

Advances in the Study of Lipid and Protein Oxidation: From Methods to Targets

Marie Skłodowska-Curie Innovative Training Networks
'MASSTRPLAN' MASS Spectrometry TRaining network for Protein Lipid adduct Analysis
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March 13 - 15, 2019

Ghent University, Het pand
Ghent, Oost-Vlaanderen 9000 Belgium

Scientific Program

Wednesday 13th March 2019

09:00 - 09:30	Registration
09:30 - 09:45	Welcome <i>Corinne Spickett, Aston University, Birmingham, UK</i>
09:45 - 10:00	Opening address <i>Prof. em. Paul Van Cauwenberge, MD, PhD and Honorary Rector at Ghent University</i>
10:00 - 10:30	Opening Plenary <i>Chairs to be advised</i> Pathophysiological Role of Protein Oxidation <i>Tilman Grune, German Institute of Human Nutrition, Germany</i>
10:30 - 13:00	Session 1: Analytical Methods for Lipid Oxidation <i>Chairs to be advised</i>
10:30 - 11:00	Metabolomic and Lipidomic Insights of Oxidized Lipids in Cardiovascular Diseases. <i>Huiyong Yin, Shanghai Institute of Nutrition and Metabolism, China</i>
11:00 - 11:15	MS analytical strategies for identifying nitroxidative modifications in phospholipids <i>Javier Fernando Montero-Bullon, University of Aveiro, Aveiro, Portugal</i>
11:15 - 11:45	Coffee break
11:45 - 12:00	Redox lipidomics in dermatological research: Senescent dermal fibroblasts accumulate lysophospholipids with immunomodulatory properties <i>Florian Gruber, Medical University of Vienna, Austria</i>
12:00 - 12:30	Effect of oxidized phospholipids on macrophage polarization <i>Norbert Leitinger, University of Virginia School of Medicine, USA</i>



12:30 – 12:45	Synthesis and analysis of protein-oxidized phospholipid adducts <i>Catarina Afonso, Aston University, Birmingham, UK</i>
12:45 – 13:00	Use of mass spectrometry in determining fatty acid and oxysterol alterations in heart tissue; effect of high cholesterol diet <i>Erdi Sozen, Marmara University, Istanbul, Turkey</i>
13:00 - 14:15	Lunch and posters
14:15- 15:00	Session 1 continued... <i>Chairs to be advised</i>
14:15 – 14:30	Quantification of circulating oxidized phospholipids: how can we improve the existing methods? <i>Valery Bochkov, University of Graz, Graz, Austria</i>
14:30 – 14:45	Reactivity of free malondialdehyde in oil-in-water emulsion during in vitro digestion <i>Angelique Vandemoortele, Ghent University, Ghent, Belgium</i>
14:45 – 15:00	Impact of red versus white meat consumption in a prudent or Western dietary pattern on the oxidative status in a pig model <i>Sophie Goethals, Ghent University, Ghent, Belgium</i>
15:00 – 15:30	Coffee break
15:30 – 17:00	Session 2: Bioinformatic Tools for Detection of oxPTMs <i>Chairs to be advised</i>
15:30 – 16:00	Ionbot: a novel, fully data-driven search engine for open modification and mutation searches <i>Sven Degroeve, VIB, Ghent, Belgium</i>
16:00 – 16:30	Cheminformatics in oxidative lipidomics: challenges and perspectives <i>Gabriele Cruciani, Università degli Studi di Perugia, Italy</i>
16:30 – 16:45	Datamining based models for the identification of oxidized biomolecules in LC-MS data <i>Robbin Bouwmeester, VIB, Ghent, Belgium</i>
16:45 – 17:00	Flash presentations: Lieven Van Meulebroek, Ghent University Ralf Gabriels, VIB Sergio Lilla, CRUK Beatson Institute Irina Magdalena Dijkhoff, Adolphe Merkle Institute, University of Fribourg
17:00 – 18:30	Poster Session and refreshments

Thursday 14th March 2019

09:30 - 13:00	Session 3: New Approaches for the Analysis of oxPTMs <i>Chairs to be advised</i>
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09:30 – 10:00	Proteomics Approaches to study protein modifications induced by oxidation stress <i>Kris Gevaert, VIB, Ghent, Belgium</i>
10:00 - 10:15	Comprehensive characterization of oxPTMs on anionic proteins by on-line coupling of Anion Exchange Chromatography and High-Resolution Orbitrap Mass Spectrometry <i>Angela Criscuolo, Thermo Fisher, Bremen, Germany</i>
10:15 – 10:30	Mass spectrometry-based identification of non-reducible cross-links in proteins subjected to oxidation <i>Per Hägglund, University of Copenhagen, Copenhagen, Denmark</i>
10:30 – 10:45	Fluorescence microscopy and mass spectrometry view on lipotoxicity in cardiac cells <i>Giulia Coliva, University of Leipzig, Leipzig, Germany</i>
10:45 - 11:15	Coffee break
11:15 – 11:45	Electrochemical oxidation of proteins as an analytical tool <i>Hjalmar Permentier, University of Groningen, Netherlands</i>
11:45 – 12:00	Strategies for confident identification of carbonylation sites in proteins present in plasma <i>Juan Camilo Rojas Echeverri, University of Leipzig, Leipzig, Germany</i>
12:00 – 12:15	Protein CoAlation and antioxidant function of coenzyme A in redox regulation <i>Ivan Gout, University College London, London, UK</i>
12:15 – 12:30	Mass Spectrometry and VC-1 Affinity Chromatography as an Integrated Strategy to Identify Pro-Inflammatory AGEs and ALEs <i>Marco Mol, University of Milan, Milan, Italy</i>
12:30 – 12:45	Developing mass spectrometry based proteomic methods to identify and quantify protein carbonylation in plants <i>Georgina Charlton, University of Warwick, Coventry, UK</i>
12:45 – 13:00	Mining the redox switches in plants: S-sulfenylation sites discovery in Arabidopsis <i>Jingjing Huang, Ghent University, Ghent, Belgium</i>
13:00 – 14:15	Lunch and posters
14:15 - 17:00	Session 4: Protein Targets of Oxidation and Lipoxidation <i>Chairs to be advised</i>
14:15 – 14:45	Acrolein scavenging as a therapeutic strategy in diabetic retinopathy <i>Tim Curtis, School of Medicine, Queen's University, Belfast, Northern Ireland</i>
14:45 – 15:00	Structure/function relationship of pyruvate kinase lipoxidation <i>Bebiana Sousa, Aston University, Birmingham, UK</i>



15:00 – 15:15	Structural and functional consequences of nitration and cross-linking of the extracellular matrix protein tropoelastin <i>Michael Davies, University of Copenhagen, Copenhagen, Denmark</i>
15:15 – 15:45	Coffee break
15:45 – 16:15	Lipid peroxidation products and protein dysfunction in vascular diseases <i>Anne Negre-Salvayre, INSERM, Toulouse, France</i>
16:15 – 16:30	Lipoxidation impairs cortical distribution of vimentin filaments in cell division <i>Sofia Duarte, CSIC-CIB, Madrid, Spain</i>
16:30 – 16:45	Purified NADH-cytochrome b5 reductase is a superoxide anion-producing enzyme that is sensitive to nitric oxide and peroxynitrite <i>Alejandro K. Samhan Arias, Universidade Nova de Lisboa, Caparica, Portugal</i>
16:45 – 17:00	Characterization of lipoxidation-induced vimentin network remodelling <i>Andreia Monico, CSIC-CIB, Madrid, Spain</i>
17:00 – 17:15	Novel third-generation ferrostatins protect against acute iron poisoning-induced organ injury <i>Samya Van Coillie, VIB, Ghent, Belgium</i>
17:15 – 18:30	Poster Session
19:30 – 22:30	Conference Reception

Friday 15th March 2019

09:30 - 12:30	Session 5: Redoxomics: Clinical and Industrial Applications <i>Chairs to be advised</i>
09:30 - 10:00	Metabolomic from clinical research to diagnosis <i>Uta Ceglarek, Universitätsklinikum Leipzig, Germany</i>
10:00 - 10:15	Hepatocellular carcinoma and cholangiocarcinoma: serum phospholipidome, tumour immune cell infiltrate and peripheral immune cells characterization <i>Carmen Martin-Sierra, Centro Hospitalar e Universitário de Coimbra, Coimbra, Portugal</i>
10:15 – 10:30	Muscle contraction induces lipid peroxidation and formation of 4-hydroxynonenal-protein adducts <i>Morana Jaganjac, University College of London, London, UK</i>
10:30 – 10:45	Biological effects of glycated albumin on cardiomyocytes: possible implications in the development and progression of heart failure. <i>Alma Martinez-Fernandez, Centro Cardiologico Monzino, Milan, Italy</i>



10:45 -11:15	Coffee break
11:15 – 11:30	Detecting lipoxidation: diagnostic tools for the translation and commercial application <i>Isabel Pinto, Mologic, Bedford, UK</i>
11:30 – 11:45	Therapeutic exploration of ferroptosis inhibition in multiple sclerosis <i>Emily Van San, VIB-IRC, Ghent, Belgium</i>
11:45 – 12:00	Quantitative Persulfide Site Identification shows a direct involvement of H2S in Amyotrophic Lateral Sclerosis <i>Viviana Greco, Università Cattolica del Sacro Cuore, Rome, Italy</i>
12:00 – 12:15	Phospholipidome of endothelial cells shows a different adaptation response upon oxidative, glycativ and lipoxidative stress <i>Simone Colombo, University of Aveiro, Aveiro, Portugal</i>
12:15 – 12:30	Closing Plenary – MASSTRPLAN and the State of the Art <i>Corinne Spickett, Aston University, Birmingham, UK</i>
12:30 – 13:30	Lunch and prizes
14:00 - 17:00	Outreach Event & Public Lecture In collaboration with Urgent.fm We Are What We Eat <i>Dr James Brown, Aston University, Birmingham, UK</i>



Scientific Organizing Committee:

Professor Corinne Spickett
 Professor Lennart Martens
 Professor Pedro Domingues
 Dr Maria Fedorova
 Professor Dolores Pérez-Sala

Local Organizers:

Robbin Bouwmeester
 Tim Van Den Bossche