

A large, semi-transparent watermark or background image occupies the left two-thirds of the page. It depicts a close-up of a laptop keyboard in the foreground, with a series of light blue molecular models (represented by spheres and connecting rods) in the background, all set against a teal gradient.

2018 Annual Report

NuGO is an Association of universities, research institutes and SMEs focusing on the development of molecular nutrition, personalised nutrition, nutrigenomics and nutritional systems biology

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NuGO Association 2018

2018 marked another successful year for NuGO with the delivery of a number of PhD training courses, NuGO-facilitated staff exchanges, new Member and a scientifically-excellent NuGOweek.

Since its inception in 2016, the Early Career Network (ECN) has become an integral part of NuGO and provides an important voice for young scientists representing the future of nutrigenomics research. This year we welcomed, for the first time, a member from the ECN to our Management Board.

Many of you view training as a key asset of NuGO and we endeavour to support training activities and award training grants as much as possible. In 2018, we supported winter and summer schools as well as the more traditional NuGOweek 2018 PhD Course, which were all well attended and successful.

We have also continued to support the NuGO Exchange Programme in an effort to facilitate collaboration amongst NuGO Members and, in 2018, two grants were awarded.

Since 2016 we have engaged actively with the Asia Pacific Nutrigenomics Nutrigenetics Organisation (APNNO) to harness potential synergies and, to this end, Professor John Mathers attended the 2018 APNNO Meeting (Tokyo, JP) on behalf of NuGO. Maintaining and developing our international links is important to sustain the growth in NuGO membership and outreach.

In 2018 we also welcomed a new Member, Queens University Belfast (UK). We are delighted that we are able to continue growing the NuGO network in this way. We would like to thank all of you for your commitment to NuGO over the past year and for enthusiasm that you bring to the Association.



Prof. Lorraine Brennan
University College Dublin (IE)



Prof. Baukje de Roos
University of Aberdeen (UK)

With effect from 9th November 2018, the NuGO Management Board is composed of:

- **John Mathers** (University of Newcastle, UK)
- **Marjukka Kolehmainen** (University of Eastern Finland, FI)
- **Chris Evelo** (Maastricht University, NL)
- **Guy Vergeres** (Agroscope, Institute of Food Sciences, CH)
- **Diana Ivanova** (Medical University of Varna, BG)
- **Chiara Murga** (Monash University, AU)
- **Lynn Vanhaecke** (Ghent University, BE)
- **Kathryn Burton** (Agroscope, Institute of Food Sciences, CH - ECN Representative)

Chair and vice-chair of the NuGO General Assembly are Prof. John Mathers and Dr Marjukka Kolehmainen, respectively.

General Assembly

The NuGO General Assembly is the highest authority within NuGO and meets at least once a year. 19 Members attended the 12th General Assembly on Monday, 3rd September in Newcastle upon Tyne (UK).



Growing interest in joining NuGO was seen as a very positive development. Membership fees were reduced in 2018 to €1600; for new Members, NuGO offers a reduced fee (50%).

The auditor's report for 2017-2018 showed the Association is in a healthy financial situation with an overall net loss of €6500 for the two-year period. This was achieved through reduced expenses (see shared software licence, below) and the generous support of the Medical University of Varna (BG) and University of Newcastle (UK) with respect to hosting of NuGOweeks 2017 and 2018.



Lydia Afman, Ingeborg van Leeuwen-Bol &
Fré Pepping, NuGO Secretariat

NuGO Secretariat is based at Wageningen University & Research and is composed of:

- Dr Fré Pepping
- Dr Lydia Afman
- Mrs Ingeborg van Leeuwen-Bol

Shared software licence

Costs for the shared METACORE licence are no longer included in NuGO Membership fees. Instead, seven Member are responsible for these, meaning only staff employed by these organisations can access the software. At the end of 2018, it was agreed that this arrangement would continue in 2019.



NuGO Courses

Winter School, Lapland (FI), 25-26th January 2018

www.nutritionwinterschool.fi



The NuGO Symposium "Big data in dietary intervention studies-special focused on gut microbiota and N-of-1 studies" opened the Nutrition Winter School, hosted by University of Eastern Finland (Kuopio) in Levi (FI), and co-organised by the Medical Faculty, University of Oslo (NO).

This new collaboration between NuGO and the Nutrition Winter School gave participants to obtain a deeper understanding of human gut microbiota and human health, and specifically N-of-1 studies including challenges associated with designing these studies and data. Marjukka Kolehmainen (University of Eastern Finland, FI) and Stine Ulven (University of Oslo, NO) gave a short introduction, which was followed by lectures from John Mathers (University of Newcastle University, UK - using big data

in human intervention studies and, specifically, lessons from the Food4Me Study), Gianni Panagiotou (Hans Knoell Institute, DE - lifestyle-microbiota interactions, as moderators of host metabolism), and Nastya Godneva (Weizmann Institute of Science, IL - gut microbiome and glycaemic responses study design and data analysis, and methodological challenges). Later, Thomas Gundersen (VITAS, NO) talked about lessons learned from self-tracking and personal nutritional status optimisation using dried blood spot

(DBS) biomarker analysis, which included a practical demonstration and the symposium ended with Chris Evelo (Maastricht University, NL), who gave an introduction to large dataset analysis that included a data handling workshop. The scientific programme was rated 4.5 (1-5; 5 being excellent) whilst the social programme and the Symposium as a whole were both awarded 4.8. There were 75 participants from around the world, representing five continents.



NuGO Course grants were awarded to (left to right):

- **Tik Muk** (University of Copenhagen, DK)
- **Aleena Mushtaq** (Quadram Institute Bioscience, UK)
- **Stefania Noerman** (University of Eastern Finland, FI)
- **Kathryn Burton** (Agroscope, Institute of Food Sciences, CH)
- **Olubunmi Oubamwo** (University of Eastern Finland, FI)

Summer School, Camarino (IT), 25-29th June 2019



The third European Summer School on Nutrigenomics was hosted by University of Camerino (IT) and attended by 90 PhD students and young researchers from 30 different countries.

The Summer School gave participants the opportunity to interact with researchers working on nutrigenomics and create an early career network.

Lorraine Brennan (UCD, IE), Baukje de Roos (University of Aberdeen, UK) and Michael Müller (University of East Anglia, UK) contributed lectures. Topics included the key role of early life nutrition in adult health, innovations in the field of nutrigenomics and nutrigenetics, effects of food xenobiotics on the modulation of gene expression, lifestyle factors able to modify gene expression (e.g. diet, physical activity, sleep, leisure-time and sedentary behaviour) and insights into nutrigenomic biomarkers in blood, urine and saliva that might be useful to screen epigenetic changes and monitor human health.

NuGO Course grants were awarded to:

- Natassia Robinson and Chanachai Sae-Lee (University of Newcastle, UK)
- Todorka Sokrateva (Medical University Varna, BG)
- Stephanie Andraos (Liggins Institute, University of Auckland, NZ)
- Muyao Xi (University of Copenhagen, DK)
- Kathleen Wijnant (Ghent University, BE)
- Sunniva Veen Larsen and Linn Kristin Lie Oyri (University of Oslo, NO)
- Thao Duy Nguyen (Lund University, The National Research School LiFT, SE)

NuGO Early Career NETWORK

NuGO's Early Career Network (ECN) underwent a number of changes during 2018, with three committee members (Sara Tulipani, Valentini Konstantinidou and Jarlei Fiamoncini) stepping down and three new committee members joining (Fiona Malcomson, University of Newcastle - UK; Pieter Giesbertz, TUM - DE; Colleen Draper, Nestlé Skin Health - CH). Although Nestlé Institute of Health Sciences SA is no longer a NuGO member, we are happy to have Dr Colleen Draper (Nestlé Skin Health - CH) bring her experience to the ECN Committee.

We thank Sara and Valentini for their participation and Jarlei, in particular, for his prolonged service to the committee and ECN representation on the NuGO Board.

During 2018, NuGO ECN organised several webinars, including training on mass spectroscopy (Marynka Ułaszewska, Fondazione Edmund Mach, Research and Innovation Centre, Italy) and a special edition on the opportunities offered by NuGO Exchange Grants.

The ECN Forum (www.nugoecn.com) was launched to support exchange amongst members in August 2018 and, during the NuGOweek 2018, the ECN organised a nutrition-themed team challenge exploring Newcastle (supported by New England Biolabs).

At the end of 2018, David Houghton (University of Newcastle, UK) and Aimee Dordevic (Monash University, AU) also joined the ECN committee.



NuGO

Exchanges



From L->R: Fiona Malcomson, Harry Freitag Luglio Muhammad & Prof. John Mathers

University of Maastricht (NL) to
University of Newcastle (UK)

Harry Freitag Luglio Muhammad

Interaction between dietary inflammatory index and CRP gene variants in relation to obesity, C-reactive protein level and early signs of colorectal cancer.

"I was honoured and grateful to be able to undertake a research exchange at Newcastle University, where I had the opportunity to learn how to study gene-nutrition interaction in a population-based study, which is an important part of my PhD thesis. It was also good to work in a new research environment, building a network, and extending my perspectives of nutrigenomic".

Harry Freitag Luglio Muhammad



From L -> R: Chris Evelo, Aimee Dordevic, Susan Coort

Monash University (AU) to
University of Maastricht (NL)

Aimee Dordevic

Designing a bioinformatics workflow using state-of-the-art techniques to analyse and interpret results obtained in nutrition intervention studies.

"The exchange to Maastricht University was a fantastic opportunity and, for me, there were two very important benefits. The first is ongoing collaboration with researchers at Maastricht University; currently, we are working on a publication. The other is that I am able to transfer skills I learned to others in my department, ultimately strengthening our capabilities in nutrigenomics research. I am very grateful to NuGO for making this possible".

Aimee Dordevic

NuGOweek 2018

International Centre for Life in Newcastle, UK), 3rd-6th September 2018

Nearly 140 delegates from 22 countries, including Australia, China, Korea and the USA as well as European Member States attended the 15th NuGOweek, "Mitochondria, Nutrition and Health", which was opened with a lecture by Prof. Sir Doug Turnbull, Professor of Neurology at Newcastle University and Honorary Consultant Neurologist at Newcastle upon Tyne Hospitals NHS Foundation Trust as well as a director of the Wellcome Trust Centre for Mitochondrial Research.

Over the next three days, participants enjoyed an exciting and stimulating programme of formal presentations and poster sessions, with plenty of opportunities for discussion, and re-connecting with colleagues and collaborators and making new links. On the final day of the conference, there was a joint symposium with the Micronutrients Genomics Group, co-sponsored by the Asia-Pacific Nutrigenomics and Nutrigenetics Organisation (APNNO), "*Epigenetic effects of micronutrients and their impact on cellular and mitochondrial metabolism*".



As usual, the quality of oral and poster presentations by junior colleagues was very high, and 2018's prize-winners were:

- 1st Prize: Catherine Graham – St Mary's University, Twickenham (UK)
- 2nd Prize: Miguel Martin Gonzalez – Universitat Rovira i Virgili (ES)
- =3rd Prize: Laura Bordini – University of Camerino (IT)
- =3rd Prize: Jill McKay – Northumbria University, Newcastle upon Tyne (UK)

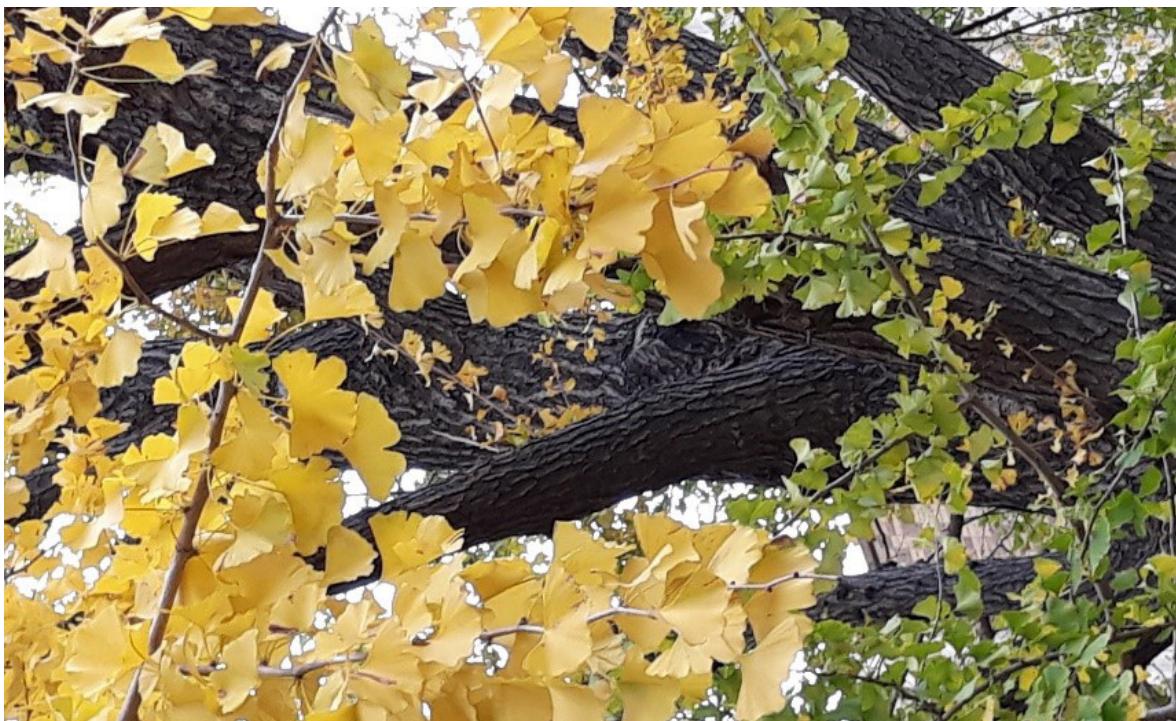


From L->R: Laura Bordini, Nicole Bauer (Amway, sponsor), Miguel Martin Gonzalez, Jill McKay and Catherine Graham

We are very grateful to Amway for their continuing support through sponsorship of the Early Career Researcher (ECR) prizes.

Scientific Collaborations

APNNO sponsored a session during NuGOweek 2018, "Epigenetic effects of micronutrients and their impact on cellular and mitochondrial metabolism".



Prof. John Mathers had the privilege of participating in the second biennial conference of the Asia-Pacific Nutrigenomics and Nutrigenetics Organization (APNNO), which was held at the Ito International Research Center (Tokyo, JP) on 2nd-4th December 2018.

Winter had arrived in Europe but, in Tokyo, John enjoyed the wonderful colours of a late autumn, especially the glorious golden gingko trees on Tokyo University campus.

The theme was "Nutri-genomics/ genetics for Precision Health in Multicultural Aging Populations: Profiling Differences, Discovering Possibilities" and was organised by Prof. Hisanori Kato, President-Elect of APNNO.

APNNO 2018 attracted researchers from many countries across the Asia-Pacific region with strong representation from Australia, China, Indonesia, Korea, Malaysia, Singapore and Taiwan as well as from several research centres in Japan.

The scientific programme featured the usual mix of keynote lectures, symposia, and selected oral and poster presentations. John was particularly impressed by the quality of some of presentations from early-career researchers. In addition to research on obesity and non-communicable diseases, there was keen interest in the gut microbiome and potential health benefits of a wide range of natural compounds.

Membership



MEMBERSHIP

Membership is open to organisations only, but individuals are welcome to participate in events organised or supported by NuGO.



**QUEEN'S
UNIVERSITY
BELFAST**

NuGO welcomed Queens University of Belfast (UK) as a Member in 2018.

QUB Nutrition research is focused on how best to measure dietary intake (i.e. biomarkers) and the effects of dietary change on these. For example, researchers in the Centre for Experimental Medicine are interested in eye health: there is clear evidence

JOINED in 2018

that diet is important, but how the benefits are best achieved are far from understood. Likewise, QUB researchers in the Institute for Global Food Security are using metabolomics to gain a better understanding of links between diet, nutrition, and non-communicable diseases, such as Alzheimer's Disease.

Members end 2018

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