Entanglement protection via periodic environment resetting in continuous-time quantum-dynamical processes (2018) Physical Review A. **Thomas Bullock**, Francesco Cosco, Marwan Haddara, Sina Hamedani Raja, Oskari Kerppo, Leevi Leppäjärvi, Olli Siltanen, N. Walter Talarico, Antonella De Pasquale, Vittorio Giovannetti, Sabrina Maniscalco

Cardiovascular Function of Modern Pigs Does not Comply with Allometric Scaling Laws**Länsimaalaisten kunto on laskenut kuin lehmän häntä** (2018) Scientific Reports. Gerard J. van Essen, Maaïke te Lintel Hekkert, Oana Sorop, **Ilkka Heinonen**, Jolanda van der Velden, Daphne Merkus, Dirk J. Duncker

Early detection of left ventricular diastolic dysfunction using conventional and speckle tracking echocardiography in a large animal model of metabolic dysfunction (2018) International Journal of Cardiovascular Imaging. Mark M. P. van den Dorpel, **Ilkka Heinonen**, Sanne M. Snelder, Hendrik J. Vos, Oana Sorop, Ron T. van Domburg, Daphne Merkus, Dirk J. Duncker, Bas M. van Dalen

Increase of Glucose Uptake in Human Bone Marrow With Increasing Exercise Intensity (2018) International Journal of Sport Nutrition and Exercise Metabolism. **Ilkka Heinonen**, Jukka Kemppainen, Toshihiko Fujimoto, Juhani Knuuti, Kari K. Kalliokoski

Multiple common comorbidities produce left ventricular diastolic dysfunction associated with coronary microvascular dysfunction, oxidative stress, and myocardial stiffening (2018) Cardiovascular Research. Oana Sorop, **Ilkka Heinonen**, Matthijs van Kranenburg, Jens van de Wouw, Vincent J de Beer, Isabel T N Nguyen, Yanti Octavia, Richard W B van Duin, Kelly Stam, Robert-Jan van Geuns, Piotr A Wielopolski, Gabriel P Krestin, Anton H van den Meiracker, Robin Verjans, Marc van Bilsen, A H Jan Danser, Walter J Paulus, Caroline Cheng, Wolfgang A Linke, Jaap A Joles, Marianne C Verhaar, Jolanda van der Velden, Daphne Merkus, Dirk J Duncker

Regulation of bone blood flow in humans: The role of nitric oxide, prostaglandins, and adenosine (2018) Scandinavian Journal of Medicine and Science in Sports. **Ilkka Heinonen**, Robert Boushel, Ylva Hellsten, Kari Kalliokoski

Magnetosheath jet properties and evolution as determined by a global hybrid-Vlasov simulation (2018) Annales Geophysicae. Minna Palmroth, **Heli Hietala**, Ferdinand Plaschke, Martin Archer, Tomas Karlsson, Xóchitl Blanco-Cano, David Sibeck, Primož Kajdič, Urs Ganse, Yann Pfau-Kempf, Markus Battarbee, Lucile Turc

Constraining the Limiting Brightness Temperature and Doppler Factors for the Largest Sample of Radio-bright Blazars (2018) Astrophysical Journal. Ioannis Liodakis, **Talvikki Hovatta**, Daniela Huppenkothen, Sebastian Kiehlmann, Walter Max-Moerbeck, and Anthony C. S. Readhead

Detection of persistent VHE gamma-ray emission from PKS 1510-089 by the MAGIC telescopes during low states between 2012 and 2017 (2018) Astronomy and Astrophysics. V. A. Acciari et al. (**Talvikki Hovatta**)

Detection of the blazar S4 0954+65 at very-high-energy with the MAGIC telescopes during an exceptionally high optical state (2018) Astronomy and Astrophysics. M. L. Ahnen et al. (**Talvikki Hovatta**)

Extreme HBL behavior of Markarian 501 during 2012 (2018) Astronomy and Astrophysics. M. L. Ahnen et al. (**Talvikki Hovatta**)

Long-term optical monitoring of TeV emitting blazars I. Data analysis (2018) Astronomy and Astrophysics. K. Nilsson, E. Lindfors, L. O. Takalo, R. Reinthal, A. Berdyugin, A. Sillanpää, S. Ciprini, A. Halkola, P. Heinämäki, **Talvikki Hovatta**, V. Kadenius, P. Nurmi, L. Ostorero, M. Pasanen, R. Rekola, J. Saarinen, J. Sainio, T. Tuominen, C. Villforth, T. Vornanen, B. Zaprudin

Constraints on particles and fields from full Stokes observations of AGN (2018) Galaxies. Daniel C. Homan, **Talvikki Hovatta**, Yuri Y. Kovalev, Matthew L. Lister, Alexander B. Pushkarev, Tuomas Savolainen

Multi-wavelength characterization of the blazar S5 0716+714 during an unprecedented outburst phase (2018) Astronomy and Astrophysics. M. L. Ahnen et al. (**Talvikki Hovatta**)

Reversals in the Direction of Polarization Rotation in OJ 287 (2018) Astrophysical Journal. M. H. Cohen, H. D. Aller, M. F. Aller, **T. Hovatta**, P. Kharb, Y. Y. Kovalev, M. L. Lister, D. L. Meier, A. B. Pushkarev, T. Savolainen

RoboPol: connection between optical polarization plane rotations and gamma-ray flares in blazars (2018) Monthly Notices of the Royal Astronomical Society. D. Blinov, V. Pavlidou, I. Papadakis, S. Kiehlmann, I. Liodakis, G. V. Panopoulou, E. Angelakis, M. Baloković, **T. Hovatta**, O. G. King, A. Kus, N. Kylafis, A. Mahabal, S. Maharana, I. Myserlis, E. Paleologou, I. Papamastorakis, E. Pazderski, T. J. Pearson, A. Ramaprakash, A. C. S. Readhead, P. Reig, K. Tassis, J. A. Zensus

Simultaneous long-term monitoring of LS I+61 degrees 303 by OVRO and Fermi-LAT (2018) Monthly Notices of the Royal Astronomical Society. Frédéric Jaron, Maria Massi, Sebastian Kiehlmann, **Talvikki Hovatta**

Multiwavelength Observations of the Blazar BL Lacertae: A New Fast TeV Gamma-Ray Flare (2018) Astrophysical Journal. A. U. Abeysekara et al. (**Talvikki Hovatta**)

Stochastic Modeling of Multiwavelength Variability of the Classical BL Lac Object OJ287 on Timescales Ranging from Decades to Hours (2018) Astrophysical Journal. A. Goyal et al. (**Talvikki Hovatta**)

The broad-band properties of the intermediate synchrotron peaked BL Lac S2 0109+22 from radio to VHE gamma-rays (2018) Monthly Notices of the Royal Astronomical Society. S. Ansoldi et al. (**Talvikki Hovatta**)

The high brightness temperature of B0529+483 revealed by RadioAstron and implications for interstellar scattering (2018) Monthly Notices of the Royal Astronomical Society. S. V. Pilipenko, Y. Y. Kovalev, A. S. Andrianov, U. Bach, S. Buttaccio, P. Cassaro, G. Cim`o, P. G. Edwards, M. P. Gawroński, L. I. Gurvits, **Talvikki Hovatta**, D. L. Jauncey, M. D. Johnson, Yu. A. Kovalev, A. M. Kutkin, M. M. Lisakov, A. E. Melnikov, A. Orlati, A. G. Rudnitskiy, K. V. Sokolovsky, C. Stanghellini, P. de Vicente, P. A. Voitsik, P. Wolak, G. V. Zhekanis

Conditional control of fluorescent protein degradation by an auxin-dependent nanobody (2018) Nature Communications. Katrin Daniel, **Jaroslav Icha**, Cindy Horenburg, Doris Müller, Caren Norden, Jörg Mansfeld

Genetic drift precluded adaptation of an insect seed predator to a novel host plant in a long-term selection experiment (2018) PLoS ONE. Liisa Laukkanen, **Aino Kalske**, Anne Muola, Roosa Leimu, Pia Mutikainen

A dust-enshrouded tidal disruption event with a resolved radio jet in a galaxy merger (2018) Science. S. Mattila, M. Pérez-Torres, A. Efstathiou, P. Mimica, M. Fraser, **E. Kankare** et al.

A nearby super-luminous supernova with a long pre-maximum “plateau” and strong C (II) features (2018) *Astronomy and Astrophysics*. J. P. Anderson, P. J. Pessi, L. Dessart, C. Inserra, D. Hiramatsu, K. Taggart, S. J. Smartt, G. Leloudas, T.-W. Chen, A. Möller, R. Roy, S. Schulze, D. Perley, J. Selsing, S. J. Prentice, A. Gal-Yam, C. R. Angus, I. Arcavi, C. Ashall, M. Bulla, C. Bray, J. Burke, E. Callis, R. Cartier, S.-W. Chang, K. Chambers, P. Clark, L. Denneau, M. Dennefeld, H. Flewelling, M. Fraser, L. Galbany, M. Gromadzki, C. P. Gutiérrez, A. Heinze, G. Hosseinzadeh, D. A. Howell, E. Y. Hsiao, **E. Kankare** et al.

AT 2017be-a new member of the class of intermediate-luminosity red transients (2018) *Monthly Notices of the Royal Astronomical Society*. Y.-Z. Cai, A. Pastorello, M. Fraser, M. T. Botticella, C. Gall, I. Arcavi, S. Benetti, E. Cappellaro, N. Elias-Rosa, J. Harmanen, G. Hosseinzadeh, D. A. Howell, J. Isern, T. Kangas, **E. Kankare**, H. Kuncarayakti, P. Lundqvist, S. Mattila, C. McCully, T. M. Reynolds, A. Somero, M. D. Stritzinger, G. Terreran

First results from GeMS/GSAOI for project SUNBIRD: Supernovae UNmasked by Infra-Red Detection (2018) *Monthly Notices of the Royal Astronomical Society*. E. C. Kool, S. Ryder, **E. Kankare**, S. Mattila, T. Reynolds, R. M. McDermid, M. A. Pérez-Torres, R. Herrero-Illana, M. Schirmer, A. Efstathiou, F. E. Bauer, J. Kotilainen, P. Väisänen, C. Baldwin, C. Romero-Cañizales, A. Alberdi

New insights into the outflows from R Aquarii (2018) *Astronomy and Astrophysics*. T. Liimets, R. L. M. Corradi, D. Jones, K. Verro, M. Santander-García, I. Kolka, M. Sidonio, **E. Kankare**, J. Kankare, T. Pursimo and P. A. Wilson

On the nature of hydrogen-rich superluminous supernovae (2018) *Monthly Notices of the Royal Astronomical Society*. C. Inserra, S. J. Smartt, E. E. E. Gall, G. Leloudas, T.-W. Chen, S. Schulze, A. Jerkstrand, M. Nicholl, J. P. Anderson, I. Arcavi, S. Benetti, R. A. Cartier, M. Childress, M. Della Valle, H. Flewelling, M. Fraser, A. Gal-Yam, C. P. Gutiérrez, G. Hosseinzadeh, D. A. Howell, M. Huber, **E. Kankare**, T. Krühler, E. A. Magnier, K. Maguire, C. McCully, S. Prajs, N. Primak, R. Scalzo, B. P. Schmidt, M. Smith, K. W. Smith, B. E. Tucker, S. Valenti, M. Wilman, D. R. Young, F. Yuan

SN 2017dio: A Type-Ic Supernova Exploding in a Hydrogen-rich Circumstellar Medium (2018) *Astrophysical Journal Letters*. Hanindyo Kuncarayakti, Keiichi Maeda, Christopher J. Ashall, Simon J. Prentice, Seppo Mattila, **Erkki Kankare** et al.

SN 2017ens: The Metamorphosis of a Luminous Broadlined Type Ic Supernova into an SN IIn (2018) *Astrophysical Journal Letters*. T.-W. Chen, C. Inserra, M. Fraser, T. J. Moriya, P. Schady, T. Schweyer, A. V. Filippenko, D. A. Perley, A. J. Ruiter, I. Seitenzahl, J. Sollerman, F. Taddia, J. P. Anderson, R. J. Foley, A. Jerkstrand, C.-C. Ngeow, Y.-C. Pan, A. Pastorello, S. Points, S. J. Smartt, K. W. Smith, S. Taubenberger, P. Wiseman, D. R. Young, S. Benetti, M. Berton, F. Bufano, P. Clark, M. Della Valle, L. Galbany, A. Gal-Yam, M. Gromadzki, C. P. Gutiérrez, A. Heinze, **E. Kankare** et al.

SNe 2013K and 2013am: observed and physical properties of two slow, normal Type IIP events (2018) Monthly Notices of the Royal Astronomical Society. L. Tomasella, E. Cappellaro, M. L. Pumo, A. Jerkstrand, S. Benetti, N. Elias-Rosa, M. Fraser, C. Inserra, A. Pastorello, M. J. P. Anderson, L. Galbany, C. P. Gutiérrez, **E. Kankare** et al.

SNhunt151: an explosive event inside a dense cocoon (2018) Monthly Notices of the Royal Astronomical Society. N. Elias-Rosa, S. Benetti, E. Cappellaro, A. Pastorello, G. Terreran, A. Morales-Garoffolo, S. C. Howerton, S. Valenti, **E. Kankare** et al.

Supernovae 2016bdu and 2005gl, and their link with SN 2009ip-like transients: another piece of the puzzle (2018) Monthly Notices of the Royal Astronomical Society. A. Pastorello, C. S. Kochanek, M. Fraser, Subo Dong, N. Elias-Rosa, A. V. Filippenko, S. Benetti, E. Cappellaro, L. Tomasella, A. J. Drake, J. Harmanen, T. Reynolds, B. J. Shappee, S. J. Smartt, K. C. Chambers, M. E. Huber, K. Smith, K. Z. Stanek, E. J. Christensen, L. Denneau, S. G. Djorgovski, H. Flewelling, C. Gall, A. Gal-Yam, S. Geier, A. Heinze, T. W.-S. Holoien, J. Isern, T. Kangas, **E. Kankare** et al.

Testing the magnetar scenario for superluminous supernovae with circular polarimetry (2018) Monthly Notices of the Royal Astronomical Society. Aleksandar Cikota, Giorgos Leloudas, Mattia Bulla, Cosimo Inserra, Ting-Wan Chen, Jason Spyromilio, Ferdinando Patat, Zach Cano, Stefan Cikota, Michael W Coughlin, **Erkki Kankare**, Thomas B Lowe, Justyn R Maund, Armin Rest, Stephen J Smartt, Ken W Smith, Richard J Wainscoat, David R Young

The delay of shock breakout due to circumstellar material evident in most type II supernovae (2018) Nature Astronomy. F. Förster, T. J. Moriya, J. C. Maureira, J. P. Anderson, S. Blinnikov, F. Bufano, G. Cabrera-Vives, A. Clocchiatti, T. de Jaeger, P. A. Estévez, L. Galbany, S. González-Gaitán, G. Gräfener, M. Hamuy, E. Y. Hsiao, P. Huentelemu, P. Huijse, H. Kuncarayakti, J. Martínez, G. Medina, F. Olivares E., G. Pignata, A. Razza, I. Reyes, J. San Martín, R. C. Smith, E. Vera, A. K. Vivas, A. de Ugarte Postigo, S.-C. Yoon, C. Ashall, M. Fraser, A. Gal-Yam, **E. Kankare**, L. Le Guillou, P. A. Mazzali, N. A. Walton, D. R. Young

The Early Detection and Follow-up of the Highly Obscured Type II Supernova 2016ija/DLT16am (2018) Astrophysical Journal. L. Tartaglia, D. J. Sand, S. Valenti, S. Wyatt, J. P. Anderson, I. Arcavi, C. Ashall, M. T. Botticella, R. Cartier, T.-W. Chen, A. Cikota, D. Coulter, M. Della Valle, R. J. Foley, A. Gal-Yam, L. Galbany, C. Gall, J. B. Haislip, J. Harmanen, G. Hosseinzadeh, D. A. Howell, E. Y. Hsiao, C. Inserra, S. W. Jha, **E. Kankare** et al.

Weighted Orlicz regularity estimates for fully nonlinear elliptic equations with asymptotic convexity (2018) Communications in Contemporary Mathematics. **Mikyong Lee**

Hydrogel assisted synthesis of $\text{Li}_3\text{V}_2(\text{PO}_4)_3$ composite as high energy density and low-temperature stable secondary battery cathode (2018) Journal of Alloys and Compounds. Xirong Lin, Zihan Shen, Tianli Han, Jiyun Liu, Jiarui Huang, Ping Zhou, Huigang Zhang, Jinhuai Liu, **Jianwei Li**, Jinjin Li

Topochemical engineering of cellulose-based functional materials (2018) Langmuir LijiSobhana S. Sobhanadhas, **Lokesh Kesavan**, Pedro Fardim

Contributions of mean and shape of blood pressure distribution to worldwide trends and variations in raised blood pressure: a pooled analysis of 1018 population-based measurement studies with 88.6 million participants (2018) International Journal of Epidemiology. Bin Zhou et al. (**Teemu Niiranen**)

Electrocardiographic predictors of atrial fibrillation in nonhypertensive and hypertensive individuals (2018) Journal of Hypertension. Arttu Lehtonen, Ville Langén, Kimmo Porthan, Mika Kähönen, Markku Nieminen, Antti Jula, **Teemu Niiranen**

Familial clustering of hypertensive target organ damage in the community (2018) Journal of Hypertension. **Teemu Niiranen**, Honghuang Lin, Martin Larson, Ramachandran Vasani

Feasibility of a checklist in treating hypertension in primary care – base line results from a cluster-randomised controlled trial (check and support) (2018) BMC Cardiovascular Disorders. Aapo Tahkola, Päivi Korhonen, Hannu Kautiainen, **Teemu Niiranen**, Pekka Mäntyselkä

Genetic analysis of over 1 million people identifies 535 new loci associated with blood pressure traits (2018) Nature Genetics. Evangelos Evangelou, Helen R. Warren et al. (**Teemu Niiranen**)

Genome-wide association study of nocturnal blood pressure dipping in hypertensive patients (2018) BMC Medical Genetics. Jenni Rimpelä, Ilkka Pörsti, Antti Jula, Terho Lehtimäki, **Teemu Niiranen**, Lasse Oikarinen, Kimmo Porthan, Antti Tikkakoski, Juha Virolainen, Kimmo Kontula, Timo P. Hiltunen

Multisystem Trajectories Over the Adult Life Course and Relations to Cardiovascular Disease and Death (2018) Journals of Gerontology, Series A. **Teemu Niiranen**, Danielle Enserro, Martin Larson, Ramachandran Vasani

Optimal Schedule for Assessing Home BP Variability: The Finn-Home Study (2018) American Journal of Hypertension. Eeva Juhanaja, Jouni Johansson, Pauli Puukka, Antti Jula, **Teemu Niiranen**

Population trends in mitral valve surgery in Finland between 1997 and 2014: the finnish CVD register (2018) Scandinavian Cardiovascular Journal. Monna Myllykangas, Jenni Aittokallio, Arto Pietilä, Veikko Salomaa, Jarmo Gunn, Tuomas Kiviniemi, **Teemu Niiranen**

Relation of blood pressure and organ damage: comparison between feasible, noninvasive central hemodynamic measures and conventional brachial measures (2018) Journal of Hypertension. Annika Lindroos, Ville Langén, Ilkka Kantola, Veikko Salomaa, Eeva Juhanaja, Sam Sivén, Pekka Jousilahti, Antti Jula, **Teemu Niiranen**

More on the dynamics of the symbolic square root map (2018) Theoretical Computer Science. **Jarkko Peltomäki**, Markus A. Whiteland

Six-week endurance exercise alters gut metagenome that is not reflected in systemic metabolism in over-weight women (2018) Frontiers in Microbiology Eveliina Munukka, Juha P. Ahtiainen, **Pere Puigbó**, Sirpa Jalkanen, Katja Pahlala, Anniina Keskitalo, Urho M. Kujala, Sami Pietilä, Maija Hollmén, Laura Elo, Pentti Huovinen, Giuseppe D'Auria, Satu Pekkala

Chronic Intake of the Selective Serotonin Reuptake Inhibitor Fluoxetine Enhances Atherosclerosis (2018) Arteriosclerosis, Thrombosis, and Vascular Biology. Martina Rami, Raquel Guillamat-Prats, **Petteri Rinne**, Melanie Salvermoser, Larisa Ring, Mariaelvy Bianchini, Xavier Blanchet, Remco T.A. Megens, Yvonne Döring, Barbara Walzog, Oliver Soehnlein, Christian Weber, Alexander Faussner, Sabine Steffens

Melanocortin 1 Receptor Deficiency Promotes Atherosclerosis in Apolipoprotein E-/- Mice (2018) Arteriosclerosis, Thrombosis, and Vascular Biology. **Petteri Rinne**, James J. Kadiri, Mauricio Velasco-Delgado, Salla Nuutinen, Miro Viitala, Maija Hollmén, Martina Rami, Eriika Savontaus, Sabine Steffens

Melanocortin overexpression limits diet-induced inflammation and atherosclerosis in LDLR-/- mice (2018) Journal of Endocrinology. Salla Nuutinen, Liisa Ailanen, Eriika Savontaus, **Petteri Rinne**

Palmitoylethanolamide Promotes a Proresolving Macrophage Phenotype and Attenuates Atherosclerotic Plaque Formation (2018) Arteriosclerosis, Thrombosis, and Vascular Biology. **Petteri Rinne**, Raquel Guillamat-Prats, Martina Rami, Laura Bindila, Larisa Ring, Leo-Pekka Lyytikäinen, Emma Raitoharju, Niku Oksala, Terho Lehtimäki, Christian Weber, Emiel P.C. van der Vorst, Sabine Steffens

Pro-opiomelanocortin and its Processing Enzymes Associate with Plaque Stability in Human Atherosclerosis -Tampere Vascular Study (2018) Scientific Reports. **Petteri Rinne**, Leo-Pekka Lyytikäinen, Emma Raitoharju, James J. Kadiri, Ivana Kholova, Mika Kähönen, Terho Lehtimäki, Niku Oksala

Quantum spatial search on graphs subject to dynamical noise (2018) Physical Review A. Marco Cattaneo, **Matteo A. C. Rossi**, Matteo G. A. Paris, Sabrina Maniscalco

Restoring Heisenberg scaling in noisy quantum metrology by monitoring the environment (2018) Quantum. Francesco Albarelli, **Matteo A. C. Rossi**, Dario Tamascelli, Marco G. Genoni

Drug target commons: a community effort to build a consensus knowledge base for drug-target interactions (2018) Cell Chemical Biology. **Jing Tang**, Zia-ur-Rehman, Balaguru Raviku, Zaid Alam, Anni Rebane, Markus Vähä-Koskela, Gopal Peddinti, Arjan J. van drichem, Janica Wakkinen, Alok Jaiswal, Ella Karjalainen, Prson Gautam, Liye He, Elina Parri, Suleiman Khan, Abhishekh Gupta, Mehreen Ali, Laxman Yetukuri, Anna-Lena Gustavsson, Brinton Seashore-Ludlow, Anne Hersey, Andrew R. Leach, John P. Overington, Gretchen Repasky, Krister Wennerberg, Tero Aittokallio

Drug Target Commons 2.0: a community platform for systematic analysis of drug target interaction profiles (2018) Database: The Journal of Biological Databases and Curation. Ziaur Rehman Tanoli, Zaid Alam, Markus Vähä-Koskela, Balaguru Ravikumar, Alina Malyutina, Alok Jaiswal, **Jing Tang**, Krister Wennerberg, Tero Aittokallio

Aerobic exercise modulates anticipatory reward processing via the mu-opioid receptor system (2018) Human Brain Mapping. Tiina Saanijoki, Lauri Nummenmaa, **Jetro J. Tuulari**, Lauri Tuominen, Eveliina Arponen, Kari K. Kalliokoski, Jussi Hirvonen

Affective and non-affective touch evokes differential brain responses in 2-month-old infants (2018) NeuroImage. Emma H. Jönsson, Kalle Kotilahti, Juha Heiskala, Helena Backlund Wasling, Håkan Olausson, Ilona Croy, Hanna Mustaniemi, Petri Hiltunen, **Jetro J. Tuulari**, Noora M. Scheinin, Linnea Karlsson, Hasse Karlsson, Ilkka Nissilä

Associations of age and sex with brain volumes and asymmetry in 2–5-week-old infants (2018) Brain Structure and Function. S. J. Lehtola, **Jetro. J. Tuulari**, L. Karlsson, R. Parkkola, H. Merisaari, J. Saunavaara, T. Lähdesmäki, N. M. Scheinin, H. Karlsson

Cohort Profile: The FinnBrain Birth Cohort Study (FinnBrain) (2018) International Journal of Epidemiology. Linnea Karlsson, Mimmi Tolvanen, Noora M Scheinin, Henna-Maria Uusitupa, Riikka Korja, Eeva Ekholm, **Jetro J. Tuulari**, Marjukka Pajulo, Minna Huotilainen, Tiina Paunio, Hasse Karlsson, FinnBrain Birth Cohort Study Group

Emotional Processing in the First 2 Years of Life: A Review of Near-Infrared Spectroscopy Studies (2018) Journal of Neuroimaging. Ambika Maria, Shashank Shekhar, Ilkka Nissilä, Kalle Kotilahti, Minna Huotilainen, Linnea Karlsson, Hasse Karlsson, **Jetro J. Tuulari**

mu-opioid receptor system mediates reward processing in humans (2018) Nature Communications. Lauri Nummenmaa, Tiina Saanijoki, Lauri Tuominen, Jussi Hirvonen, **Jetro J. Tuulari**, Pirjo Nuutila, Kari Kalliokoski

Opioid Release after High-Intensity Interval Training in Healthy Human Subjects (2018) Neuropsychopharmacology. Tiina Saanijoki, Lauri Tuominen, **Jetro J. Tuulari**, Lauri Nummenmaa, Eveliina Arponen, Kari Kalliokoski, Jussi Hirvonen

A2 Review article in a scientific journal

Measurement uncertainty relations: characterising optimal error bounds for qubits

(2018) Journal of Physics A: Mathematical and Theoretical. **Thomas Bullock**, Paul Busch

Effects of heat and cold on health, with special reference to Finnish sauna bathing

(2018) AJP - Regulatory, Integrative and Comparative Physiology. **Ilkka Heinonen**, Jari A. Laukkanen

Ortostaattisen hypotension tutkiminen ja hoito (2018) Lääkärilehti. Ilkka Kantola, Antti Jula, **Teemu Niiranen**

Continuous-time quantum walks on dynamical percolation graphs

(2018) EPL. Claudia Benedetti, **Matteo A. C. Rossi**, Matteo G. A. Paris

Prenatal exposures and infant brain: rReview of magnetic resonance imaging studies and a population description analysis

(2018) Human Brain Mapping. Elmo P. Pulli, Venla Kumpulainen, Jussi H. Kasurinen, Riikka Korja, Harri Merisaari, Linnea Karlsson, Riitta Parkkola, Jani Saunavaara, Tuire Lähdesmäki, Noora M. Scheinin, Hasse Karlsson, **Jetro J. Tuulari**

A3 Book chapter

Methods for high-throughput drug combination screening and synergy scoring

(2018) Cancer Systems Biology, Methods in Molecular Biology. Liye He, Evgeny Kuleskiy, Jani Saarela, Laura Turunen, Krister Wennerberg, Tero Aittokallio, **Jing Tang**

B1 Journal Article

Lifetime Prevalence and Prognosis of Prediabetes Without Progression to Diabetes

(2018) Diabetes Care. Justin Echouffo-Tcheugui, **Teemu Niiranen**, Elizabeth McCabe, Mohit Jain, Ramachandran Vasan, Martin Larson, Susan Cheng

D2 Article in a professional research book

ePESSTO spectroscopic classification of optical transients

(2018) Astronomer's Telegram. H. Kuncarayakti, T. Reynolds, S. Moran, **E. Kankare**, J. Harmanen, K. Wiik, R. Cartier, M. Dennefeld, S. Prentice, S. Taubenberger, C. Inserra, K. Maguire, S. J. Smartt, O. Yaron, D. R. Young, I. Manulis, J. Tonry, L. Denneau, A. Heinze, H. Weiland, B. Stalder, A. Rest, O. McBrien, D. E. Wright

ePESSTO spectroscopic classification of optical transients (2018) Astronomer's Telegram. J. Harmanen, S. Moran, H. Kuncarayakti, T. Reynolds, **E. Kankare**, S. Mattila, K. Wiik, M. Gromadzki, S. Taubenberger, M. Berton, S. Benetti, E. Congiu, Z. Kostrzewa-Rutkowska, T. Wevers, C. Inserra, K. Maguire, S. J. Smartt, O. Yaron, D. R. Young, I. Manulis

ePESSTO spectroscopic classification of optical transients (2018) Astronomer's Telegram. S. Moran, H. Kuncarayakti, T. Reynolds, J. Harmanen, **E. Kankare**, R. Kotak, K. Wiik, M. Gromadzki, S. Taubenberger, C. Inserra, K. Maguire, S. J. Smartt, O. Yaron, D. R. Young, I. Manulis

ePESSTO spectroscopic classification of optical transients (2018) Astronomer's Telegram. S. Moran, H. Kuncarayakti, T. Reynolds, J. Harmanen, **E. Kankare**, R. Kotak, K. Wiik, M. Gromadzki, S. Taubenberger, C. Inserra, K. Maguire, S. J. Smartt, O. Yaron, D. R. Young, I. Manulis

ePESSTO spectroscopic classification of optical transients (2018) Astronomer's Telegram. S. Moran, T. Reynolds, J. Harmanen, H. Kuncarayakti, K. Wiik, **E. Kankare**, S. Mattila, R. Cartier, M. Dennefeld, S. Taubenberger, S. Benetti, M. Della Valle, C. Inserra, K. Maguire, S. J. Smartt, O. Yaron, D. R. Young, I. Manulis

ePESSTO spectroscopic classification of optical transients (2018) Astronomer's Telegram. T. Reynolds, S. Moran, J. Harmanen, H. Kuncarayakti, J. Anderson, L. Galbany, S. Benetti, S. Prentice, S. Schulze, C. Inserra, **E. Kankare**, K. Maguire, S. J. Smartt, O. Yaron, D. R. Young, I. Manulis

O2 Other

Ihminen on luotu liikkumaan (2018) Liikunta ja tiede. **Ilkka Heinonen**

Liikunta tehoaa, perimästä huolimatta (2018) Liikunta ja tiede. **Ilkka Heinonen**

Määrällisesti riittävä liikunta tehoaa, mutta vaikutukset häviävät myös nopeasti (2018) Liikunta ja tiede. **Ilkka Heinonen**

Maraton sekoittaa aineenvaihdunnan pakkaa (2018) Liikunta ja tiede. **Ilkka Heinonen**

Initial Treatment of Hypertension (2018) New England Journal of Medicine. **Teemu Niiranen**, Daniel Gordin