SUNDAY 4-AUG-2019

VENUE: TAMPERE HALL
17:00 Registration opens
18:00 Get-together party

MONDAY 5-AUG-2019 (Philips Day)

08:15 Welcome Olli Polo, MD, PhD, Conference Chair

CONTROL OF BREATHING 1: CENTRAL REGULATION AND LINKS TO METABOLISM
Chairs: Virend Somers, Rochester, USA and Olli Polo, Tampere, Finland

08:30 - 09:15 KEY NOTE SPEAKER

Patrice G. Guyenet, PhD
University of Virginia, Charlottesville, USA

RTN: CENTRAL RESPIRATORY CHEMORECEPTOR AND
REGULATOR OF BREATHING AUTOMATICITY

09:15 - 09:30 Chemogenetic modulation of the parafacial respiratory group influences the recruitment of abdominal activity during REM sleep
Annette Pisanski a,b, Nils Koch c, Xiuqing Ding a, Silvia Pagliardini a,b,c
aDepartment of Physiology, bWomen and Children’s Research Institute c, Neuroscience and Mental Health Institute, University of Alberta, Edmonton, AB, Canada
Silvia Vilares Conde, PhD
Chronic Diseases Research Center (CEDOC), NOVA Medical School, New University of Lisbon, PORTUGAL

Silvia V. Conde is Professor of Pharmacology and Neuroscience at NOVA Medical School (NMS) and Principal Investigator at CEDOC (Chronic Disease Research Center) of NMS. She graduated in Biochemistry in 2000 and has an Advanced Specialization Diploma in Physiology in 2005. As a PhD student under supervision of Prof. C. Gonzalez in Valladolid (Spain), she tried to understand how cells and the body respond to the lack of O₂ through the study of the physiology of the autonomic nervous system, in particular the carotid body. She pursued her PhD in Pharmacology from both the New University of Lisbon (Portugal) and the University of Valladolid (Spain) in 2007. Afterwards, she realized that for her the most exciting research involves trying to understand the pathophysiological alterations in the carotid body and in autonomic nervous system function that are in the genesis of cardiometabolic and respiratory human diseases. As a PI, she developed a new line of research on the carotid body (CB) and dysmetabolism, which is based on the pioneering idea that the CB controls glucose homeostasis. She is dedicated to the characterization of pathophysiological biosignals, disease signatures and fingerprints that will allow the identification of targets for therapy, particularly bioelectronic targets, as her group recently described that high frequency electrical stimulation of carotid sinus nerve restores insulin sensitivity and glucose homeostasis in type 2 diabetes models.

In 2009 she was awarded with the L'Oréal Medals Honor for Women in Science Portugal and since then her group won several prizes from the Portuguese Society of Diabetes and from the Pulido Valente Foundation. She belongs to the Directive board of the Portuguese Society of Pharmacology. Silvia V. Conde lab is currently funded by grants from the Portuguese Funding Agency (Fundação para a Ciência e Tecnologia) and from Galvani Bioelectronics.

Silvia’s message to a young researcher

Science is curiosity. Is about asking questions and find ways to get the answers. Therefore, be curious, be inventive, ask questions, generate ideas (and write them down), think outside of the box. The best ideas, the ones that move forward Science, can be the most improbable and crazy ones. Also, Science is not a job is about passion. Be passionate on what you do.
09:30 - 10:15 KEY NOTE SPEAKER

Silvia V Conde, PhD

New University of Lisbon, PORTUGAL

CAROTID BODY, INSULIN, AND METABOLIC DISEASES: UNRAVELING THE LINKS

10:15-10:30 COFFEE BREAK

METABOLIC ASPECTS OF SLEEP-DISORDERED BREATHING

Chairs: Vsevolod (Seva) Polotsky, Baltimore, USA and Tarja Saaresranta, Turku, FINLAND

10:30 -11:15 KEY NOTE SPEAKER

Matthew Naughton, MD, FRACP

Alfred Hospital, Monash University, Melbourne, AUSTRALIA

OBESITY AND WEIGHT LOSS

11:15 -11:35 Leptin Resistance and Sleep Disordered Breathing: where is the chicken? where is the egg? (Abstract 02)

M.-K. Shin¹, L.J. Kim¹, C. Freire de Castro Lima¹, S. Berger¹, H. Pho¹, A. Kabanov² and V.Y. Polotsky¹

¹Johns Hopkins University; ²University of North Carolina
11:35 - 11:55 Insufficient Sleep and Cardiometabolic Disease - Implications for Sleep Disordered Breathing (Abstract 03)
Naima Covassin, PhD
*Mayo Clinic, Rochester, USA*

11:55 - 12:15 Sleep apnea and non-alcoholic fatty liver disease (NAFLD)
Jean-Louis Pepin, Grenoble, FRANCE

12:15 - 13:15 LUNCH AND POSTER VIEWING (Posters 34-38)

**P34 Limited effects of breathing hyperoxic gas on sleep structure during midday naps in human subjects (Abstract 35)**
Clayton T. Dickson1,2,3, Sayeed Devraj-Kizuk3, Wesley Vuong1, Joanna MacLean4, & Kyle E. Mathewson1,3.
*Departments of 1Psychology, 2Physiology, 3Neuroscience and Mental Health Institute, 4Pediatrics, University of Alberta, Edmonton AB, CANADA*

**P35 Responses to airway occlusion in inspiratory muscles of Chronic Obstructive Pulmonary Disease and healthy age-matched controls (Abstract 36)**
Isabella Fplu1,2,3, Claire L Boswell-Ruys1,2,3, Simon C Gandevia1,2, Jane E Butler1,2, Anna L Hudson1,2
1. Neuroscience Research Australia, 2. University of New South Wales Sydney, NSW Australia, 3. Prince of Wales Hospital, Sydney, NSW Australia

**P36 Sleep health management within primary care: An Interpretive Description of the knowledge, experiences and attitudes of practice nurses (Abstract 37)**
Nicole Grivelli1,2, Rebecca Feo2, Andrew Vakulin1, Elizabeth Hoon4, Nicholas Zwar5, Nigel Stocks4, Robert Adams1,3, R. Doug McEvoy1, Ching Li Chai-Coetzter1,3
1. Adelaide Institute for Sleep Health, College of Medicine and Public Health, Flinders University, South Australia; 2. College of Nursing and Health Sciences, Flinders University, South Australia; 3. Southern Adelaide Local Health Network, SA Health, South Australia; 4. Discipline of General Practice, University of Adelaide, South Australia; 5. Bond University, Queensland, Australia
Room for your notes:
P37 Stroke Volume Predicts Nocturnal Hypoxemia in the Acute Ischemic Stroke after Intravenous Thrombolysis (Abstract 38)
Jaana K. Huhtakangas1, Tarja Saarensranta2, Michaela K. Bode3, Risto Bloigu4, Juha Huhtakangas5
1Respiratory Medicine Unit, Institute of Clinical Medicine, Oulu University Hospital, MRC Oulu, 2Turku University Hospital, Division of Medicine, Department of Pulmonary Diseases and Sleep Research Centre, Department of Pulmonary Diseases and Clinical Allergology, University of Turku, 3Oulu University Hospital, Department of Clinical Radiology; 4Medical Informatics and Statistics Research Group, University of Oulu; 5Department of Neurology, Oulu University Hospital

P38 Differentiating sleepy and non-sleepy OSA patients using nocturnal pulse oximetry and deep learning (Abstract 39)
Samu Kainulainen1,2,3, Juha Töyräs1,2,4, Arie Oksenberg5, Henri Korkalainen1,2, Isaac Afara1, Akseli Leino1,2, Laura Kalevo1,2, Sami Nikkonen1,2, Natan Gadoth5, Antti Kulkas1,3, Sami Myllymaa1,2, Timo Leppänen1,2
1Department of Applied Physics, University of Eastern Finland, Kuopio, Finland, 2Diagnostic Imaging Center, Kuopio University Hospital, Kuopio, Finland, 3Department of Clinical Neurophysiology, Seinäjoki Central Hospital, Seinäjoki, Finland, 4School of Information Technology and Electrical Engineering, The University of Queensland, Brisbane, Australia, 5Sleep Disorders Unit, Loewenstein Hospital – Rehabilitation Center, Raanana, Israel

ORAL SESSION I: CLINICAL, METABOLIC
Chairs: Naima Covassin, Rochester, USA and Ulla Anttalainen, Turku, FINLAND

13:15 - 13:30 Sex-specific metabolic consequences of intermittent hypoxia mediated by estradiol in mice (Abstract 04)
F. Marcouiller1, S. Lavaufa1, M. Laplante1, A. Marette1, D Gozal2, V Joseph1.
1: Institut Universitaire de Cardiologie et Pneumologie de Québec, Université Laval, Québec, QC, Canada. 2: Department of Child Health, University of Missouri School of Medicine, Columbia, MO, USA

13:30 -13:45 Gender-specific change in leptin concentrations during long-term CPAP therapy (Abstract 05)
Aro Miia1,2,3, Anttalainen Ulla1,2,3, Kurki Samu4, Irhoala Kerttu5, Polo Olli6, Saarensranta Tarja1,2,3.
1Division of Medicine, Department of Pulmonary Diseases, Turku University Hospital, Turku, Finland, 2Department of Pulmonary Diseases and Clinical Allergology, University of Turku, Turku, Finland, 3Sleep Research Centre, Department of Pulmonary Diseases and Clinical Allergology, University of Turku, Turku, Finland, 4Auria Biobank, University of Turku and Turku University Hospital, Turku, Finland, 5Department of Clinical Chemistry, University of Turku, Turku, Finland 6Department of Pulmonary Diseases, Tampere University Hospital, Tampere, Finland
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DreamWear Gel Pillows
13:45 - 14:00 Effect of Dinner Timing on Nocturnal Metabolism in Healthy Volunteers (Abstract 06)
Chenjuan Gu¹, Nga Breton², Amy Schweitzer², Matthew Cotter³, Elisabet Borsheim³, Robert R Wolfe³, Jonathan C. Jun¹*

1 Division of Pulmonary and Critical Care, Department of Medicine, Johns Hopkins University, Baltimore, MD, USA. 2 Institute for Clinical and Translational Research, Johns Hopkins University, Baltimore, MD, USA. 3 University of Arkansas for Medical Sciences, Little Rock, AR, USA

14:00-14:15 Nighttime Sleep and Daytime Function in Type 2 Diabetes and Obstructive Sleep Apnea: The Effect of CPAP (Abstract 07)
Eileen R. Chasens¹, Charles W. Atwood², Lynn M. Baniak², Zhadyra Bizhanova¹, Mary Korytkowski², Susan M. Sereika¹, Robert Stansbury³, Patrick J. Strollo²

University of Pittsburgh¹, Veterans Administration Pittsburgh Healthcare System², University of West Virginia²

14:15-14:30 The Effect of CPAP Use on Insomnia Among Persons with Type 2 Diabetes and Obstructive Sleep Apnea (Abstract 08)
Lynn M. Baniak¹, Susan M. Sereika¹, Zhadyra Bizhanova², Charles Atwood³, Jonna L. Morris¹, Robert Stansbury⁴, Patrick J. Strollo⁴, Eileen R. Chasens¹

¹School of Nursing, University of Pittsburgh; ²Graduate School of Public Health, University of Pittsburgh; ³School of Medicine, University of Pittsburgh; ⁴School of Medicine, West Virginia University; ⁵VA Pittsburgh Healthcare System, Pittsburgh, PA. Corresponding & Presenting Author: Lynn M. Baniak, lynn.baniak@va.gov

14:30 -14:45 COFFEE BREAK

SPONSOR’S SESSION organized by Philips
Chairs: David P. White, Denver, USA and Mary Ip, Hong Kong, CHINA

14:45-15:15 David P. White
The sleep disorder analyzer and sleep ecosystem

15:15-15:45 Jean-Louis Pépin
Positional obstructive sleep apnea: epidemiology and treatment

15:45-16:15 Brady A. Riedner
The function of slow wave sleep and its enhancement
José López-Barneo, MD, PhD  
Institute of Biomedicine of Seville  
Seville, SPAIN

José López-Barneo is a professor of Medical Physiology and Biophysics at the University of Seville Medical School and Research Director of the University Hospital and the Institute of Biomedicine of Seville. He did postdoctoral stays at the CNRS (Paris), University of Pennsylvania Medical School and New York University Medical Center. He has been a visiting professor at Stanford University School of Medicine and Columbia University (New York). Dr. López-Barneo main research interests are related to the study of the mechanisms of acute oxygen sensing in mammals, specifically by the carotid body and other peripheral chemoreceptor organs, as well as the cellular adaptations to hypoxia. He also works on the modulation by hypoxia of the peripheral and central neurogenic centers and the molecular bases of dopaminergic neuroprotection and neurodegeneration. Dr. López-Barneo has served as an editor in the Journal of Physiology, Pflügers Archiv/European Journal of Physiology and...  

Physiological Review

Dr. López-Barneo has been past President of the Spanish Neuroscience Association and the Spanish Society for Gene and Cell Therapy. He is a member of the Academia Europea and the European Molecular Biology Organization. Dr. López-Barneo’s laboratory is currently funded by grants from the Spanish Ministry of Health and the European Research Council.

José’s message to young researchers

Biomedical research offers a great opportunity to young students, investigators, and physicians for the development of successful and challenging careers. Highly sophisticated and cutting edge technological developments are now permitting to address the solution of highly relevant, and so far unapproachable, medical problems. Research on hypoxia is a rapidly evolving field with significant contributions to the pathogenesis, diagnosis and therapeutics of highly prevalent diseases in the fields of respiratory medicine, cardiology, anesthesia, and oncology among others.
16:15-16:30 COFFEE BREAK

ORAL SESSION II

Chairs: Thomas Penzel, Berlin, GERMANY and Ville Rimpilä, Tampere, FINLAND

16:30-16:45 Major changes in pharyngeal collapsibility and genioglossus reflex responses to negative pressure throughout the respiratory cycle in obstructive sleep apnoea (Abstract 09)
Amal M. Osman¹,²,³, Jayne C. Carberry¹,²,³, Simon C. Gandevia¹,², Jane E. Butler¹,² and Danny J. Ecken¹,²,³
¹Neuroscience Research Australia (NeuRA), Sydney, NSW, Australia. ²School of Medical Sciences, University of New South Wales, Sydney, NSW, Australia. ³Flinders University, Adelaide Institute for Sleep Health, Bedford Park, SA, Australia.

16:45-17:00 Genioglossus motor unit activity in supine and upright postures in obstructive sleep apnoea (Abstract 10)
Billy L. Luu¹, Julian P. Saboisky¹, Rachel A. McBain¹, John A. Trinder², David P. White³, Janet L. Taylor¹,⁴, Simon C. Gandevia¹, Jane E. Butler¹
¹. Neuroscience Research Australia, Barker St, Randwick, NSW 2031, and University of New South Wales, Sydney, NSW 2052, Australia, 2. University of Melbourne, Parkville, VIC 3010, Australia, 3. Sleep Disorders Research Program, Division of Sleep Medicine, Brigham and Women’s Hospital and Harvard Medical School, Boston, MA 02115, USA, 4. Edith Cowan University, Joondalup, WA 6027, Australia.

17:00-17:15 Blunted diuretic response to volume expansion with preserved low-pressure baroreflex function in rats exposed to chronic intermittent hypoxia (Abstract 11)
Department of Physiology, University College Cork, Cork, Ireland. Correspondence: Prof. Ken D. O’Halloran, k.o’halloran@ucc.ie

17:15 - 17:30 Alpha Intrusion during Rapid Eye Movement (REM) and K Complexes in Stage Two Sleep Increase Beat-to-Beat Blood Pressure in Humans (Abstract 12)
Ian M. Greenlund, Hannah A. Cunningham, Anne L. Tikkanen, John J. Durocher, Carl A. Smoot, and Jason R. Carter
Department of Kinesiology & Integrative Physiology, Michigan Technological University, Houghton, MI, USA. Corresponding Author: Jason R. Carter, jncarter@mtu.edu
Nanduri R. Prabhakar, PhD, DSc
The University of Chicago
Chicago, Illinois, USA

Nanduri R. Prabhakar is Harold H. Hines Professor and Director of the Institute for Integrative Physiology and Center for Systems Biology of Oxygen Sensing at the University of Chicago. Prabhakar's research focuses on a) mechanisms of $O_2$ sensing the carotid body, b) chemo-reflex regulation of autonomic functions and c) carotid body chemo-reflex in the genesis and consequences of sleep apnea. His laboratory identified several novel signaling pathways and molecular mechanisms underlying the cardio-respiratory morbidities associated with chronic intermittent hypoxia, a hallmark manifestation of sleep apnea.

His research is supported by National Institutes of Health, Heart, Lung, and Blood Institute. Prabhakar was recipient of several honors/awards including Elected Fellow of the American Physiological Society, Foreign Fellow of The National Academy of Sciences of India, Michael De Burgh Daly Prize from Physiological Society of U.K., Julius Comroe Award from American Physiological Society, C von Euler Lecture, and Nobel Forum Lecture of the Karolinska Institute, Stockholm, Sweden.

Nanduri’s message to young researchers

The revolutionary advances in cell and molecular biology in the recent past have provided spectacular insights into our understanding of the structure and function of biological systems. Time is ripe for young researchers using these approaches to unravel the cause and consequences of sleep apnea, a devastating respiratory disorder affecting several million people all over the globe.
17:30 - 17:45 The Impact of REM-AHI on Revascularized Cardiac Patients (Abstract 13)
Jennifer Newitt¹, Patrick J Strollo¹, Mehdi Nouriaé, Baran Balcan², Erik Thunström³, Yüksel Peker¹²³⁴⁵
¹University of Pittsburgh, Pittsburgh, PA, USA, ²Marmara University, Istanbul, Turkey, ³Sahlgrenska University Hospital, Gothenburg, Sweden, ⁴Koc University, Istanbul, Turkey, ⁵Lund University, Lund, Sweden. Email of corresponding author: newittjl@upmc.edu

18:15 DEPARTURE FOR DINNER and SAUNA at Viikinsaari Island
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1989 – 2019
TUESDAY 6-AUG-2019 (ResMed Day)

CONTROL OF BREATHING 2: THE CAROTID BODY
Chair: Indu Ayappa, New York, USA and Ingo Fietze, Berlin, Germany

08:15 - 08:45 KEY NOTE SPEAKER

Jose Lopez-Barneo, MD, PhD
Institute of Biomedicine of Seville, SPAIN

CAROTID BODY ACUTE OXYGEN SENSING AND
REGULATION OF BREATHING

08:45 - 09:30 KEY NOTE SPEAKER

Nanduri Prabhakar, PhD, DSc
University of Chicago, Illinois, USA

CAROTID BODY CHEMOREFLEX AND SLEEP APNEA

09:30-09:45 COFFEE BREAK
Vsevolod (Seva) Polotsky, MD, PhD
Johns Hopkins University School of Medicine
Baltimore, Maryland, USA

Seva Polotsky is a Professor of Medicine and the Director of Sleep Basic Research at the Johns Hopkins University School of Medicine. In collaboration with Chris O’Donnell and Alan Schwartz he developed several mouse models of sleep disordered breathing, which he used to study the molecular pathogenesis of sleep apnea and its metabolic complications. Dr. Polotsky laboratory published several high impact landmark papers establishing the role of intermittent hypoxia in the pathogenesis of insulin resistance, glucose intolerance, dyslipidemia, atherosclerosis and fatty liver disease. Seva Polotsky extensively studied the role of leptin and leptin resistance in the pathogenesis of sleep disordered breathing. He also pioneered the use of designer receptor exclusively activated by designer drugs in sleep disordered breathing.

Dr. Polotsky has been active in the American Thoracic Society and previously served as the Chair of the Sleep and Respiratory Neurobiology Assembly of the ATS. Dr. Polotsky trained many physician scientists, several of whom became well-known experts in the field.

He published over 110 peer-reviewed publications. His research endeavors have been continuously supported by the National Institutes of Health.

Seva’s message to a young researcher

Sleep and Breathing is an amazing field, which incorporates sleep, respiratory, metabolic and cardiovascular physiology, respiratory neurobiology and neuroscience. You will never get bored interacting and learning from experts in different areas. It is a young and rapidly developing field with a huge potential. The importance of healthy sleep for overall health has only recently been recognized. There is a plenty of opportunities to make a significant contribution to this field, which may have an impact on public health in general.
ORAL SESSION III (CLINICAL): PREDICTION AND TREATMENT OF SLEEP APNEA
Chairs: Zou Ding, Gothenburg, SWEDEN and Adel Bouchard, Helsinki, Finland

09:45 - 10:30 KEY NOTE SPEAKER

Vsevolod (Seva) Polotsky, MD, PhD
Johns Hopkins University School of Medicine, Baltimore, USA

PHARMACOTHERAPY OF OBSTRUCTIVE SLEEP APNEA:
WHERE WE ARE NOW AND WHERE WE ARE GOING

10:30 -10:45 Effects of atomoxetine combined with different anti-muscarinics on OSA severity and upper airway physiology (Abstract 14)
Atqiya Aishah¹, Richard Lim¹, Jayne C. Carberry¹², Danny J. Eckert¹²
1. NeuRA/UNSW, 2. Adelaide Institute for Sleep Health/Flinders University

10:45 - 11:00 Adaptation and validation of a new morphologic OSA prediction score – results from SAGIC (Abstract 15)
¹Laharnar N, ¹Prochnow L, ²Chen NH, ³Cistulli P, ⁴Pack A, ⁵Fietze I, ¹Penzel T
Interdisciplinary Center of Sleep Medicine, Department of Cardiology and Angiology, Charité Universitätsmedizin Berlin, Germany 2 Sleep Center, Department of Pulmonary and Critical Care Medicine, Chang Gung Memorial Hospital, Taipei, Taiwan 3 Charles Perkins Centre, University of Sydney, Australia 4 Center for Sleep and Circadian Neurobiology, Perelman School of Medicine, University of Pennsylvania, USA

11:00 - 11:15 Motor vehicle accidents in continuous positive airway pressure adherent obstructive sleep apnea patients – a retrospective observational study (Abstract 16)
Minna Myllylä¹; Ulla Anttalainen¹²; Tarja Saarensranta¹²; Tarja Laitinen¹
¹Division of Medicine, Dept. of Pulmonary Diseases, Turku University Hospital and University of Turku, Finland, 2.Sleep Research Centre, Dept. of Pulmonary Diseases and Clinical Allergology, University of Turku, Finland.
11:15-11:30 Obstructive sleep apnea treatment of multiple sclerosis patients with severe fatigue using positive airway pressure (SAMS-PAP trial): initial study results (Abstract 17)


1Respiratory Division and Sleep Laboratory, McGill University Health Centre, 2Department of Neurology and Neurosurgery, Montreal Neurological Institute and Hospital, McGill University Health Centre, 3Centre Hospitalier de l’Université de Montréal, 4Department of Epidemiology, Biostatistics and Occupational Health, McGill University, 5Respiratory Division and Respiratory Epidemiology and Clinical Research Unit, McGill University Health Centre, Montreal, QC, Canada

11:30 - 11:45 The Role of Fluid Retention in Acute Weight Gain During CPAP Treatment in Patients with Obstructive Sleep Apnea (Abstract 18)

Sara Herculano, Gustavo Grad, Luciano F. Drager, André L. P. de Albuquerque, Camila Maria de Melo, Geraldo Lorenzi-Filho, Pedro R. Genta

1Sleep Laboratory, Pulmonary Division, Heart Institute (InCor), University of São Paulo Medical School, São Paulo, Brazil. 2Hypertension Unit, Renal Division, University of São Paulo Medical School, São Paulo, Brazil. 3Department of Psychobiology, Federal University of São Paulo, Brazil

11:45 - 12:00 CPAP therapy is not needed in every obese sleep apnea patient awaiting bariatric surgery: results of a 813 patients cohort study (Abstract 19)

Frédéric Sériès, Camille Genest, Isabelle Boutin, Simon Marceau, Jean Bussières, Caroline Minville

Department of respirology, CRUICPQ, Université Laval, Québec, Canada. 2Department of surgery, CRUICPQ, Université Laval, Québec, Canada. 3Department of anesthesiology, CRUICPQ, Université Laval, Québec, Canada

12:00 - 12:15 Differences in predicted therapeutic outcome of mandibular advancement determined by Remotely Controlled Mandibular Positioner in Caucasians and Chinese apneic patients (Abstract 20)

Wen-Yang Li, Frederic Series, Zhenjin Zhao, Jean-Francois Masse, Wei Wang

1Institute of Respiratory Disease, the First Hospital of China Medical University, Shenyang, China. 2Unité de recherche en pneumologie, Centre de recherche, Institut Universitaire de Cardiologie et de Pneumologie de Québec, Université Laval, Québec, QC, Canada. 3Faculté de médecine dentaire, Université Laval. Québec, QC, Canada. 4Institute of Orthodontics, the Stomatological Hospital of China Medical University, Shenyang, China

12:15-12:30 Incident hypertension in obstructive sleep apnoea and effect of continuous positive airway pressure treatment: A retrospective clinic cohort study (Abstract 21)

PH XU, DYT Fong, CKM Hui, MSS Lui, DCL Lam, MSM Ip

1Department of Medicine, Queen Mary Hospital, The University of Hong Kong, Hong Kong, China. 2School of Nursing, LKS Faculty of Medicine, The University of Hong Kong, Hong Kong, China. 3Correspondence to: Mary S.M. Ip, University Department of Medicine, Queen Mary Hospital, Pokfulam, Hong Kong SAR
Room for your notes:
P39 Improved Sweat Artifact Tolerance of Screen-Printed Electrodes by Material Selection - In vivo Comparison of the EEG Signal Quality (Abstract 40)
Laura Kalevo¹,² (laura.kalevo@uef.fi), Tomi Miettinen¹,², Akseli Leino¹,², Samu Kainulainen¹,², Henri Korkalainen¹,², Katja Myllymaa¹, Juha Töyräs¹,²,³, Timo Leppänen¹,², and Sami Myllymaa¹,²
¹Department of Clinical Neurophysiology, Diagnostic Imaging Center, Kuopio University Hospital, 70210 Kuopio, Finland; ²Department of Applied Physics, University of Eastern Finland, 70210 Kuopio, Finland; ³School of Information Technology and Electrical Engineering, University of Queensland, 4072 QLD, Australia

P40 Deep Learning Enables Accurate Sleep Staging Based on a Single Frontal EEG Channel (Abstract 41)
Korkalainen H.¹,², Aakko J.³, Nikkonen S.¹,², Kainulainen S.¹,², Leino A.¹,², Duce B.¹,⁴,⁵, Afara I.O.¹,⁶, Myllymaa S.¹,², Töyräs J.¹,²,⁶ & Leppänen T.¹,²,*
¹Department of Applied Physics, University of Eastern Finland, Kuopio, Finland; ²Diagnostic Imaging Center, Kuopio University Hospital, Kuopio, Finland; ³CGI Suomi Oy, Helsinki, Finland; ⁴Department of Respiratory & Sleep Medicine, Sleep Disorders Centre, Princess Alexandra Hospital, Brisbane, Australia; ⁵Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, Australia; ⁶School of Information Technology and Electrical Engineering, The University of Queensland, Brisbane, Australia

P41 Neural network analysis of nocturnal SpO₂ signal enables easy screening of sleep apnea in acute stroke and transient ischemic attack patients (Abstract 42)
Akseli Leino¹,², Sami Nikkonen¹,², Samu Kainulainen¹,², Henri Korkalainen¹,², Juha Töyräs¹,²,⁶, Sami Myllymaa¹,², Timo Leppänen¹,², Salla Ylä-Hertuala¹, Susanna Westernen-Punnonen¹, Anu Muraja-Murro¹, Pekka Jäkälä¹,⁵, Esa Mervaala¹,³, and Katja Myllymaa¹
¹Diagnostic Imaging Center, Kuopio University Hospital, Kuopio, Finland; ²Department of Applied Physics, University of Eastern Finland, Kuopio, Finland; ³Department of Clinical Neurophysiology, Institute of Clinical Medicine, Faculty of Health Sciences, University of Eastern Finland, Kuopio, Finland; ⁴Department of Neurology, NeuroCenter, Kuopio University Hospital, Kuopio, Finland; ⁵School of Information Technology and Electrical Engineering, The University of Queensland, Brisbane, Australia; ⁶Corresponding author
Danny Eckert, MD, PhD
University of New South Wales
Sydney, AUSTRALIA

Professor Danny Eckert has recently taken up the role of Matthew Flinders Fellow and Director of the Adelaide Institute for Sleep Health at Flinders University in South Australia. He also holds appointments as Professor of Medicine at the University of New South Wales and Principal Research Scientist at Neuroscience Research Australia (NeuRA) in Sydney where he established the clinical and sleep research programs.

Prior to returning to Australia in late 2011, he was an Assistant Professor at the Brigham and Women’s Hospital, Harvard Medical School in Boston.

His research program focuses on identification of the physiological causes of sleep apnea, optimization of existing therapies, and development of new tailored therapies using novel upper airway physiology and respiratory phenotyping techniques.

He has over 110 peer-reviewed publications and is a former recipient of the Anne E. Suratt Award.

Danny’s message to a young researcher

I love working in this field for many reasons including the fact that it is a relatively new area of medicine/science so there remains many interesting and important unanswered questions and therefore there is the potential to make a substantial impact. It also encompasses virtually all disciplines of medicine so the opportunity to be a part of and work and learn from a highly collegial community of people who have such a diverse range of skills, backgrounds, and expertise ensures that the work is always stimulating, exciting and fun!
P42 Electromyographic activity in the human costal and crural diaphragm during voluntary and involuntary breaths (Abstract 43)
D.A.T. Nguyen¹,², N. Amirjani¹,², E.J. McCaughey¹,², S.C. Gandevia¹,²,³, J.E. Butler¹,² & A.L. Hudson¹,²
¹Neuroscience Research Australia, NSW, Australia, ²University of New South Wales, NSW, Australia, ³Prince of Wales Hospital, NSW, Australia

P43 Artificial neural network analysis of oxygen saturation signal enables accurate automatic screening of sleep apnea (Abstract 44)
Samir Nikkönens¹,², Isaac Afara¹, Timo Leppänen¹,², Juha Töyräs¹,³
¹Department of Applied Physics, University of Eastern Finland, Kuopio, Finland, ²Department of Clinical Neurophysiology, Kuopio University Hospital, Kuopio, Finland, ³School of Information Technology and Electrical Engineering, The University of Queensland, Brisbane, Australia

PHENOTYPING SLEEP APNEA

Chairs: Jan Hedner, Gothenburg, SWEDEN and Walter McNicholas, Dublin, Ireland

13:30 - 14:15 KEY NOTE SPEAKER

Danny Eckert, MD, PhD
University of New South Wales, Sydney, AUSTRALIA

SLEEP APNEA PHENOTYPES

EUROPEAN SLEEP APNEA DATABASE (ESADA) SESSION

14:15-14:30 The European Sleep Apnea Database (ESADA) Project. A successful European collaboration
Walter McNicholas
University College, Dublin
Clifford B. Saper, MD, PhD
Harvard Medical School
Boston, Massachusetts, USA

Clifford B. Saper received his M.D. and Ph.D. degrees and did his internship in internal medicine at Washington University School of Medicine in St. Louis, before doing a neurology residency at Cornell University Medical Center- New York Hospital. He then joined the faculty of Washington University School of Medicine where he served from 1981-1985 as Assistant and then Associate Professor of Neurology and Anatomy and Neurobiology. He then moved to the University of Chicago, where from 1985-1992 he was an Associate Professor, then William D. Mabee Professor of Physiology and Neurology, and Chairman of the Committee on Neurobiology. In 1992, he moved to his present position at Harvard Medical School, where he is the James Jackson Putnam Professor of Neurology and Neuroscience and Chairman of the Harvard Department of Neurology at Beth Israel Deaconess Medical Center.

Dr. Saper served from 1994-2011 as the Editor-in-chief of the Journal of Comparative Neurology and is currently the Editor-in-Chief of Annals of Neurology. Dr. Saper has received a Javits Neuroscience Investigator Award from the National Institutes of Health, and was named one of the 100 most frequently cited neuroscientists by the Institute for Scientific Information. He has served as Vice President and Councilor of the American Neurological Association, and has served on the Publications Committee and has chaired the Program Committee of both that organization and the Society for Neuroscience. Dr. Saper was elected to the National Academy of Medicine, and has been named a Fellow of the American Academy of Neurology, the American Association for the Advancement of Science, and the Royal College of Physicians (London) and a member of the American Association of Physicians.

Dr. Saper’s research has explored circuitry of the brain that controls basic functions such as wake-sleep cycles, feeding, and immune response, and how these circuits are disrupted in neurological disorders, such as Parkinson’s disease, and in sleep disorders such as narcolepsy and sleep apnea, and during aging.

Some words for young scientists

Although science is often taught as a series of “facts”, it is important to go back to the original literature and assess for yourself the strength of the arguments on which the “facts” are based. Never be afraid to test those “facts” with more precise methods, or to draw your own conclusions, even when they challenge received wisdom.
14:30-14:45 Unique sleep stage transition patterns determined by obstructive sleep apnea severity, age and gender (Abstract 22)
S. Herberger¹, M. Wächter¹, N. Laharnar¹, L. Grote ², I. Fietze¹, T. Penzel¹
(1) Interdisciplinary Center for Sleep Medicine, Charité Berlin, Germany (2) Sleep Medicine Center, Sahlgrenska University Hospital, Gothenburg, Sweden Corresponding author: Sebastian Herberger. Interdisciplinary Center for Sleep Medicine, Charité Berlin, Charitéplatz 1, 10117 Berlin, Germany

14:45 - 15:00 Mild OSA and Arterial Hypertension in the European Sleep Apnea Database cohort study
Izolde Bouloukaki
University of Crete, Heraklion, Crete

15:00 - 15:15 An unexpected association: Hypertension in OSA related to HCO₃ concentration
Zou Ding
Center for Sleep and Vigilance Disorders, Department of Internal Medicine and Clinical Nutrition, Sahlgrenska Academy, University of Gothenburg, Schweden

15:15-15:30 OSA and Cancer
Athanasia Pataka
Aristotle University, Thessaloniki, Greece

16:00 - DEPARTURE TO SOCIAL EVENT
Evening banquette with music and dance

Bus transfer to Serlachius Museums, Mänttä
Life-changing innovation is what we live for at Fisher & Paykel Healthcare.
WEDNESDAY 7-AUG-2019 (Fischer-Paykel Day)

AROUSAL MECHANISMS
*Chairs: John Kimoff, Montreal, CANADA and David Rapoport, New York, USA*

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**08:15 - 09:00 KEY NOTE SPEAKER**

*Clifford B. Saper, MD, PhD, Harvard Medical School, Boston, USA*

*A BRAIN CIRCUIT FOR AROUSAL DURING APNEA*

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**09:00 - 09:45 KEY NOTE SPEAKER**

*Matthew Naughton, MD, FRACP*

*Alfred Hospital, Monash University, Melbourne, AUSTRALIA*

*SLEEP-DISORDERED BREATHING IN CHRONIC HEART FAILURE (CHF)*

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09:45 - 10:00 Cheyne-Stokes respiration in patients with chronic heart failure and its treatment with acetazolamide: a pilot study (Abstract 23)

Palman A.D., Sorokina K.V., Pollarovskaya M.G.

*I.M. Sechenov First Moscow State Medical University, Moscow*

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10:00 - 10:15 COFFEE BREAK
Matthew Naughton, MD, FRACP
Alfred Hospital & Monash University
Melbourne, VIC, AUSTRALIA

I trained at University of Melbourne (MBBS 1982, MD 1994) and FRACP 1992 and did clinical training at Royal Melbourne Hospital (1982-1987) then entered respiratory training at Heidelberg Repatriation Hospital 1988-1990 (which included two years clinical and one year research into sleep apnoea and systemic hypertension with Professor Rob Pierce). In 1991, I was appointed director of the Intensive Care Unit, Heidelberg Repatriation Hospital. In 1992-1994, I was appointed Clinical Research Fellow at the University of Toronto where I undertook research into sleep apnoea and heart failure with Professor Doug Bradley. This gave me a great understanding heart lung interaction and positive airway pressure. In 1994, I was appointed to the Alfred Hospital and Monash University where I have set up a clinical and research program. I am now the head of general respiratory and sleep medicine, Alfred Hospital and Adjunct Clinical Professor of Medicine, Monash University. I have been extremely fortunate to have a small but dedicated group, excellent collaborators and a supportive wife. In the past 25 years, our research has focused upon heart lung interaction under the states of sleep and exercise with variables of positive airway pressure and supplemental oxygen. The disease states we have pursued are heart failure, atrial fibrillation, cystic fibrosis, pulmonary fibrosis and COPD and mental health. Our group have published about 200 manuscripts. I was awarded the Australasian Sleep Association’s Distinguished Achiever Award in 2015.

Matt’s message to a young researcher

Ask questions, don’t accept dogmatic statements, think independently and follow your passion. Seek to do your best and appreciate, in terms of publications, excellence is sometimes the enemy of good. Always put your hand up to speak in front of your peers: this is a most powerful way to learn!
NEURAL DRIVES AND BREATHING

Chairs:
Winfried Randerath, Solingen, GERMANY and Sari-Leena Himanen, Tampere, FINLAND

10:15 - 10:30 Increased neural respiratory drive to the diaphragm during quiet breathing in tetraplegia (Abstract 24)
D.A.T. Nguyen\textsuperscript{1,2}, R.H.C. Lewis\textsuperscript{1,2,3}, C.L. Boswell-Ruys\textsuperscript{1,2,3}, A.L. Hudson\textsuperscript{1,2}, S.C. Gandevia\textsuperscript{1,2,3}, J.E. Butler\textsuperscript{1,2,3}

\textsuperscript{1}Neuroscience Research Australia, NSW, Australia, 2. University of New South Wales, NSW, Australia, 3. Prince of Wales Hospital, NSW, Australia

10:30 - 10:45 Neural respiratory drive during quiet breathing does not have a cortical component in tetraplegia (Abstract 25)
D.A.T. Nguyen\textsuperscript{1,2}, C.L. Boswell-Ruys\textsuperscript{1,2,3}, E.J. McLaughey\textsuperscript{1,2}, S.C. Gandevia\textsuperscript{1,2,3}, A.L. Hudson\textsuperscript{1,2}, J.E. Butler\textsuperscript{1,2,3}

\textsuperscript{1}Neuroscience Research Australia, NSW, Australia, 2. University of New South Wales, NSW, Australia, 3. Prince of Wales Hospital, NSW, Australia

10:45 - 11:00 Prediction of Acute Blood Pressure Response to Obstructive Apneas and Hypopneas Using Routine Polysomnography Data (Abstract 26)
Agarwal C\textsuperscript{2}, Imayama I\textsuperscript{1,3}, Elan Schonfeld\textsuperscript{4}, Dan Schonfeld\textsuperscript{2}, Mokhlesi B\textsuperscript{5}, Prasad B\textsuperscript{1,3}

\textsuperscript{1}University of Illinois at Chicago, Department of Pulmonary, Critical Care, Sleep, and Allergy, Chicago, IL, \textsuperscript{2}University of Illinois at Chicago, Department of Electrical and Computer Engineering, Chicago, IL, \textsuperscript{3}Jesse Brown VA Medical Center, Chicago, IL, \textsuperscript{4}Glenbrook North High School, Northbrook, IL, \textsuperscript{5}University of Chicago, Section of Pulmonary and Critical Care, Sleep Disorders Center, Chicago, IL

11:00 - 11:15 Sleep apnea as risk factor of driving accidents in professional truck drivers: A 14-year prospective study (Abstract 27)
Markku Partinen\textsuperscript{1,2}, Riikka Huhtala\textsuperscript{1,2}

\textsuperscript{1}Helsinki Sleep Clinic, Vitalmed Research Center, Helsinki, \textsuperscript{2}Department of Clinical Neurosciences, University of Helsinki, Helsinki, Finland

BEYOND AHI

11:15 - 11:30 Transcutaneous Carbon Dioxide during Sleep-Disordered Breathing (Abstract 28)
Ville Rimpliä\textsuperscript{1,5}, Tarja Saarensranta\textsuperscript{1,2}, Heini Huhtala\textsuperscript{3}, Aaro V. Salminen\textsuperscript{4,6}, Keisuke Hosokawa\textsuperscript{5}, Olli Polo\textsuperscript{5,6}

\textsuperscript{1}University of Turku, Department of Pulmonary Diseases and Clinical Allergology, Turku, Finland, \textsuperscript{2}Turku University Hospital, Department of Pulmonary Diseases, Turku, Finland, \textsuperscript{3}University of
11:30 - 11:45 Transcutaneous pCO₂ measurement during sleep
Olli Polo and Ville Rimpilä
Unesta Research Center, Tampere, Finland

11:45 - 12:00 Beyond the AHI – Using Breath-by-Breath Flow Amplitude to Quantitate Severity of OSA (Abstract 29)
David M. Rapoport, Ankit Parekh, Thomas Tolbert, Indu Ayappa
Mount Sinai Health System Integrative Sleep Center, New York, USA

12:00 - 13:15 LUNCH and POSTER VIEWING (Posters 44-47)

P44 Sympathetic tone and phasic events during sleep derived from transcutaneous carbon dioxide measurement (Abstract 45)
Olli Polo, Ville Rimpilä
Unesta Research Center, Tampere, Finland

P45 Effect of Repetitive Acute Hypoxic Preconditioning on Airway Reactivity during House Dust Mite – Induced Allergic Inflammation (Abstract 46)
Ruolin Song¹, Oleg Broytman, PhD²,³, and Mihaela Teodorescu (mt3@medicine.wisc.edu), MD, MS²,³
¹School of Veterinary Medicine, University of Wisconsin, Madison, Wisconsin;
²Department of Medicine, University of Wisconsin-Madison, Madison, Wisconsin;
³William S. Middleton Memorial VA Medical Center, Madison, Wisconsin

P46 Interactions between Obstructive Sleep Apnea and Sleep Duration with Subclinical Atherosclerosis Evaluated by Coronary Calcium Score: Cross-sectional Data from ELSA-Brasil study (Abstract 47)
Silvana P. Souza, Márcio S. Bittencourt, Ronaldo B. Santos, Barbara K. Parise, Soraya Giatti, Aline N. Aiello, Wagner A. Silva, Isabel M. Bensenor, Paulo A. Lotufo, Luciano F. Drager
INCOR-HC FMUSP, São Paulo, Brazil
Room for your notes:
Pxx Contribution of retrotrapezoid nuleus and carotid bodies to arousal elicited by hypoxia and hypercapnia in rats (Poster only)
University of Virginia, Charlottesville, USA

P47 Noise Pollution in the Bedroom (Abstract 48)
Mudiaga Sowho, Frank Sgambati, Michelle Guzman, Hartmut Schneider, Alan Schwartz.
Division of Pulmonary and Critical Care Medicine, Johns Hopkins School of Medicine, Baltimore, Maryland, USA

ORAL SESSION IV
Chairs: Frédéric Sériès, Quebec, CANADA and Olli Polo, Tampere, FINLAND

13:15-13:30 Humanized Chemogenetic Approach to Treat Sleep Apnea (Abstract 30)
Fleury Curado, T. A. ¹ Pho, H.¹ Freire, C.¹ Sennes, L. U.² Fuller, D.³ Michaelides, M.⁴ Schwartz, A. R.¹ Polotsky, V. Y.¹
¹Johns Hopkins University, Baltimore, MD, ²University of Sao Paulo, Sao Paulo, BRAZIL., ³University of Florida, Gainesville, FL, ⁴National Institute on Drug Abuse, Baltimore, MD

13:30-13:45 Cunningham et al. Total Sleep Deprivation and Pain Perception during Cold Noxious Stimuli in Older Adults (Abstract 31)
Hannah A. Cunningham¹, Ian M. Greenlund¹, Ida T. Fonkoue², John D. Durocher³, Carl A. Smoot¹, and Jason R. Carter¹
¹Department of Kinesiology and Integrative Physiology; Michigan Technological University, Houghton, MI; ²Renal Division, Department for Medicine, Emory University, Atlanta, GA; ³Department of Biological Sciences; Michigan Technological University, Houghton, MI

13:45 - 14:00 Impaired recall of spatial navigation in cognitively normal older individuals with obstructive sleep apnea (Abstract 32)
Korey Kam, Masrai K. Williams, Anna E. Mullins, Ankit Parekh, Bresne Castillo, Indu Ayappa, David M. Rapoport, Ricardo S. Osorio, Andrew W. Varga
Mount Sinai School of Medicine, New York, USA

14:00-14:15 Asymptomatic sleep apnoea is a pathognomonic feature and a predictor of major adverse cardiovascular and cerebrovascular events (MACCE) in severe peripheral arterial disease (Abstract 33)
Sleep Research Unit, University of Turku and Division of Perioperative Services, Intensive Care Medicine and Pain Management, Turku University Hospital, Finland

14:15 - 14:45 “Imagination is more important than knowledge” (Albert Einstein) - Drawing an image from the jigsaw pieces of our current knowledge on sleep-disordered breathing

Olli Polo
Tampere University Hospital, Tampere, Finland

14:45-16:00

FAREWELL PARTY WITH BERRIES

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SEE YOU IN TWO YEARS TIME.