Final Programme

Life in Space for Life on Earth

Sunday 17 June

18:00-20:00 Welcome Reception & Pre-registration at the Maritime Museum
   Sponsored by the Aberdeen City Council

Monday 18 June

07:30 Registration desk open

Plenary: Current Concepts
   Chairs: M. Heer, C. Fuller
   Room: Fraser Noble 1

08:30 Welcome and introduction

09:00 Visual Impairment in Long-duration Astronauts: Recent Observations and Current Plans
   Charles J.

09:30 Bedrest and Hypoxia – an Physiological Analogue of Planetary habitats
   Mekjavic, I.

10:00 Improving our understanding of the bone-vascular axis
   Vico L.

10:30 Coffee break

11:00 Acid-base balance and the musculoskeletal system
   Heer M.

11:30 The Medical Support Program for ISS Operations and Concepts for Exploration Missions
   Damann V.

12:00 Lunch break

13:15 Poster Session

Session 1 Integrated Physiology
   Chairs: M. Hughes-Fulford, F. Strollo
   Room: Fraser Noble 2

14:00 The Crosstalk between adipose and other endocrine Organs during a 15 Week isolation
   Experiment
   Strollo, F. 1; Vassilieva, G. 2; Nichiporuk, I. 2; Magni, P. 3; Carucci, I. 1; Santucci, D. 4; Monici, M. 5; Celotti, F. 3; Masini, M.A. 6
   1INRCA, Rome, (ITALY); 2IBMP, Moscow, (RUSSIAN FEDERATION); 3Institute of Pharmacology, University of Milan, (ITALY); 4Istituto Superiore di Sanità, Rome, (ITALY); 5ASA Campus and Florence University Joint Laboratory, (ITALY); 6DipTeris, University of Genua, (ITALY)
14:15 Genome-wide Transcriptomics Identifies Molecular Changes in Blood and Saliva in Response to Parabolic Flight Conditions
De Boever, P.; Abeln, V.; Vogt, T.; Schoeters, G.; Askew, C.; Strüder, H.; Schneider, S.
1Flemish Institute for Technological Research, (BELGIUM); 2German Sport University Cologne, (GERMANY);
3University of the Sunshine Coast, (AUSTRALIA)

14:30 Hyperoxia Inhibits Immune Response in Mice
Hughes-Fulford, M; Meissler, J; Aguayo, E; Candelario, TT; Globus, R; Aguado, J
1University of California, San Francisco; Dept of Veteran's affairs; NCIRE, (UNITED STATES); 2NCIRE, (UNITED STATES);
3NASA Ames, (UNITED STATES); 4University of California, San Francisco, (UNITED STATES)

Monici, M; Cialdai, F; Lulli, M; Capaccioli, S; Sundaresan, A
1ASAcampus Joint Laboratory, ASA Res. Div. & Dept. of Clinical Physiopathology, University of Florenc, (ITALY);
2GRAMP - Dept. of Experimental Pathology and Oncology, University of Florence, (ITALY); 3Dept. of Biology, Texas Southern University, 203K New Science Center, (UNITED STATES)

15:00 Immune responses during short term Bedrest: "Sterile" L-Selectin shedding as a Marker for acute Volume Shifts?
Feuerecker, M; Feuerecker, B; Matzel, S; Strewe, C; Hoerl, M; Kaufmann, I; Schelling, G; Rehm, M; Choukèr, A.
University of Munich, (GERMANY)

15:15 Immune Functions during NASA Extreme Environment Mission Operations (NEEMO): The Role of hyperoxic Stress
Strewe, C; Crucian, BE; Feuerecker, M; Mehta, S; Stowe, R; Feuerecker, B; Kaufmann, I; Schelling, G; Martignoni, A; Pierson, DL; Choukèr, A; Sams, C
1University of Munich, (GERMANY); 2NASA, (UNITED STATES); 3EASI, Houston, (UNITED STATES);
4Microgen Laboratories, (UNITED STATES)

15:30 Coffee break

Session 2 Cardiovascular Physiology 1

14:00 Heart Rate and Blood Pressure Variability under Moon, Mars and Zero Gravity Conditions During Parabolic flights
Aerts, W; Joosen, P; Widjaja, D; Varon, C; Vandeput, S; Van Huffel, S; Aubert, A.E
1KU Leuven, Department of Electrical Engineering, SCD, (BELGIUM); 2KU Leuven, Department of Electrical Engineering, SCD / IBBT Future Health Department, (BELGIUM); 3KU Leuven, Laboratory of Experimental Cardiology, (BELGIUM)

14:15 Cardiovascular Parameters in Mice in Bion-M1 Program
Vinogradova, Olga; Kalabushev, Sergei; Andreev-Andrievski, Aleksandr; Tsvirkun, Daria; Borovik, Anatoli; Aubry, Patrick; Lloret, Jean Christophe; Custaud, Marc Antoine
1SSC RF Institute for Biomedical Problems, (RUSSIAN FEDERATION); 2Faculte de Medecine d'Angers, (FRANCE)

14:30 Three-dimensional Ballistocardiography and Seismocardiography in parabolic Flight: preliminary Results from the ESA B3D Project.
Migeotte, P-F; De Ridder, S; Neyt, X; Pattyn, N; Di Rienzo; Beck, L; Gauger, P; Limper, U; Prisk, GK; Rusanov, V; Funtova, I; Baevsky, R.M; Tank, J
1Royal Military Academy, Vital signs and Performance Research Unit, (BELGIUM); 2German Aerospace Center (DLR), Institute of Aerospace Medicine, Space Physiology, (GERMANY); 3University of California - San Diego, Departments of Medicine and Radiology, (UNITED STATES); 4Russian academy of sciences, Institute of Biomedical problems, (RUSSIAN FEDERATION); 5Medizinische Hochschule Hannover, Institut für Klinische Pharmakologie, (GERMANY); 6Fondazione Don Carlo Gnocchi Onlus, Polo Tecnologico, Milano, Italy
14:45 Reduced heart rate Variability (HRV) with unchanged Heart Rate during Sleep but not awake on ISS
Hughson, R. ; Xu, D. ; Pereira, P. ; Fraser, K. ; Shoemaker, K. ; Blaber, A. ; Arbeille, P.
1University of Waterloo, (CANADA); 2University of Western Ontario, (CANADA); 3Simon Fraser University, (CANADA); 4University of Tours, (FRANCE)

15:00 Coagulation Changes During Graded Orthostatic Stress and Recovery
Goswami, N ; Gerhard, C ; Schlagenhauf, A ; Leschnik, B ; Roessler, A ; Jantscher, A ; Tafeit, E ; Juergens, G ; Hinghofer-Szalkay, H
1Medical University of Graz, (AUSTRIA); 2medical University of Graz, (AUSTRIA)

15:15 Influence of Prolonged Spaceflight on Heart Rate and Oxygen Uptake Kinetics
Hoffmann, U. ; Moore, A. ; Drescher, U.
1German Sport University Cologne, (GERMANY); 2Exercise Physiology Laboratory, Wyle Science, Technology and Engineering Group, (UNITED STATES)

15:30 Coffee break

Session 3 Radiation

Chairs: M. Durante, O. Angerer
Room: Fraser Noble 2

16:00 Severity of 56Fe Radiation-Induced Atherosclerosis in the ApoE -/- Mouse Model Is Independent of Plasma Cholesterol Levels
University of Alabama at Birmingham, (UNITED STATES)

16:15 IBER10 - Cellular Effects of Space Radiation with Relevance to Cardiovascular Diseases
Thielemann, C. ; Daus, A. ; Heselich, A. ; Layer, P. ; Frieß, J. ; Ritter, S.
1University of Applied Sciences Aschaffenburg, (GERMANY); 2Technical University of Darmstadt, (GERMANY); 3GSI, Darmstadt, (GERMANY)

16:30 Reduced Contribution of thermally labile Sugar Lesions to DNA double strand Breaks Formation after exposure to Neutrons
Iliakis, G.; Singh, S.; Wu, W.
Institute of Medical Radiation Biology (GERMANY)

16:45 Genome-wide Analysis of the Effect of Heavy Ions Bombardment on Gene Expression and Alternative Splicing by Neuronal Cells.
Lambert, C ; Ernst, E ; Quintens, R ; De Vos, W ; Moreels, M ; Beck, M ; Tabury, K ; Lee, R ; Van Oostveldt, P ; Baatout, S ; Nusgens, B ; Colige, A
1University of Liège, (BELGIUM); 2SCK-CEN, (BELGIUM); 3University of Ghent, (BELGIUM); 4GSI Helmholtzzentrum für Schwerionenforschung, (GERMANY)

17:00 Osteoblast like Cell Culture Model Systems in Response to Space Relevant Qualities of Ionizing Radiation (OSIRIS 2.0) AO-10-IBER-13
Lau, Patrick ; Hu, Yueyun ; Baumstark-Khan, Christa ; Hellweg, Christine ; Tobiasch, Edda ; Reitz, Guenther
1German Aerospace Center (DLR), (GERMANY); 2Department of Natural Sciences, University of Applied Sciences Bonn-Rhein-Sieg, Rheinbach, (GERMANY)

17:15 Summary Results of the ESA MATROSHKA Experiments
Reitz, G.
German Aerospace Center, (GERMANY)

17:30 Space Radiation Research at the GSI Heavy Ion Accelerator
Durante, M
GSI, (GERMANY)
Session 4 Cardiovascular Physiology 2  
Chairs: P. Norsk, O. Opatz  
Room: Fraser Noble 1

16:00  Increase In Cardiac Output Under Zero-G Is Mitigated After Repeated Transitions Into Weightlessness During Parabolic Flights
Limper, U. 1; Gauger, P. 2; Beck, P. 3; Beck, L.E.J. 2
1German Aerospace Center and University Witten/Herdecke, (GERMANY); 2German Aerospace Center (DLR), (GERMANY); 3University Witten/Herdecke, (GERMANY)

16:15  Ambulatory Blood Pressure monitoring during 520 Days of Confinement: preliminary Results from the MARS520 Campaign
Mulder, E 1; Gauger, P 1; May, F 1; Chernogorov, R 2; Vassilieva, G 2; Beck, L 1
1German Aerospace Center (DLR), (GERMANY); 2Institute of Biomedical Problems, (RUSSIAN FEDERATION)

16:30  Are Arteries more reactive after Long-Duration Spaceflight?
Greaves, D. 1; Robertson, A. 1; Shoemaker, K. 2; Arbeille, P. 3; Hughson, R. 1
1University of Waterloo, (CANADA); 2University of Western Ontario, (CANADA); 3University of Tours, (FRANCE)

16:45  Hypotensive and vasodilatory Effects of long-term Spaceflight
Norsk, Peter 1; Asmar, Ali 2; Damgaard, Morten 2; Christensen, Niels Juel 2
1USRA/NASA-Johnson Space Center, (UNITED STATES); 2University of Copenhagen, (DENMARK)

17:00  Hot Legs - Can we Predict GLOC by Measuring Peripheral Temperatures?
Opatz, Oliver 1; Stahn, Alexander 1; Ganse, Bergitta 1; Hanousek, Jan 3; Gunga, Hanns-Christian 1
1Charité Universitätsmedizin, (GERMANY); 2DLR, (GERMANY); 3Institute of Aviation Medicine, Prague, (CZECH REPUBLIC)
Tuesday 19 June 2012

Plenary: Toxicology of Lunar Dust

Chairs: D. Linnarsson, K. Prisk
Room: Fraser Noble 1

08:30  Introduction by Dag Linnarson
Karolinska Institutet, Stockholm (SWEDEN)

08:40  Dust distribution in the airways
Prisk, K.
University of California, San Diego (UNITED STATES)

09:00  Introduction to general concepts of particle toxicity
Loftus, D.
Ames Research Center, Moffett Field, CA (UNITED STATES)

09:05  Toxic effects of moon dust and analogs in the lungs I
Chiu-Wing Lam
Lam, C.-w. ¹; James, J. T. ²; Renne, R. ³; Hunter, R. ⁴; Scully, R. ⁵; McCluskey, R. ⁶; McKay, D. ⁷; Cooper, B. ⁸; Zeidler-Erdely, P. C. ⁹; Castranova, Castranova. ⁹
¹Johnson Space Center Space Toxicology Office and Wyle STE, (UNITED STATES); ²NASA Space Toxicology Office, Johnson Space Center, (UNITED STATES); ³Renne ToxPath Consulting, (UNITED STATES);
⁴Dept. of Pathology, University of Texas-Houston, (UNITED STATES); ⁵Wyle STE, (UNITED STATES);
⁶US Naval Air Station, (UNITED STATES); ⁷NASA Astromaterials Research and Exploration Systems, (UNITED STATES);
⁸Astromaterials Research and Exploration Systems and ⁹Oceaneering Space Systems, (UNITED STATES);
⁹US National Institute for Occupational Safety and Health, (UNITED STATES)
Johnson Space Center, Houston TX, (UNITED STATES)

09:25  Toxic effects of moon dust and analogs in the lungs II
Loftus, D.
Ames Research Center, Moffett Field, CA (UNITED STATES)

09:45  Novel techniques for animal exposure to inhaled dust,
Gerde, P.
Karolinska Institutet, Stockholm, (SWEDEN)

10:05  Recommendations for future research,
Carpenter, J.; Prisk, K.
European Space Agency (NETHERLANDS); University of California, San Diego (UNITED STATES)

10:30  Coffee break
Session 5 Student Presentations

Chairs: P. Sundblad, C. Fuller
Room: Fraser Noble 1

11:00 Mouse Bone and Bone Marrow Exhibit Significantly Altered Gene Expression Patterns in Response to Spaceflight
Blaber, E.1; Dvorochkin, N.2; Burns, B.P.1; Almeida, E.A.2
1University of New South Wales, (AUSTRALIA); 2NASA - Ames Research center, (UNITED STATES)

11:15 Gravitational Threshold for the Perception of Verticality
de Winkel, K.1; Clément, G.2; Groen, E.1; Werkhoven, P.3
1TNO, (NETHERLANDS); 2ISU, (FRANCE); 3Utrecht University, (NETHERLANDS)

11:30 Increased Vasodilation Of Common Carotid And Abdominal Arteries In Hindlimb Unweighting Rats May Be Associated With Altered NADPH Oxidase
Wang, ZC; Yu, JW; Cai, Y; Liu, H; Bai, YG; Bao, JX; Ma, J
Fourth Military Medical University, (CHINA)

11:45 The Effect of normobaric hypoxis Confinement on Metabolism
Amon, Mojca1; Kölegård, Roger2; Kounalakis, Stylianos N.3; Simpson, Liz4; Eiken, Ola2; MacDonald, Ian4; Mekjavic, Igor B.1
1Jozef Stefan Institute, (SLOVENIA); 2Royal Institute of Technology, (SWEDEN); 3Hellenic Military University, (GREECE); 4University of Nottingham, (UNITED KINGDOM)

12:00 Lunch break

13:15 Poster Session

Session 6 Bone Physiology

Chairs: A. Leblanc, P. Frings-Meuthen
Room: Fraser Noble 1

14:00 Effects of Load on normal human osteoblast Function
Sundaresan, A1; Reseland, J2
1Texas Southern University, (UNITED STATES); 2University of Oslo, (NORWAY)

14:15 The Effects of Simulated Microgravity on Gene Expression in Human Bone Marrow MMSCs under Osteogenic Differentiation
Buravkova, L.1; Gershovich, P.1; Gershovich, Y1; Grigoriev, A.2
1Institute of Biomedical Problems RAS, (RUSSIAN FEDERATION); 2Russian Academy of Sciences, (RUSSIAN FEDERATION)

14:30 Twenty-five Minutes of Standing or Locomotion Replacement Exercise per day does not Prevent Bed Rest-induced Increases in Bone
Rittweger, Jörn1; Mulder, Edwin1; Frings-Meuthen, Petra1; Clément, Gilles2; Linnarsson, Dag3; Paloski, William H4; Wuyts, Floris5; Zange, Jochen1
1German Aerospace Center (DLR), (GERMANY); 2International Space University, (GERMANY); 3Karolinska Institutet, (GERMANY); 4Universities Space Reschar Association, Houston, (UNITED STATES); 5University of Antwerp, (BELGIUM)
14:45 Antiresorptive Countermeasure For Spaceflight Bone Loss: Preliminary Results
LeBlanc, A. 1; Matsumoto, T. 2; Jones, J. 3; Shapiro, J. 4; Lang, T. 5; Shackelford, L. 6; Smith, S. 6; Evans, H. 7; Spector, E. 8; Ploutz-Snyder, R. 9; Sibonga, J. 10; Nakamura, T. 11; Kohri, K. 12; Ohshima, H. 13  
1. USRA, (UNITED STATES); 2. Univ. of Tokushima Graduate School of Medicine, (JAPAN); 3. Baylor College of Medicine, (UNITED STATES); 4. John's Hopkins, (UNITED STATES); 5. UCSF, (UNITED STATES); 6. NASA, Johnson Space Center, (UNITED STATES); 7. Wyle Laboratories, (UNITED STATES); 8. Univ. of Occupational and Environmental Health, (JAPAN); 9. Nagoya City Univ, (JAPAN); 10. JAXA, (JAPAN)

15:00 Effects of Potassium Bicarbonate Supplementation on Calcium and Bone Metabolism during 21-days of Bed Rest
Fring-Meuthen, P. 1; Boehme, G. 2; Rittweger, J. 2; Heer, Martina 2  
1. German Aerospace Center, (GERMANY); 2. University of Bonn, (GERMANY)

15:15 Coffee break

Session 7 Neurosciences 1
Chairs: P. Denise, I. Kozlovskaya
Room: Fraser Noble 2

14:00 Effect of otolithic System on carotid Baroreflex. A Study during parabolic Flight
Lericollais, R. 1; Marais, M. 1; Denise, P. 1; Akimoto, T. 2; Ogoh, S. 2; Normand, H. 1  
1. U1075 COMETE, UMR Université de Caen Basse Normandie/INSERM, Caen, 14032, (FRANCE); 2. Department of Biomedical Engineering, Toyo University, Kawagoe-Shi, Saitama, (JAPAN)

14:15 Near-InfraRed Spectroscopy (NIRS) for Changes in Brain Activity During Parabolic Flights?
Aeln, V.; Schneider, S  
German Sport University Cologne, (GERMANY)

14:30 Mood and Autonomic Nervous System Activity During 520 Days of Confinement in a Simulated Mission to Mars
Aubert, A 1; Vigo, D 1; Ogrinz, B 1; Wan, L 1; Tuerlinckx, F 1; Van den Bergh, J 1; Bersenev, E 2  
1. KULeuven, (BELGIUM); 2. Universidad Católica Argentina, (ARGENTINA); 3. IMBP, (RUSSIAN FEDERATION)

14:45 Vestibular System Regulates Central Body Temperature: A New Homeothermic Regulator?
Bosnard, SB 1; Machado, Marie Laure 1; Philoxene, Bruno 1; Liegard, Yannick 1; Normand, Hervé 1; Denise, Pierre 1  
1. Université de Caen Basse-Normandie, U 1075 COMETE, Caen, 14032, France, (FRANCE); 2. Université de Caen Basse-Normandie, U 1075 COMETE, Caen, 14032, France, (FRANCE)

15:00 Peculiarities of Coordination of Target Acquisition Reaction Components in Long-Term Space Flights
Tomilovskaya, E. 1; Kozlovskaya, I.
RF SSC - Institute of Biomedical Problems RAS, (RUSSIAN FEDERATION)

15:15 Coffee break

Session 8 Muscle Physiology
Chairs: B. Shenkman, D. Blottnerr
Room: Fraser Noble 1

15:45 Cellular and Molecular Mechanisms of Hypogravitational Motor Syndrome
Kozlovskaya, I. 1; Islamov, R. 2; Nikolsky, E. 2  
1. RF SSC - Institute of Biomedical Problems RAS, (RUSSIAN FEDERATION); 2. Kazan Institute of biochemistry and biophysics RAS, (RUSSIAN FEDERATION)

16:00 Proteolytic Enzymes, Initiation and Elongation Anabolic Markers in Rat Soleus Muscle at the Early Stage of Hindlimb Unloading
Shenkman, B. 1; Nemirovskaya, T. 2; Lomonosova, Y. 1; Lysenko, E. 1; Leinsoo, T. 1  
1. SSC RF Institute for Biomedical Problems, RAS, (RUSSIAN FEDERATION); 2. Lomonosov Moscow University, (RUSSIAN FEDERATION)
16:15 Homer Expression in Skeletal Muscle Adaptation
Salanova, M., 1; Sun, L., 2; Luan, H., 2; Wang, C., 2; Fan, YB., 2; Blattner, D. 1
1 Charité Universitätsmedizin Berlin, (GERMANY); 2Beihang University, Beijing, (CHINA)

16:30 Ligustrazine and the Contractile Properties of Soleus Muscle in Hindlimb‐unloaded Rats
Gao, YF. 1; Li, SY.; Yang, Z.; Li, GY.; Wang, HP. 1; Hinghofer-Szalkay, HG. 2
1Northwest University, (CHINA); 2Medical University Graz, (AUSTRIA)

16:45 Effects Of Hindlimb Unweighting And Intermittent Artificial Gravity On Apoptosis And Proliferation Of Arterial Smooth Muscle Cells In Rats
Ma, J.; Cai, Y.; Yu, JW.; Liu, H.; Wang, ZC.; Bai, YG.
Fourth Military Medical University, (CHINA)

17:00 Effects of HDT Bed Rest on excitability of the Sarcolemma in postural Muscles
Shushakov, V. 1; Grunewald, M. 1; Maassen, N. 1; Zange, J. 2
1 Hannover Medical School, (GERMANY); 2DLR, German Aerospace Center, (GERMANY)

17:15 Tensiomyographic Measurement of Myosin heavy Chain Composition and Bed Rest Recovery in postural and nonpostural skeletal Muscles
Simunic, B. 1; Degens, H. 2; Rittweger, J. 2; Pisot, V. 3; Mekjavic, I.B. 4; Pisot, R.
1 University of Primorska, (SLOVENIA); 2Manchester Metropolitan University, (UNITED KINGDOM);
3 Orthopaedic hospital Valdoltra, (SLOVENIA); 4Institut Jozef Stefan, (SLOVENIA)

17:30 Comparative Study of the Contractile Properties of Different Shin Muscles under the Condition of Support Deprivation
Khusnutdinova, D.; Voronov, A.
State Research Center of The Russian Federation – Institute for Biomedical Problems, Academy of Scie,
(RUSSIAN FEDERATION)

Session 9 Neurosciences 2
Chairs: E. Fomina
Room: Fraser Noble 2

15:45 Final Results of the MOP Experiment: Ground-based Simulation of Space Adaptation Syndrome
Groen, E. 1; Bos, J. 2; Nooij, S. 3
1 TNO, (NETHERLANDS); 2Desdemona b.v., (NETHERLANDS)

16:00 Complex Neurological and Oto‐Neurological Remote Care: From Space Station to Clinic
Marchbanks, RJ. 1; Good, E. 2
1 University Hospital Southampton NHS Foundation Trust, (UNITED KINGDOM); 2Astronaut Selection Team, Johnson Space Center, (UNITED STATES)

16:15 Neuro‐Enhancement through Exercise: First Results from the MARS500 Study
Schneider, S. 1; Abeln, V. 2; Popova, J. 2; Fomina, E. 2
1 German Sport University Cologne, (GERMANY); 2Institute for Biomedical Problems, (RUSSIAN FEDERATION)
16:30 Optic Disc Edema, Globe Flattening, Choroidal Folds and Hyperopic Shifts Observed in Astronauts after Long-duration Space Flight
Pass, A. 1; Mader, T. 2; Gibson, C. 3
1Wyle Integrated Science and Engineering and University of Houston, (UNITED STATES);
2Department of Ophthalmology, Alaska Native Medical Center, (UNITED STATES);
3Wyle Integrated Science and Engineering, (UNITED STATES)

16:45 Testing the Human Gravity Detector with Ocular VEMP versus Unilateral Centrifugation. Is the Ocular VEMP a Hype?
Wuyts, F.; Struyfs, H.; Van de Zande, E.; Weerts, A.; Van de Heyning, P.H.; Buytaert, K.
University of Antwerp, (BELGIUM)
Wednesday 20 June 2012

Plenary: Space Analogues and Countermeasures Research
Chairs: P. Sundblad, J. Hayes;
Room: Fraser Noble 1

08:30  Overview of Flight Analogs
Charles, J.

08:50  The International Space Station as a Testbed for Analog Research (ISTAR)
Charles, J.

09:10  International Guidelines for Bedrest Studies
Standard Conditions
Standard Measures
Angerer, O.; Cromwell, R.

09:30  Mars 500
Morukov, B.; Famina, E.; Suvorov, A.; Belakovskiy, M.

09:50  Exercise and Gravity – results from short duration bedrest studies
Rittweger, J.

10:10  Recent results from Dry Immersion Studies
Kozlovskaya, I.

10:30  Coffee break

Session 10 Student Presentations
Chairs: M. Heer, P. Fraser
Room: Fraser Noble 1

11:00  Effects of Hypergravity from Continuous Centrifugation on Mice Skeleton
Gnyubkin, V.; Vico, L.; Laroche, N.; Morel, J.; Goubier, M.; Hunot, C.; Bojadz, M.
1INSERM U1059, Lyon University, (FRANCE); 2Institut des Maladies Neurodegeneratives UMR 5293 CNRS-Universite de Bordeaux, (FRANCE); 3INSERM UMR-910, Genetique Medicale et Genomique fonctionnelle Faculte de Medecine de la Timone, (FRANCE)

11:15  Individual Behavioural Adaptability to μg and Calcium Uptake of Inner Ear Otoliths in Fish. A Sounding Rocket Experiment (TX48)
Knie, M.; Hilbig, R.; Shcherbakov, Denis
University of Hohenheim, (GERMANY)

11:30  Protective Signaling Systems in Skeletal Muscle under Gravitational Unloading
Nemirovskaya, T.; Lomonosova, Y.
1Moscow state university, (RUSSIAN FEDERATION); 2Institute for bio-medical problems, (RUSSIAN FEDERATION)

11:45  Global Analysis of Gene Expression in the Skin of Mice after a 92 Days Journey in Microgravity
1Laboratory of Connective Tissues Biology, University of Liège, (BELGIUM); 2Dpt. of Oncology, Biology and Genetics University of Genova, (ITALY)

12:00  Lunch break

13:15  Poster Session
Session 11 Exercise Physiology 1  
*Chairs: L. Ploutz Snyder, O. Angerer*  
*Room: Fraser Noble 1*

14:00 X-Ray Movie Analysis of Mice Adaptation to Lunar/Martian and Micro Gravity  
Kumei, Y.¹; Hasegawa, K.²; Suganuma, T.¹; Zeredo, J.³; Aou, S.⁴  
¹Tokyo Medical and Dental University, (JAPAN); ²ISAS/JAXA, (JAPAN); ³Azabu University, (JAPAN); ⁴Tokyo Medical and Dental University, (JAPAN)

14:15 Reproductive and Social Behaviours of Mice in 0.3G and 0.15G Parabolic Flight Conditions  
Aou, S.¹; Watanabe, Y.¹; Masuda, A.²; Hasegawa, K.¹; Kawasaki, T.¹; Kumei, Y.⁴  
¹Kyushu Institute of Technology, (JAPAN); ²RIKEN, (JAPAN); ³ISAS/JAXA, (JAPAN); ⁴Tokyo Medical and Dental University, (JAPAN)

14:30 A New Sledge Jump System that allows Reactive Jumps as a Potential Countermeasure for Muscle and Bone Loss  
Kramer, A.¹; Ritzmann, R.²; Gollhofer, A.³; Gruber, M.¹  
¹University of Konstanz, (GERMANY); ²University of Freiburg, (GERMANY)

14:45 Mars 500: Training and Diagnostic with a Multifunctional Dynamometer for Application in Space.  
Angeli, T.¹; Talli, R.¹; Fomina, E.²; Barta, N.¹; Tschan, H.³; Bachl, N.³; Kozlovskaya, I.B.²  
¹Technical University Vienna, Austria, (AUSTRIA); ²Institute of Biomedical Problems of the Russian Academy of Sciences, (RUSSIAN FEDERATION); ³Department of Sport and Exercise Physiology, University of Vienna, (AUSTRIA)

15:00 In vivo Compressive Stiffness Variations in Distal Tibia before, during 60-days Bed Rest and two-years Follow-up by Using Finite  
Zully, R.¹; Baumann, W.²; Felsenberg, D.¹  
¹Charité Medicine University Berlin, (GERMANY); ²North-German Supercomputing Alliance (HLRN), Konrad-Zuse Institute Berlin, (GERMANY)

15:15 Analog Exercise Hardware to Implement a High Intensity Exercise Program during Bed Rest  
Loerch, L.¹; Ploutz-Snyder, L.²; Newby, N.³; Sinka, J.³  
¹NASA-Johnson Space Center, (UNITED STATES); ²Universities Space Research Association, (UNITED STATES); ³Wyle Science, Technology and Engineering Group, (UNITED STATES)

15:30 Calf musculature Atrophy during 60-Days Bed Rest and the Effect of two different countermeasure Exercises  
Miokovic, T  
Charité Universitätsmedizin Berlin, (GERMANY)

15:45 Coffee break

Session 12 Plant Physiology  
*Chairs: T.-H. Iversen, F.J. Medina*  
*Room: Fraser Noble 2*

14:00 Photosynthesis - Comparing Field Data With Data Obtained During Mars Simulation Experiments And After Space Exposure Experiments  
de Vera, J.-P.P.  
German Aerospace Center (DLR), (GERMANY)

14:15 The Concept of MULTGEN-2 - A Plant Experiment Prepared for the EMCS on the ISS  
¹Norwegian University of Science and Technology (NTNU), (NORWAY); ²Centre for Interdisciplinary Research in Space (CIRIS) NTNU Samfunnsforskning A/S, (NORWAY); ³Department of Physics, Norwegian University of Science and Technology, (NORWAY); ⁴Istituto IBAF Consiglio Nazionale delle Ricerche Via Salaria, (ITALY); ⁵Department of
Joint European Partial-G Parabolic Flight Campaign. Calcium Analysis in Arabidopsis thaliana Cell Cultures

Hennig, A; Neef, M.; Hausmann, N.; Hampp, R.
University of Tuebingen, (GERMANY)

Alteration of Meristematic Competence in Plant Cell Cultures in Vitro Reveals a Specific Effect of Gravitational Stress on Plant Cell Functions

Medina, F.J. 1; Manzano, A.I. 1; van Loon, J.J.W.A. 2; Herranz, R. 1
1 Centro de Investigaciones Biológicas (CSIC), (SPAIN);
2 DESC, VU Amsterdam and TEC-MMG-ESA-ESTEC, Noordwijk, (NETHERLANDS)

Changing the Density of the external Medium can modulate and reverse the Gravity Response of Plant Cells and Organs.
Staves, M; Kovacevic, N
Grand Valley State University, (UNITED STATES)

Role of Gene and Pathways Redundancy in Plant and Animal Unique Transcriptomic States under Altered Gravity Suboptimal Environments
Herranz, R; Medina, FJ
Centro de Investigaciones Biológicas (CSIC), (SPAIN)

Coffee break

Session 13 Exercise Physiology 2

Chairs: H. Ohshima, I. Ploutz-Snyder
Room: Fraser Noble 1

Testing centrifugation Protocols during short term Bed Rest at 6° HDT: differential psycho-neuro-endocrine Responses
Feuerecker, B; Feuerecker, M.; Matzel, S.; Strewe, C.; Hoerl, M.; Kaufmann, I.; Schelling, G.; Choukèr, A.
University of Munich, (GERMANY)

Effect of Whole Body Vibration on the H-reflex in Normal Gravity and Microgravity
Ritzmann, R. 1; Kramer, A. 2; Gollhofer, A. 3
1 University of Freiburg, (GERMANY); 2 Department of Sport Science / University of Konstanz, (GERMANY);
3 Department of Sport Science / University of Freiburg, (GERMANY)

An Exercise Protocol Designed to control Energy Expenditure and to have A Positive Impact on Maximal Oxygen Consumption for Long-term Space Missions
Matsuo, T 1; Ohkawara, K 2; Seino, S 3; Shimojo, N 3; Yamada, S 2; Ohshima, H 1; Tanaka, K 3; Mukai, C 1
1 Japan Aerospace Exploration Agency, (JAPAN); 2 National Institute of Health and Nutrition, (JAPAN);
3 University of Tsukuba, (JAPAN)

Energy Expenditure and Muscle Metabolism during Medium-Term Bed Rest
Boschmann, M 1; Frings-Meuthen, P 2; Klug, L 1; Parreidt, N 1; Maehler, A. 1; Buehlmeier, J. 2; Heer, M 3
1 Charite Universitätsmedizin Berlin, (GERMANY); 2 Deutsches Zentrum für Luft- und Raumfahrt, Köln, (GERMANY);
3 Profil Institut für Stoffwechselforschung GmbH, Neuss, (GERMANY)

Integrated Resistance and Aerobic Training Maintains Cardiovascular and Skeletal Muscle Fitness During 14 Days Of Bed Rest
Ploutz-Snyder, L 1; Goetchius, L 2; Crowell, B 2; Hackney, K 2; Wickwire, J 2; Ryder, J 1; Ploutz-Snyder, R 1; Scott, J 1
1 Universities Space Research Association, (UNITED STATES); 2 Wyle, (UNITED STATES)
17:15 The Metabolic Cost of A High Intensity Exercise Program During Bed Rest
Scott, J.¹; Hackney, K.; Everett, M.; Guined, J.¹; Ploutz-Snyder, R.; Cunningham, D.; Ploutz-Snyder, L.
¹Universities Space Research Association, (UNITED STATES); ²Wyle, (UNITED STATES); ³Cleveland Clinic, (UNITED STATES)

17:30 Hybrid Training in Japanese Antarctic Research Expedition to Evaluate Operational Feasibility
¹Kurume University, (JAPAN); ²Kyushu Institute of Technology, (JAPAN); ³Teikyo University Fukuoka, (JAPAN); ⁴JAXA, (JAPAN)

17:45 Effects of 5-days Head-down Bed-rest, with and without Artificial Gravity Countermeasure, on Left Ventricular Dimensions
Caiani, Enrico ¹; Massabuau, P.; Weinert, L.; Lairez, O.; Berry, M.; Vaida, P.; Lang, R.M.
²Politecnico di Milano, (ITALY); ³Department of Cardiology, University Hospital of Rangueil, (FRANCE); ⁴Noninvasive Cardiac Imaging Laboratories, University of Chicago (UNITED STATES); ⁵Université Bordeaux Segalen, (FRANCE)

Session 14 Cell Biology
Chairs: I. Larina
Room: Fraser Noble 2

16:00 SSpaceflight of Huvec: an Integrated eXperiment - SPHINX onboard the ISS
Bradamante, S.; Maier, J.A.M.; Versari, S.
¹CNR-ISTM, Institute of Molecular Science and Technology, (ITALY); ²University of Milan, Department of Clinical Science, (ITALY)

16:15 Microgravity Effects on the Early Events of Biological Nitrogen Fixation in Medicago truncatula: Results from the SyNRGE Experiment
Stutte, G.; Roberts, M.
QinetiQ, NA, Kennedy Space Center, FL, (UNITED STATES)

16:30 Structure And Functional Characteristics Of Rat’s Cardiomyocytes Under Simulated Microgravity And Subsequent Recovery
Ogneva, I.; Mirzoev, T.; Biryukov, N.; Veselova, O.; Larina, I.
State Scientific Center of Russian Federation Institute of Biomedical Problems of Russian Academy of, (RUSSIAN FEDERATION)

16:45 Simulation of Microgravity by Ground-Based Facilities Demonstrated with Gravisensing Unicellular Model Systems
¹DLR, German Aerospace Center, Institute of Aerospace Medicine, Biomedical Science Support Center, (GERMANY); ²Biology Department, Cell Biology, University of Erlangen, (GERMANY); ³Institute of Molecular Physiology and Biotechnology of Plants, University of Bonn, (GERMANY)

17:00 Candida albicans Virulence is reduced during Spaceflight in a nematode Assay.
Hammond, T.; Birdsall, Holly H.; Becker, Jeanne B.; Allen, Patricia L.
¹Dept of Veterans Affairs, (UNITED STATES); ²Dept of veterans Affairs, (UNITED STATES); ³Baylor College of Medicine, (UNITED STATES)

19:00 Departure by bus to Dinner Venue: Mercure Ardoe House Hotel
Buses will depart from the city centre.
Thursday 21 June 2012

Plenary: Exploration in Extreme Terrestrial Environments as a guide to Space Exploration
Chairs: P. Fraser, J. van Loon
Room: Fraser Noble 1

09:00 Observatories in the Deep sea
   Prof. Priede

09:45 Deep biospheres on Earth, Mars and beyond.
   Sean McMahon

10:30 Coffee break

Session 15 Student Presentations
Chairs: C. Fuller, M. Heer
Room: Fraser Noble 1

11:00 Online Kinetic Measurements on the Short-Arm Human Centrifuge: Hypergravity Increases Reactive Oxygen Species Production in Macrophages
   Brungs, S. 1; von der Wiesche, M. 1; Kolanus, W. 2; Hemmersbach, R. 1
   1Institute of Aerospace Medicine, German Aerospace Center (DLR), (GERMANY);
   2Life and Medical Sciences (LIMES) Institute, University of Bonn, (GERMANY)

11:15 Ground-based Phase of Space Flight Experiment "Biosignal" Using Autonomic Microfluorimeter "Fluor-K".
   Grigorieva, O.V.; Gal'chuk, S.V.; Rudimov, E.G.; Buravkova, L.B.
   Institute of Biomedical Problems RAS, (RUSSIAN FEDERATION)

11:30 OmegaHab-B1: A Multi-Compartment, Multi-Organism Aquatic Life Support System On Long-Term Space Flight
   Grimm, D.C. 1; Laforsch, C. 2; Lebert, M. 3; Hilbig, R. 1
   1University of Hohenheim, Institute for Zoology, Gravitational Biology, (GERMANY);
   2Ludwig-Maximilians-Universität München, Evolutionary Ecology, (GERMANY);
   3Friedrich-Alexander University Erlangen-Nuremberg, Department of Biology, Cell Biology Division, (GERMANY).

11:45 Investigations into Biological Effects of Radiation (IBER) on the Visual System of Astronauts
   Frohns, F. 1; Frohns, A. 2; Kramer, J. 1; Durante, M. 2; Fournier, C. 3; Layer, PG 1
   1TU Darmstadt, (GERMANY); 2GSI, Darmstadt, (GERMANY)

12:00 Effect of Hypoxia and Bedrest on peripheral Vasoconstriction
   McDonnell, Adam 1; Dolenc Groselj, Leja 2; Jaki Mekjavic, Polona 3; Eiken, Ola 3; Mekjavic, Igor B. 1
   1Jozef Stefan Institute, (SLOVENIA); 2Ljubljana University Medical Centre, (SLOVENIA);
   3Royal Institute of Technology, (SLOVENIA)

12:15 Lunch break

13:15 Poster Session
Session 16 Hypoxia with Bedrest / Isolation

Chairs: I. Mekjavic, P. de Boever
Room: Fraser Noble 1

14:00 Bone Mass and Markers of Bone Markers of Bone Metabolism during a 10-Day Hypoxic Bedrest
-Novak, Igor \(^1\); Ljepaja, Cedomir \(^1\); McDonnell, Adam C. \(^2\); Rittweger, Joern \(^3\); Frings-Meuthen, Petra \(^3\); Eiken, Ola \(^4\); Mekjavic, Igor B. \(^2\)
\(^1\)University Clinical Centre Maribor, (SLOVENIA); \(^2\)Jozef Stefan Institute, (SLOVENIA); \(^3\)German Aerospace Centre, (GERMANY); \(^4\)Royal Institute of Technology, (SWEDEN)

14:15 Site of Impairment of oxidative Function after 10-Day normoxic or hypoxic Bed Rests.
-Salvadego, D. \(^1\); Keramidas, M.E. \(^2\); Domenis, R. \(^1\); Mavelli, I. \(^1\); Eiken, O. \(^3\); Mekjavic, I.B. \(^3\); Grassi, B. \(^1\)
\(^1\)University of Udine, (ITALY); \(^2\)Royal Institute of Technology, (SWEDEN); \(^3\)Jozef Stefan Institute, (SLOVENIA)

14:30 Energy Intake and body Composiyion Changes following a 10-Day lunar habitat Simulation
-Debevec, Tadej \(^1\); McDonnell, Adam \(^1\); Eiken, Ola \(^2\); Mekjavic, Igor B. \(^1\)
\(^1\)Jozef Stefan Institute, (SLOVENIA); \(^2\)Royal Institute of Technology, (SWEDEN)

-Pagani, M. \(^1\); Malacarne, M \(^2\); Gervasi, F \(^3\); Mazzucco, S \(^4\); Vigo, C \(^5\); Eiken, O \(^2\); Mekjavic, IB \(^6\); Biolo, G \(^5\); Lucini, D \(^2\)
\(^1\)University of Milano, (ITALY); \(^2\)university milano, (ITALY); \(^3\)university trieste, (ITALY); \(^4\)Jozef Stefan Institute, (SLOVENIA)

15:00 Effect of 10 Days Hypoxic Confinement on Respiratory and Leg Muscle Oxygenation during maximal Exercise
-Kounalakis, Stylianos N. \(^1\); Keramidas, Michail E. \(^2\); Kölegård, Roger \(^1\); Eiken, Ola \(^3\); Mekjavic, Igor B. \(^1\)
\(^1\)Evelpidon Hellenic Military University, (GREECE); \(^2\)Jozef Stefan Institute, (SLOVENIA); \(^3\)Royal Institute of Technology, (SLOVENIA)

15:15 Overwintering in Concordia Station is Associated with both Psychosomatic Complaints and Subclinical Molecular Changes
-De Boever, P. \(^1\); Saenen, N. \(^2\); Santucci, D. \(^3\); Vermeir, G. \(^4\); Viaene, M. \(^5\); Schoeters, G. \(^1\)
\(^1\)Flemish Institute for Technological Research, (BELGIUM); \(^2\)Hasselt University, (BELGIUM);
\(^3\)Istituto Superiore di Sanitá, (ITALY); \(^4\)Openbaar Psychiatrisch Zorgcentrum, (BELGIUM);
\(^5\)Catholic University of Leuven, (BELGIUM)

15:30 Effect of Unloading/Inactivity and Hypoxia on sleep Macrostructure and Respiration during Sleep
-Dolenc Groselj, L. \(^1\); Rojc, B. \(^2\); Jeran, J. \(^1\); Pangerc, A. \(^3\); Morrison, S.A. \(^2\); Eiken, O. \(^3\); Mekjavic, I.B. \(^2\)
\(^1\)Institute of Clinical Neurophysiology, University Medical Centre, (SLOVENIA); \(^2\)Department of Automation, Biocybernetics and Robotics, Jozef Stefan Institute, (SLOVENIA); \(^3\)Department of Environmental Physiology, School of Health and Technology, Royal Institute of Technolo, (SWEDEN)

15:45 Effects Of Combined Microgravity And Hypoxia On Body Protein Kinetics And Lipid Metabolism - The 2011 Planica Study
-Mazzucco, S. \(^1\); Agostini, F. \(^2\); Tence, M. \(^1\); Baglio, V. \(^1\); Lucini, D. \(^2\); Pagani, M. \(^2\); Eiken, O. \(^3\); Mekjavic, I. B. \(^4\); Biolo, G. \(^2\)
\(^1\)University of Trieste, (ITALY); \(^2\)University of Milan, (ITALY); \(^3\)Royal Institute of Technology, (SWEDEN);
\(^4\)Jozef Stefan Institute, (SLOVENIA)

16:00 Coffee break
Session 17 Research Facilities and Platforms

Chairs: J. van Loon, B. Koch
Room: Fraser Noble 2

14:00  Adapting a Human x-ray System for use in Space
Schwarz, Ch. J.
esa, (NETHERLANDS)

14:15  The ALTEC - Neutral Buoyancy Test Facility: a Powerful Tool for Research for Physiology and Neuroscience Studies
Benassi, M.
ALTEC SpA, (ITALY)

14:30  Health from Space to Ground - A Centre to Foster Italy Impressive Achievements in Space Medicine and Biotechnology
Benassi, M.; Ambesi Impiombato, S.
1ALTEC SpA, (ITALY); 2Università degli Studi di Udine, (ITALY)

14:45  envihab - The New Research Facility for Human Spaceflight and Terrestrial Applications at DLR, Cologne, Germany
Koch, B.; Rabbow, E.; Gerzer, R.
1DLR, Institute of Aerospace Medicine, Radiation Biology, (GERMANY); 2DLR, Institute of Aerospace Medicine, (GERMANY)

15:00  Mice Drawer System (MDS) accommodation in the ESA Large Diameter Centrifuge
Falcetti, G.; Tenconi, C.; Santucci, D.; Cancedda, R.
1Thales Alenia Space - Italia, (ITALY); 2Istituto Superiore Sanita, (ITALY); 3University of Genoa, (ITALY)

15:15  Gravitational Physiology and Radiobiology in the Russian Biosatellite Program
Boyarintsev, V.; Shenkman, B.
SSC RF Institute for Biomedical Problems, RAS, (RUSSIAN FEDERATION)

15:30  A Large Human Centrifuge For Exploration And Exploratory Research
1DESC @ VU-University, (NETHERLANDS); 2IAGG-ER, (BELGIUM); 3BERTE bvba, (BELGIUM); 4CNRS Strasbourg, (FRANCE); 5Betaqua, (NETHERLANDS); 6TNO @ VU-University, (NETHERLANDS); 7NASA-Ames, (UNITED STATES); 8MEDES, (FRANCE); 9VUmc-Amsterdam, (NETHERLANDS); 10Ludwig Maximilians- University of Munich, (GERMANY); 11CNRS, (FRANCE); 12Univ. Antwerp, (BELGIUM); 13Radboud Univ. Nijmegen, (NETHERLANDS); 14Univ. Hospital, Angers, (FRANCE); 15Univ. of Laquila, L’Aquila, (ITALY); 16European College of Sport Science (ECSS), (BELGIUM); 17Univ. Delft, (NETHERLANDS); 18Université de Caen Basse-Normandie, Caen, (FRANCE); 19Charite Univ. Medicine Berlin, (GERMANY); 20University College London, (UNITED KINGDOM); 21Univ. Davis, (UNITED STATES); 22Medical Univ., Graz, (AUSTRIA); 23Federation of European Neurosciences Societies (FENS), (SWEDEN); 24TNO, Soesterberg, (NETHERLANDS); 25European Society of Movement Analysis in Adults and Children (ESMAC), (NETHERLANDS); 26Profil Institut fur Stoffwechselforschung GmbH, (GERMANY); 27Univ. Leuven, (BELGIUM); 28UC-San Francisco, (UNITED STATES); 29Aichi Medical University, (JAPAN); 30Amsterdam Medical Center, (NETHERLANDS); 31European Calcified Tissue Society (ECTS), (DENMARK); 32Karolinska Institutet, (SWEDEN); 33Erasmus Medical Center Rotterdam, (NETHERLANDS); 34European Low gravity Research Association (ELGRA), (ITALY); 35DLR-Cologne, (GERMANY); 36University of Nottingham, (UNITED KINGDOM); 37Univ. Copenhagen, (DENMARK); 38Univ. Houston, (UNITED STATES); 39UCSD, San Diego, (UNITED STATES); 40Univ. Eindhoven, (NETHERLANDS); 41European Society for Clinical Nutrition and Metabolism (ESPEN), (ISRAEL); 42Univ. de Grenoble, (FRANCE); 43Inst. fur Bahntechnik GmbH, Dresden, (GERMANY); 44European Society for Muscle Research (ESMR), (NETHERLANDS); 45Univ. British-Columbia, Vancouver,
16:00  Coffee break

Session 18 Hypoxia with Bedrest/Isolation

Chair: I. Mekjavic, A. Chouker
Room: Fraser Noble 1

16:30  Autonomic Cardiovascular Modulation During Prolonged Experimental Hypoxia In Healthy Volunteers: The 2011 Planica Study.
Pagani, M. 1; Malacarne, M. 1; Gervasi, F. 1; Mazzucco, S. 2; Vigo, C. 1; Eiken, O. 3; Mekjavic, I. B. 4; Biolo, G. 2; Lucini, D. 1
1University of Milan, (ITALY); 2University of Trieste, (ITALY); 3Royal Institute of Technology, (SWEDEN); 4Jozef Stefan Institute, (SLOVENIA)

16:45  In vivo retinal Images for a non-invasive Analysis of the microcirculation during Hypoxia and Unloading/Inactivity
Jaki Mekjavic, Polona 1; De Boever, Patrick 2; Louwies, Tijj 2; Eiken, Ola 3; Mekjavic, Igor B. 4
1Ljubljana University Medical Centre, (SLOVENIA); 2Flemish Institute for Technological Research, (BELGIUM); 3Royal Institute of Technology, (SWEDEN); 4Jozef Stefan Institute, (SLOVENIA)

17:00  Indices of psychological strain during Hypoxic Bedrest and Confinement
Stavrou, Nektarios A. 1; McDonnell, Adam C. 2; Eiken, Ola 3; Mekjavic, Igor B. 2
1National and Kapodistrian University of Athens, (GREECE); 2Jozef Stefan Institute, (SLOVENIA); 3Royal Institute of Technology, (SWEDEN)

17:15  DPP4 Expression in Preadipocytes following chronic Exposure to Hypoxia
Chowdhury, H.H. 1; Velebit Markovic, J. 1; Radić, N. 2; Frančič, V. 2; Mekjavic, I.B. 2; Eiken, O. 4; Zorec, R. 1
1University of Ljubljana, (SLOVENIA); 2Celica, Biomedical Center, (SLOVENIA); 3Jozef Stefan Institute, (SLOVENIA); 4Royal Institute of Technology, (SWEDEN)

17:30  Consequences of longterm Confinement and Hypobaric Hypoxia on Immunity in the Antarctic-Concordia Environment (CHOICE): A Hypoxia controlled field Study to prepare for manned exploration class Mission
Feuerecker, M 1; Chouker, A 2; Schmitt, D 3; Moreels, M 4; Mehta, S 5; Strewe, C 2; Martignoni, A 2; Quintens, R 4; Kaufmann, I 5; Schelling, G 5; Gung, HC 5; Batout, S 5; Thiel, Manfred 7; Pierson, DL 8; Sams, CF 8; Crucian, BE 9; Stowe, R 9
1Universiy of Munich, (GERMANY); 2University of Munich, (GERMANY); 3ESA, (FRANCE); 4SCK.CEN, (BELGIUM); 5EASI Houston, (UNITED STATES); 6Charité Berlin, (GERMANY); 7University of Heidelberg, Mannheim, (GERMANY); 8NASA, (UNITED STATES); 9Microgen Laboratories, (GERMANY)

17:45  Hypoxic Bedrest:Implications for planetary Habitats
Mekjavic, Igor B. 1; McDonnell, Adam C. 1; Keramidas, Michail E. 1; Kölegård, Roger 2; Lind, Britta 2; Eiken, Ola 2
1Jozef Stefan Institute, (SLOVENIA); 2Royal Institute of Technology, (SWEDEN)
Session 19 Art and Science  
*Chairs:* B. Imhof, O. Angerer;  
*Room:* Fraser Noble 2

16:30 On A Tightrope across the Horizon -- Collaborations between Artists and Exponents from the Sciences and Technology  
*Waldvogel, C.*  
*Artist, Zurich, (SWITZERLAND)*

16:45 Space Science is Alive with Art  
*Pell, S.J. ¹; Vermeulen, A. ²*  
¹*ESA Topical Team Arts & Science, (AUSTRALIA); ²ESA Topical Team Arts & Science, (BELGIUM)*

17:00 Dynamic laboratories - the Microgravity Interdisciplinary Research Alternating Gravity Flight Campaigns and the Makrolab Complex  
*Peljhan, M. ¹; Triscott, N. ²; Pitts, B. ³*  
¹*ESA Topical Team Art & Science, University of California Santa Barbara, SPACE-SI, Slovenia, (UNITED STATES); ²The Arts Catalyst, (UNITED KINGDOM); ³ESA Topical Team Art & Science, (UNITED STATES)*

17:15 Towards a Cooperation between the Arts, Space Science Research and the European Space Agency  
*Imhof, B. ¹; Waldvogel, C. ²; Kotler, M. ³; Pell, S.J. ⁴*  
¹*LIQUIFER Systems Group, (AUSTRIA); ²artist, (SWITZERLAND); ³Leiden Institute of Chemistry, University of Leiden, (NETHERLANDS); ⁴ARTi Aquabatics Research Team, (AUSTRALIA)*

18:00 *Closing & Young Researcher Award Ceremony*
**Poster sessions**

**Poster Session 1 – Monday 18 June 2012 – 13:15-14:00**

1.01 Expression of IGF-I and Protein Degradation Markers During Hindlimb Unloading and Growth Hormone Administration in Rats
   Leinsoo, T.A.; Turtikova, O.V.; Shenkman, B.S.
   SRC, Institute for Biomedical Problems, (RUSSIAN FEDERATION)

1.02 The ESA IBER-3 project - Gene expression and cytokine Monitoring for Biodosimetry and RAdiation Sensitivity Screening (GYMBRASS)
   Quintens, R. ¹; Moreels, M. ¹; Tabury, K. ¹; Choukèr, A. ²; Baatout, S. ¹
   ¹SCK-CEN, (BELGIUM); ²Ludwig-Maximilians-University, (GERMANY)

1.03 ESA IBER-2: Molecular and Cellular Changes in Human Endothelial Cells in Response to Nickel Ion Irradiation (CORALS project)
   Moreels, Marjan ¹; Quintens, R. ¹; De Vos, W. ²; Beck, M. ²; Tabury, K. ¹; Suetens, A. ¹; Abouelaradat, K. ²; Dieriks, B. ²;
   Ernst, E. ³; Lambert, C. ³; Van Oostveldt, P. ²; Baatout, S. ¹
   ¹SCK-CEN, (BELGIUM); ²Ghent University, (BELGIUM); ³University of Liège, (BELGIUM)

1.05 Omega-3 polyunsaturated fatty Acid and psychological Wellness during long duration space Missions: Results for the MARS-105 and MARS-500 Simulations
   Montorfano, G. ¹; Vassilyeva ²; Corsetto, p ¹
   ¹University of Milan, (ITALY); ²IBMP, (RUSSIAN FEDERATION)

1.06 Nutrition Coupled With High-Load Traditional or Low-Load Blood Flow Restricted Exercise During Human Limb Suspension
   Hackney, K. ¹; Everttt, M ¹; Ploutz-Snyder, L ²
   ¹Wyle, (UNITED STATES); ²Universities Space Research Association, (UNITED STATES)

1.07 Changes of Healthy Human Urine And Serum Proteome Profile During 5-Day "Dry" Immersion
   Pastushkova, L.; Valeeva, O.; Dobrochotov, I.; Larina, I.
   IBMP RAS, (RUSSIAN FEDERATION)

1.08 Ventricular Repolarization Adaptation to Abrupt Changes in Heart Rate after Microgravity Simulation by 5-days Head-Down Bed Rest
   Bolea, J. ¹; Almeida, R. ²; Pueyo, E ³; Laguna, P ¹; Caiani, EG ⁴
1.09 Echocardiography as a Reference for Ballistocardiography in parabolic Flight: preliminary Results from the ESA B3D Project.
Almorad, A. 1; Unger, P. 2; Pattyn, N. 3; Van de Borne, P. 2; De Ridder, S. 3; Neyt, X. 3; Tank, J. 4; Migeotte, P-F. 3
1 Université Libre de Bruxelles, Erasme Hospital, Brussels, (BELGIUM); 2 Université Libre de Bruxelles, Erasme Hospital, Cardiology department, Brussels, (BELGIUM); 3 Royal Military Academy, Vital signs and Performance Research Unit, Brussels, (BELGIUM); 4 Medizinische Hochschule Hannover, Institut für klinische Pharmakologie, Hannover, (GERMANY)

1.10 A Model to predict Time to presyncope with lower body negative Pressure
Convertino, V.; Hinojosa-Laborde, C.; Aden, J
US Army Institute of Surgical Research, (UNITED STATES)

1.11 The passive Mode of locomotor Training counteracts effectively the negative Effects of Weightlessness
Fomina, E.; Lysova, N.; Shpakov, A.; Kozlovskaya, I.
State Scientific Center of Russian Federation Institute of Biomedical Problems of Russian Academy of, (RUSSIAN FEDERATION)

1.12 Genetic and Proteomics Analyses of Space flown Mice Skin
Terada, T1; Takahashi, R2; Shin, Y1; Seki, M2; Higashibata, A1; Majima, H1; Ohira, Y1; Mukai, C1; Ishioka, N1
1 Japan Aerospace Exploration Agency, (JAPAN); 2 Advanced Engineering Services Co., Ltd, (JAPAN); 3 Kagoshima University, (JAPAN)

1.13 NASA’s current evidence and hypotheses for the Visual Impairment Intracranial Pressure Risk
Otto, C. 1; Oubre, C2; Pass, A2; Tarver, W3; Barratt, M4; Gibson, C5; Francisco, D5; Fogarty, J4
1 Universities Space Research Association, (UNITED STATES); 2 Wyle Science, Technology & Engineering, (UNITED STATES); 3 University of Houston, (UNITED STATES); 4 NASA Johnson Space Center, (UNITED STATES); 5 Coastal Eye Associates, (UNITED STATES)

1.14 Comparison of Ocular Outcomes Across Two 14-Day Bed Rest Platforms
Cromwell, RL1; Zanello, SB1; Yarbrough, PO1; Taibbi, G2; Vizzeri, G2
1 Universities Space Research Association, (UNITED STATES); 2 University of Texas Medical Branch, (UNITED STATES)

1.15 Tips for a Healthy Long-Life Learned from Space Medicine
Ohshima, H; Yamada, S; Matsuo, T; Yamamoto, M; Mukai, C
JAXA, (JAPAN)
2.01 Regulation by Signalling Pathways of Mice Muscle Properties in Hypo/Hypergravity Environment
Picquet, F. 1; Dupont, E. 2; Cochin, L. 3; Montel, V. 3; Bojados, M. 4; Jamon, M. 4; Bastide, B. 3; Stevens, L. 5
1 Lab Activite Physique, Muscle et Sante, (FRANCE); 2 Universite lille 1, (FRANCE); 3 Universite Lille 1, (FRANCE); 4 Universite Aix Marseille, (FRANCE); 5 Universite Lille 1, (FRANCE)

2.02 Responses of Myosin Heavy Chain Phenotypes and Gene Expressions in Neck Muscle to Micro- and Hyper-Gravity in Mice
Ohira, Tomotaka 1; Ohira, Takashi 2; Kawano, F. 3; Shibaguchi, T. 4; Okabe, H. 4; Nakai, N. 4; Ochiai, T. 5; Goto, K. 6; Ohira, Y. 3
1 College of Physical Education, National Institute of Fitness and Sports, (JAPAN); 2 Graduate School of Frontier Biosciences, Osaka University, (JAPAN); 3 Graduate School of Medicine, Osaka University, (JAPAN); 4 Faculty of Letters, Kokushikan University, (JAPAN); 5 Mitsubishi Heavy Industry, (JAPAN); 6 Graduate School of Health Sciences, Toyohashi SOZO University, (JAPAN)

2.03 Effects of Unloading and Reloading on Expressions of Skeletal Muscle Membrane Proteins in Mice.
Ohno, Y. 1; Ikuta, A. 2; Goto, A. 2; Sugiura, T. 3; Ohira, Y. 4; Yoshioka, T. 5; Goto, K. 6

2.04 Crosstalk between Endothelial Cells and Osteoblasts in Simulated Microgravity: Implications in Bone Loss
Maier, J.; Castiglioni, Sara
Università di Milano, (ITALY)

2.05 Do lower Vertebrates suffer from Motion Sickness?
Lychakov, D.V.
Sechenov Institute of Evolutionary Physiology and Biochemistry of Russian Academy of Sciences, (RUSSIAN FEDERATION)

2.06 Coping with altered Gravity: orchestrating Role of brain Serotonin
de Boer, S.F. 1; van Loon, I.W.A. 2
1 University of groningen, (NETHERLANDS); 2 DESC/free University Amsterdam, (NETHERLANDS)

2.07 Effects of pulsed electromagnetic fields Therapy on the rat Model in Osteoporosis
Seo, D.H. 1; Jung, Y.J. 1; Kim, S.B. 2; Park, J.H. 1; Kim, H.S. 1
1 Yonsei University & Yonsei-Fraunhofer Medical Device lab, (KOREA, REPUBLIC OF); 2 Yonsei University, (KOREA, REPUBLIC OF)

2.08 Alteration in microRNA Expression Of Femurs after Three Weeks Hindlimb Unweighting in Rats
Hu, ZB; Cao, XS; Du, TY; ZHAO, JD ; Wang, B; Zhang, S
The Key Laboratory of Aerospace Medicine, Chinese Ministry of Education, (CHINA)

2.09 Changes of H-reflex Excitability Cycle of Human Shin Muscles under the Conditions of Support Coupled with Countermeasures
Zakirova, A.; Shigueva, T.; Tomilovskaya, E.; Kozlovskaia, I.
SSC RF - IBMP RAS, (RUSSIAN FEDERATION)

2.10 Differential Responses of Soleus and Plantaris Muscle Fibers to Overloading
Kawano, Fuminori; Shibaguchi, Tsubasa; Ohira, Takashi; Nakai, Naoya; Ohira, Yoshinobu
Osaka University, (JAPAN)
2.11 After 21 Days HDT Bed Rest MRI constant T2 decreases in all Leg Muscles without Correlation with muscle volume Decrease
Zange, J. 1; Fricke, M. 1; Müller, K. 1; Shushakov, V. 2; Maassen, N. 2
1DLR, German Aerospace Center, (GERMANY); 2Medical University of Hannover, (GERMANY)

2.12 The Response of Serum Concentration of Cartilage Oligomeric Matrix Protein to Immobilization using different Lengths of HDT-Bed Rest
Liphardt, A.M. 1; Mündermann, A. 2; Koo, S. 3; Andriacchi, T.P. 4; Achtzehn, S. 1; Heer, M. 5; Mester, J. 1
1Training Science and Sport Informatics, German Sport University Cologne (DSHS Köln), Köln, (GERMANY); 2School of Mechanical Engineering, Chung-Ang University, Seoul, (REPUBLIC OF KOREA); 3Department of Mechanical Engineering, Stanford University, Stanford, CA, (UNITED STATES); 5Profil Institute for Metabolic Research, Neuss, (GERMANY)

2.13 Effects of Dry Immersion on Postural Muscles Motor Units' Activity
Shigueva, T.; Zakirova, A.; Tomilovskaya, E.
State Scientific Center of the Russian Federation - Institute of Biomedical Problems of the Russian, (RUSSIAN FEDERATION)

2.14 Do Vestibular Signals Contribute to bone Loss in Space?
Vignaux, G 1; Besnard, S 2; Philoxene, B 2; Denise, P 2; Elefteriou, F 1
1Vanderbilt University, (UNITED STATES); 2Université de Caen Basse-Normandie, U 1075 COMETE, Caen, 14032, France, (FRANCE)

2.15 Sensorimotor Coordination under partial Gravity: movement Control and Adaptation
Theate, V.; Lefèvre, P.; Thonnard, J-L.
Institute of Neuroscience (IONS), Université catholique de Louvain, (BELGIUM)

2.16 Effects of Standing and Locomotion Replacement Training on Postural Stability and Gait following Five-Day Bed Rest
Mulder, E 1; Rittweger, E 1; Paloski, W 2; Wuyts, F 3; Linnarsson, D 4; Clément, G 5
1German Aerospace Center (DLR), (GERMANY); 2University of Houston, (UNITED STATES); 3University of Antwerp, (BELGIUM); 4Karolinska Institute, (SWEDEN); 5International Space University, (FRANCE)

2.17 Effects of Rat Hindlimb Suspension on Soleus and Tibialis Anterior Motoneuron Characteristics
Fokina, N.M.; Ivanova, A.A.; Tavitova, M.G.; Shenkman, B.S.
RF SRC – Institute for Biomedical Problems of Russian Academy of Sciences, (RUSSIAN FEDERATION)
3.01 Gene Expression in Human Endothelial Cells is Altered by Short Periods of Weightlessness Induced by Parabolic Flights
Ulbrich, C; Hilbig, R; Grasse, J; Wehland, M; Pietsch, J; Infanger, M; Hauslage, J; Hemmersbach, R; Braun, M; Vagt, N; van Loon, J; Richter, P; Ma, X; Grimm, D
1 Institute of Zoology, University of Hohenheim, GERMANY; 2 Department of Nuclear Medicine, University of Regensburg, GERMANY; 3 Clinic for Plastic, Aesthetic and Hand Surgery, Otto-von-Guericke-University Magdeburg, GERMANY; 4 Institute of Aerospace Medicine, German Aerospace Centre, GERMANY; 5 Gravitational Biology, Institute of Molecular Physiology and Biotechnology of Plants, University of, GERMANY; 6 Department of Oral Cell Biology, Dutch Experimental Support Center, ACTA-Free University, Amsterdam, NETHERLANDS; 7 Institute of Cell Biology, University of Erlangen, GERMANY; 8 Institute of Biomedicine, Pharmacology, Aarhus University, DENMARK

3.02 The Role of ER Bodies in Brassicaceae Resistance under Clinorotation
Romanchuk, S.
Institute of Botany of NAS of Ukraine, UKRAINE

3.03 Gravity Regulated Genes in Arabidopsis Thaliana (Genara Experiment)
Dubuisson, Elodie; Mazars, Christian; Graziana, Annick; Le Disquet, Isabel; Eche, Brigitte; Grat, Sabine; Gauquelin-Koch, Guillemette; Gasset, Gilbert; Briere, Christian; Rossignon, Michel; Pichereaux, Carol; Pereda-Loth, Veronica; Medina, Francisco Javier; Carnero-Diaz, Eugenie
1 UPMC Univ. Paris 06, Paris Cedex 05, France, FRANCE; 2 Université de Toulouse UPS, UMR5546, Laboratoire de Recherches en Sciences Végétales, BP 42617, F-3, FRANCE; 3 University of Toulouse, Toulouse, France, FRANCE; 4 Head of Life Science Department CNES Paris, FRANCE; 5 Université de Toulouse UPS, UMR5546, Laboratoire de Recherches en Sciences Végétales, BP 42617, F-, FRANCE; 6 Fédération de Recherche 3450, Agrobiosciences, Interactions et Biodiversités, Plateforme Protéo, FRANCE; 7 Centro de Investigaciones Biologicas (CSIC), Madrid, Spain, SPAIN

3.04 The Electrogeneric Bacterium Shewanella Oneidensis MR-1 and its Mutants with Increased Reducing Capacity
Voeikova, T; Emelyanova, L; Novikova, L; Mordkovich, N; Shakulov, R; Debabov, V
1 State Research Institute of Genetics & Selection of Industrial Microorganisms, RUSSIAN FEDERATION; 2 State Research Institute of Genetics & Selection of Industrial Microorganisms, RUSSIAN FEDERATION

3.05 Mutants Shewanella Oneidensis MR-1 Effective in Bioelectricity Generation in Microbial Fuel Cells
Voeikova, T; Emelyanova, L; Novikova, L; Mordkovich, N; Shakulov, R; Smirnov, I; Ilyin, V; Soldatov, P; Turin-Kuzmin, A; Smolenskaya, T; Shulgina, U; Korshunov, D; Debabov, V
1 State Research Institute of Genetics & Selection of Industrial Microorganisms, RUSSIAN FEDERATION; 2 Russian Federation State Research Center - Institute of Biomedical Problems, Russian Academy of Scie, RUSSIAN FEDERATION

3.06 Impact of a Real Microgravity on the Productivity of Tomato Plants and Resistance to Viruses
Mishchenko, L; Dunich, A.
Kyiv Taras Shevchenko University, UKRAINE

3.07 Protective Mechanisms of Virus Infected Wheat Plants under Simulated Microgravity
Mishchenko, L.
Kyiv Taras Shevchenko University, UKRAINE
3.09 Auxin Transport and Ribosome Biogenesis mutant/reporter Lines to Study Plant Cell Growth and Proliferation under Altered Gravity
Valbuena, M.A. 1; Manzano, A.I. 1; van Loon, J.J.W.A. 2; Sáez-Vásquez, J. 3; Carnero-Diaz, E. 4; Herranz, R. 1; Medina, F.J. 1
1Centro de Investigaciones Biológicas (CSIC), (SPAIN); 2Dutch Experiment Support Center, DESC@ OCB-ACTA, VU-University & Univ. of Amsterdam & ESTEC (ESA), (NETHERLANDS); 3Lab. Génome et Développement des Plantes (CNRS), (FRANCE); 4Équipe Régénération (CNRS), Université Pierre et Marie Curie, Paris, (FRANCE)

3.10 Proteomic Analysis of Hair Follicles
Ishioka, Noriaki1; Terada, Masahiro1; Yamada, S1; Seki, Masaya2; Takahashi, Rika1; Majima, J Hideyuki1; Higashibata, Akira2; Mukai, Chiaki3
1Japan Aerospace Exploration Agency, (JAPAN); 2Advanced Engineering Services Co., Ltd,(JAPAN); 3Advanced Engineering Services Co., Ltd, (JAPAN)

3.11 Genetic Analysis of Mice Skin exposed by Hyper-gravity
Takahashi, R.1; Terada, M.2; Yamada, S1; Seki, M.1; Majima, H.4; Higashibata, A.2; Mukai, C.2; Ishioka, N.2
1Advanced Engineering Services Co., Ltd., (JAPAN); 2Japan Aerospace Exploration Agency, (JAPAN); 3Japan Aerospace Exploration Agency, (JAPAN); 4Kagoshima University, (JAPAN)

3.12 Adhesion Molecule Expression in Human Endothelial Cells under Simulated Microgravity Conditions
Rudimov, E.G.; Andreeva, E.R.; Buravkova, L.B.
Institute of Biomedical Problems RAS, (RUSSIAN FEDERATION)

3.14 High throughput fluorescent Screening of membrane Potential under variable gravity Conditions
Kohn, F.
University Hohenheim, (GERMANY)
Poster Session 4 – Thursday 21 June 2012 – 13:15-14:00

4.01 GSBMS, A Ground Based Facility in Toulouse for Plants, Cells and Microorganisms  
Pereda-Loth, V 1; Eche, B 2; Ginibièvre, D 1; Gauquelin-Koch, G 3; Gasset, G 1; Collin, L 2; Courtade-Saïdi, M 4  
1GSBMS-AMIS, University of Toulouse III, (FRANCE); 2GSBMS, University of Toulouse III, (FRANCE); 3CNES Paris, (FRANCE)

4.02 Ground-Based Facilities at the Institute of Aerospace Medicine (German Aerospace Center)  
Hemmersbach, R.; Hauslage, J.; von der Wiesche, M.  
DLR, Institute of Aerospace Medicine, Biomedical Science Support Center, (GERMANY)

4.03 Mice Drawer System (MDS): Skeletal Adaptation to Different Gravities  
Tavella, Sara 1; Ruggiu, Alessandra 1; Giuliani, Alessandra 2; Falcetti, Gian Carlo 3; Van Loon, Jack 4; Cancedda, Ranieri 1  
1IRCCS Azienda Ospedaliera Universitaria San Martino - IST - Istituto Nazionale per la Ricerca sul Ca, (ITALY); 2Dip. DISCO – Sezione di Scienze Fisiche, Università Politecnica delle Marche, Via Brecce Bianche 1, (ITALY); 3Thales Alenia Space – Italia (Milan plant), (ITALY); 4DESC@OCB-ACTA, UVA-VU, van der Boechorststraat 7, Amsterdam, The Netherlands, (NETHERLANDS)

4.04 Underwater Experimental Station and Scientific Laboratory Hydronaut  
Vaclavik, M.; Sanda, M.  
Czech Space Office, (CZECH REPUBLIC)

4.05 Patch clamp Experiments under Conditions of variable Gravity  
Kohn, F.; Meissner, K.  
University of Hohenheim, (GERMANY)

4.06 The Simbox Experiment with Arabidopsis thaliana cell Cultures: Hardware-Tests and first Results from the German-Chinese satellite Mission Shenzhou 8 in November 2011  
Fengler, S.; Hennig, A.; Neef, M.; Ecke, M.; Hampp, R.  
University of Tuebingen, (GERMANY)

4.07 The Space Physiology & Health Masters Program - a stepping stone for the development of a European Space Life Science/Medicine Pathway  
Green, D 1; Evetts, S 2; Damann, V 3  
1King’s College London, (UNITED KINGDOM); 2Wyle GmbH & Crew Medical Support Office, (GERMANY); 3Crew Medical Support Office, (GERMANY)

4.08 Application of Different g-Profiles on the ESA-Short-Arm Human Centrifuge (SAHC) at the German Aerospace Center - DLR  
Noppe, A.; Nitsche, A.; Zander, V.; Petrat, G.; von der Wiesche, M.  
German Aerospace Center, Institute of Aerospace Medicine, (GERMANY)

4.09 Effect of Anxiety related to Microgravity on movement Time during parabolic Flights  
Hainaut, JP; Collado, A; Monfort, V; Langlet, C; Bolmont, B  
University of Lorraine, (FRANCE)

4.11 Space Headache on Earth; Bed-rest Studies as a Model for Artificial Gravity  
Van Oosterhout, W.P.J.; Terwindt, G.M.; Vein, A.A.; Ferrari, M.D.  
LUMC, (NETHERLANDS)

4.12 Modality-specific Effect of Microgravity on dual-tasks Performance during parabolic Flight: preliminary Results  
Collado, A.; Monfort, V.; Langlet, C.; Hainaut, J.-P.; Bolmont, B.  
University of Lorraine, (FRANCE)
New Training and Diagnostic Strategies to Counteract Muscle and Bone Loss in Microgravity.  
Talla, R.; Barta, N.; Adamcik, G.; Kozlovskaya, I.B.; Tschan, H.; Bachl, N.; Angeli, T.  
1Technical University Vienna, Austria, (AUSTRIA); 2Institute of Biomedical Problems of the Russian Academy of Sciences, (RUSSIAN FEDERATION); 3Department of Sport and Exercise Physiology, University of Vienna, (AUSTRIA)

Life-sustaining Planets in S  
Divya Krishnamoorthy, K  
Mailam Engineering College, (INDIA)

Use of Space Medicine and Biology Achievements in practice of Russian Public Healthcare  
Orlov, O.; Belakovskiy, M.; Kussmaul, A.  
SCC RF-IBMP RAS, (RUSSIAN FEDERATION)

Short-term Exposure to Microgravity and the Associated Risk of Sudden Cardiac Arrest: Implications for Commercial Spaceflight  
Laing, Kevin  
King's College London (UNITED KINGDOM)