



**2019**

## **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 2019

*2019 marked another busy year for NuGO with the delivery of three PhD training courses, two NuGO-facilitated exchanges, a dedicated NuGO session at Federation of European Nutrition Societies (FENS) 2019, four new Members, and a successful NuGOweek 2019.*

At the end of September 2019, NuGO co-Directors, Prof. Lorraine Brennan (UCD, IE) and Prof. Baukje de Roos (University of Aberdeen, UK), stepped down, and Prof. Michael Müller (UEA, UK) became NuGO Director (from 01.10.2019). In addition, Dr Lydia Afman (WUR, NL) became Executive Secretary and Dr Guy Vergères (Agroscope, CH) was elected Chair of the NuGO Management Board. Guy is also Chair of the NuGO General Assembly, with vice-chair Dr Marjukka Kolehmainen (University of Eastern Finland, FI).

The Early Career Network (ECN) is an important part of the NuGO Association and provides a voice for early-career scientists, who represent the future of nutrigenomics research. Since 2018, ECN has also been represented on the NuGO Management Board (currently, Fiona Malcomson - University of Newcastle, UK). NuGO endeavours to support as many training activities as possible during the year and, in 2019, sponsored two courses (Advanced Proteomics and Omics data analysis through data integration: Using biological pathways, networks, and linear models) as well as the pre-NuGOweek 2019 postgraduate course; all were well attended.

NuGO also supports an Exchange Programme to facilitate collaboration amongst Members. During 2019, grants were awarded to Gina Lynch (UCD, IE) and Laura Bordini (University of Camarino, IT).

On 16<sup>th</sup> October, NuGO hosted a session at the 13<sup>th</sup> European Nutrition Conference (FENS2019, 15-18<sup>th</sup> October 2019, Dublin - IE). Chaired by Lorraine Brennan (UCD, IE) and Guy Vergères (Agroscope, CH), this session included three prominent speakers who highlighted the contribution of nutrigenomics to modern nutrition research. Sander Kersten (WU, NL) explored the past, present, and future of nutrigenomics, Steve O'Rahilly (MRC Cambridge, UK) showed how combining molecular biology and human physiology is still a potent research strategy to identify new targets for prevention and treatment of obesity, and Hannelore Daniel (Emeritus Professor TUM, DE) highlighted the importance of nutritional phenotyping in translational goals for nutrition research.

**We are delighted that NuGO continues to grow, and we would like to thank Members for their commitment over the past year.**



**Prof. Lorraine Brennan**  
University College Dublin (IE)  
Joint NuGO Director - 30.09.2019



**Prof. Baukje de Roos**  
University of Aberdeen (UK)  
Joint NuGO Director - 30.09.2019



**Prof. Michael Müller**  
University of East Anglia (UK)  
NuGO Director - 01.10.2019

**NuGO Director:** Prof. Michael Müller (UEA, UK)

**Executive Secretary:** Dr Lydia Afman (WUR, NL)

**Chair of the NuGO Management Board:** Dr Guy Vergères (Agroscope, CH)

**As of 9<sup>th</sup> September 2019, the NuGO Management Board is composed of:**

- Guy Vergères (Agroscope, CH) - Chair
- Marjukka Kolehmainen (University of Eastern Finland, FI)
- Chris Evelo (Maastricht University, NL)
- Diana Ivanova (Medical University of Varna, BG)
- Chiara Murga (Monash University, AU)
- Lynn Vanhaecke (Ghent University, BE)
- Fiona Malcomson (Newcastle University, UK - ECN Representative)
- Lorraine Brennan (University College Dublin, IE)
- Baukje de Roos (University of Aberdeen, UK)

**NuGO General Assembly** chair and vice-chair are Dr Guy Vergères (Agroscope, CH) and Dr Marjukka Kolehmainen (University of Eastern Finland, FI), respectively.

# General Assembly



*The NuGO General Assembly is the highest authority within NuGO and meets at least once a year. Members (24) attended the 13<sup>th</sup> General Assembly on 9<sup>th</sup> September 2019 in Bern (CH).*

Continuing interest in NuGO is viewed as very encouraging, with four **new Members** joining during 2019. Membership fees in 2019 remained at €1600, but NuGO also offers a discount for new Members for the first year.

NuGO continue to explore and develop links with other **international organisations** and welcomed new Members from Italy, USA, and India during 2019. Several of our international friends from Australia, China, US, Korea, Thailand, Mexico, and the Philippines also attended NuGOweek 2019.

Members decided not to renew the shared NuGO **Metacore licence**, as too few organisations wanted to participate in this initiative. However, NuGO remains active in enabling bioinformatics solutions for Members. For example, the Bioinformatics Working Group is contributing to a Food & Nutrition ELIXIR Community; ELIXIR is a distributed infrastructure for life-science information, including databases, software tools, and training materials.

Finally, the General Assembly also decided the Association will undergo an audit every two years from now on, meaning the next period will cover 2019-2020.



Ingeborg van Leeuwen-Bol & Lydia Afman  
NuGO Secretariat

**NuGO Secretariat** is based at Wageningen University & Research and, since September 2019, is comprised of Lydia Afman and Ingeborg van Leeuwen-Bol (WUR, NL).

# NuGO Courses

***Omics data analysis through data integration:  
Using biological pathways, networks, & linear models***

*11-14<sup>th</sup> June 2019 - Niel (BE)*



**Course providers:** *Maastricht University (NL) and VIB (BE)*

The Helix Academy Omics Data Analysis course used workshop-style sessions to introduce tools that can be used to analyse and visualise omics datasets. The course considered transcriptomics work-flows, from accessing public data repositories to basic pre-processing methods, differential analysis, and visualisation of results using pathway

analysis tools. Broader molecular pathway analyses for multiple omics datasets were demonstrated using a combination of PathVisio, Wikipathways and Cytoscape applications whilst unsupervised integration of multiomics datasets was explained using multi-omics factor analysis (MOFA).

**NuGO Course Grants** were awarded to:

- Kathryn Burton (Agroscope, CH)
- Ceyda Tugba Pekmez (University of Copenhagen, DK)

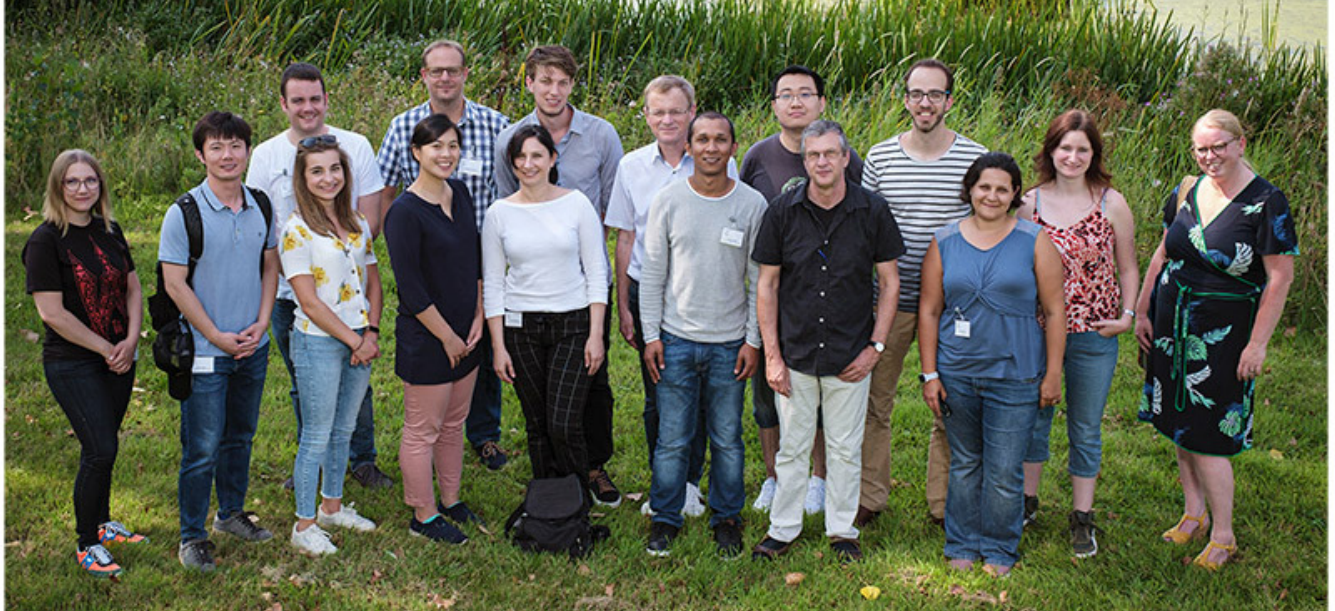




From left to right: Kathryn Burton (Agroscope, CH), Ligia Mateiu, (University of Antwerpen, BE), Ceyda Tugba Pekmez (University of Copenhagen, DK)



## **Advanced Proteomics** 27-30<sup>th</sup> August 2019 - Wageningen (NL)



**Course provider:** *Wageningen University & Research (NL)*

An international group of 13 researchers, consisting of PhD students and post-docs working with a common interest in proteomics attended this course to learn more about sample preparation, use of orbitrap LC-MS for proteomics analysis, and integration of omics data using MaxQuant and Perseus software.

Supervised by Prof. Jacques Vervoort (WUR, NL) and Dr Sjef Boeren (WUR, NL), the course was organised by the VLAG Graduate School (NL) and comprised lectures by those working with proteomics, structured laboratory sessions, and hands-on exercises with MaxQuant and Perseus software, where participants worked with their samples, giving a better understanding of the approach and the required know-how for these techniques.

**NuGO Course Grants** were awarded to:

- Anna Kårlund (below, left)  
University of Eastern Finland, FI
- Mursalin Sajib (below, right)  
Chalmers University of Technology, SE





# NuGO Early Career NETWORK

During 2018, the NuGO Early Career Network (ECN) committee was revised to six members, who have worked hard to increase ECN activities during 2019 including webinars, exchanges, and training.

The first ECN webinar of 2019 was presented by the newest ECN committee member, Dr Colleen Draper (Nestlé, CH), who shared her knowledge and experience of personalised nutrition. This lecture marked the beginning of a series of webinars focusing on topics requested by ECN members, including a series of lectures on multivariate statistics given by Maren Büttner (Helmholtz Center Munich, DE) and Prof. Claus Mayer (University of Aberdeen, UK) as well as use of PathVisio and Wikipathways for pathway analysis presented by Dr Susan Coort (BiGCaT, NUTRIM School of Nutrition & Maastricht University, NL).

ECN continues to promote exchanges amongst NuGO Members via their online forum ([www.nugoeqn.com](http://www.nugoeqn.com)) and Facebook ([www.facebook.com/ecn.nugo](https://www.facebook.com/ecn.nugo)) as well as hosting an annual social event at NuGOweek.

This year ECN members met in Bern (CH) to complete an adventure room challenge, and engage in speed-networking and a good dose of discussion on research hopes.

In September 2019, Fiona Malcomson (Newcastle University, UK) took over from Kathryn Burton (Agroscope, CH), representing ECN on the NuGO Management Board. During 2020, the committee will look at ways to promote dialogue amongst ECN members, including opportunities for more face-to-face events as well as online support.

As ever, the ECN would like to thank the wider NuGO Association for sponsoring these activities.



# NuGO Exchanges



University College Dublin (IE) to  
University of Maastricht (NL)

## **Gina Lynch**

The role of skeletal muscle inflammation in development of metabolic dysfunction and the possible therapeutic effects of long chain n-3 polyunsaturated fatty acids.

*"This opportunity to travel to Maastricht and work with global experts in the field of protein metabolism was truly an incredible experience. I was not only able to learn new techniques, which will further strengthen my research and my PhD, but also I was afforded the opportunity to live in the city of Maastricht for two months, which was amazing".*



University of Camarino (IT) to  
University of Newcastle (UK)

**Laura Bordini**

Untargeted approach to study  
mitochondrial DNA methylation

*"As my previous nutri(epi)genomics research activities were focused mainly on nuclear epigenomics, I visited the University of Newcastle to learn about technical approaches to isolate and manage mitochondrial DNA for epigenetic analysis. During my stay in Newcastle, I had the wonderful opportunity to work with some of the most expert researchers in the field of human nutrition (Human Nutrition Research Centre) and the mitochondrial genome and epigenome (Wellcome Centre Mitochondrial Research)".*



# NuGOweek 2019

*Agroscope (Bern, CH) - 9-12<sup>th</sup> September 2019*

NuGOweek 2019 (16<sup>th</sup> edition) emphasised the importance of linking food science to human biology within nutrition research to deliver knowledge that can maintain or even improve health and well-being.

NuGOweek (Bern - CH, 9-12<sup>th</sup> September 2019, 155 participants) was organised in consecutive sessions, addressing composition, consumption, and metabolism of foods and diets as well their functional impact on the health of populations and individuals. Topics were introduced by seven keynote lecturers, highlighting the important contributions of modern analytical life science technologies to nutrition research, which was underlined by the subsequent 23 oral presentations and 56 posters. A significant proportion of these presentations were given by early-career researchers and the impact of these researchers within NuGO was further emphasised by ECN activities.

NuGO seeks to promote nutrition research at the international level, but the majority of these efforts are achieved at the local level by NuGO Members. Organisation of NuGOweek 2019 by Agroscope (CH) was a unique opportunity to promote NuGO and nutrition research in Switzerland and a satellite meeting at NuGOweek 2019, set up by the national committee of the International Union of Nutritional Sciences (IUNS, 12.09.2019), brought together 71 specialists from 45 institutes representing stakeholders from agriculture, food, and nutrition sectors in Switzerland to consider the future of Swiss nutrition research. The highlights of NuGOweek 2019 also featured during the annual meeting of the Swiss Society of Nutrition (SSN, 13.09.2019).



As usual, the quality of oral and poster presentations by early-career researchers was very high. This year's NuGOweek 2019 prize winners were:

- 1<sup>st</sup> Prize: Sergio Polakov, INRA (FR)
- 2<sup>nd</sup> Prize: Fiona Malcomson, University of Newcastle (UK)
- = 3<sup>rd</sup> Prize: Carina Mack, MRI Karlsruhe (DE)
- =3<sup>rd</sup> Prize: Elaine Hillesheim, UCD (IE)



From left to right: Lydia Afman (NuGO), Nicole Bauer (Amway, sponsor), Elaine Hillesheim, Carina Mack, Fiona Malcomson & Claudine Manach, representing Sergio Polakov

*We are grateful to Amyway for their continued support through sponsorship of the ECN prizes*









The NuGOweek 2019 gala dinner was packed with emotion, particularly when Hannelore Daniel (Emeritus Professor TUM, DE) took the stage to thank the departing NuGO officers (Lorraine Brennan - UCD, IE, Baukje de Roos - University of Aberdeen, UK, John Mathers - University of Newcastle, UK and Fré Pepping - WU, NL). Whereas Lorraine, Baukje and John remain active in NuGO, Fré Pepping retired from Wageningen University in 2019. Having attended every NuGOweek since its inception, Bern was a fitting occasion for NuGO Members to offer formal appreciation of Fré's contribution to NuGO, especially the 'personality' of the Association, and the long and whole-hearted applause reflected the gratitude of the wider scientific community for him and his work to promote NuGO.

# Pre-NuGOweek 2019 Training Course

## *Nutrimetabolomics: How to use the toolkit!*

Post-graduate courses and workshops have been held on several occasions in the days leading up to NuGOweeks, offering PhD students and post-doctoral researchers an opportunity to attend both a training course and the scientific meeting.

Nutrimetabolomics: How to use the toolkit! aimed to equip participants (22) with the skills necessary to apply metabolomic tools in their research. It was also an opportunity for networking with other early-career researchers and to develop collaborative activities.

The course was coordinated by Kathryn Burton (Agroscope, CH), Christoph Weinert (Max Rubner-Institut, DE) and Marynka Ulaszewska (Fondazione Edmund Mach di San Michele all'Adige, IT) with invited lectures from Alessia Trimigno (University of Copenhagen, DK), Hannelore Daniel (Emeritus Professor TUM, DE), Lorraine Brennan (UCD, IE) and Carl Brunius (Chalmers University of Technology, SE).





# Membership



## MEMBERSHIP

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

At the end of 2019, there were 29 Members with only one (Nimgenetics, ES) not renewing their membership. During 2019, NuGO welcomed four new Members, La Fondazione Edmund Mach (IT), University of Camarino (IT), University of Arizona (US), and the Institute of Nutrigenetics (IN).





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