Scientific programme

SESSION I

Friday 19 February 2027

Foundations, evidence and the early origins of health

Chairs: Prof. Gjeorgjina Kuli-Lito (Tirana, Albania) • Dr Suren Budhan (Mauritius)

16:00 – 20:00 | Ravenala plenary room | 4 lectures of 60 minutes

Time	Lecture
09:30–12:30	***One-to-one meetings with the faculty, by appointment*** *— see "One-to-one meetings with the faculty"*
15:30–15:50	*Participant registration*
15:50–16:00	***Opening and introduction to the Summit*** *— V. Fanos*
16:00–17:00	**Urinary metabolomics in precision medicine: scientific basis and clinical perspectives** **Prof. Vassilios Fanos** · **Cagliari** *From genome to metabolome: principles of the discipline, clinical meaning of the urinary metabolic profile and the role of the gut microbiota as a "metabolic organ".* 40 min presentation · 20 min interactive discussion
17:00–18:00	**From research to the clinic: metabolomics in everyday clinical practice** **Dr Carla Marzetti** · **Bologna** *Indications, reading and interpretation of the urinary metabolomic profile (organic acids, amino acids, microbial metabolites); integration with medical history and conventional tests; discussion of clinical cases.* 40 min presentation · 20 min interactive discussion
18:00–19:00	**Microbiota and metabolome in the first months of life: early probiotic supplementation in formula-fed infants born by elective caesarean section** **Prof. Gianfranco Trapani** · **Cagliari** *Longitudinal multi-omic pilot study (16S rRNA sequencing and 1H-NMR metabolomics on faecal and urine samples) in infants supplemented with Lacticaseibacillus rhamnosus and Bifidobacterium longum subsp. infantis: increase in Bifidobacteriaceae, reduction in Enterobacteriaceae, modulation of lactate, acetate and propionate, and systemic metabolic adaptation. Implications for personalised microbiota modulation in early childhood.* 40 min presentation · 20 min interactive discussion
19:00–20:00	**Postpartum depression: the metabolomic signature of the gut–brain axis in the perinatal period** **Prof. Marco Carotenuto** · **Naples** *Neurotransmitters, inflammation and the maternal microbiota; effects on the mother–infant dyad and on breastfeeding; prospects for early identification and personalised intervention.* 40 min presentation · 20 min interactive discussion

OPTIONAL TEACHING COURSE A

Saturday 20 February 2027

Teaching Course A · Reading a urinary metabolomic profile: an interpretation lab on clinical cases

Tutors: Dr Carla Marzetti (Bologna) • Prof. Vassilios Fanos (Cagliari)

09:30 – 13:00 | Ravenala Attitude Hotel | 3.5 hours | max 30 participants, small-group work

Objective: by the end of the teaching course, participants will be able to assess the suitability of a urine sample, read a metabolomic report area by area and integrate it with medical history and conventional tests, recognising the limitations and levels of evidence of the interpretation.

Time	Lecture
09:00–09:30	*Teaching course registration*
09:30–10:15	**The urine sample: pre-analytical phase and sources of variability** **Dr Carla Marzetti** · **Bologna** *Sample collection, storage and transport; influence of diet, medication, age, hydration and circadian rhythm; sample suitability criteria and the most common errors.* 45 min · interactive lecture
10:15–11:00	**Anatomy of a report: reading by area and clinically relevant signals** **Prof. Vassilios Fanos** · **Cagliari** *Organic acids, amino acids and microbial metabolites: how a report is structured, how to tell relevant signals from background noise, and how to move from the data to the clinical question.* 45 min · interactive lecture
11:00–12:15	**Small-group lab: four clinical cases across the life course** **Dr C. Marzetti, Prof. V. Fanos** *Real, anonymised profiles of an infant, a school-age child, an adult with metabolic abnormalities and an older adult with cognitive decline. Each group integrates the profile with medical history and conventional tests and formulates its own interpretive hypothesis.* 75 min · clinical case exercise
12:15–13:00	**Plenary feedback: limitations, levels of evidence and key messages** **Prof. Vassilios Fanos, Dr Carla Marzetti** *Each group presents its reading; guided discussion on when the metabolomic profile adds useful information to clinical decision-making and when it does not.* 45 min · guided discussion

OPTIONAL TEACHING COURSE B

Saturday 20 February 2027

Teaching Course B · The first 1,000 days and neurodevelopment: breast milk, sleep and the gut–brain axis in clinical practice

Tutors: Dr Carla Marzetti (Bologna) • Prof. Vassilios Fanos (Cagliari)

15:00 – 18:30 | Ravenala Attitude Hotel | 3.5 hours | max 30 participants, small-group work

Objective: by the end of the teaching course, participants will be able to recognise the factors in the first 1,000 days that shape the microbiota and metabolome (mode of delivery, feeding, antibiotic exposure, sleep), use the available metabolomic data to support neurodevelopmental assessment, and set up shared follow-up between paediatrician, neonatologist and child neuropsychiatrist.

Time	Lecture
14:30–15:00	*Teaching course registration*
15:00–15:45	**Breast milk and the metabolome: from milk composition to infant health** **Prof. Vassilios Fanos** · Cagliari *Bioactive components of breast milk (oligosaccharides, lipids, metabolites) and their influence on the infant microbiota; mother's own milk and donor human milk in preterm infants; supporting breastfeeding in clinical practice.* 45 min · interactive lecture
15:45–16:30	**Sleep, behaviour and the gut–brain axis in children: signs to recognise** **Dr Carla Marzetti** · Bologna *Sleep disorders in childhood as an early indicator of neurodevelopmental vulnerability; relationship with dysbiosis and tryptophan and melatonin metabolism; screening tools for use in the outpatient setting.* 45 min · interactive lecture
16:30–17:45	**Small-group lab: three clinical cases from the first 1,000 days** **Dr C. Marzetti, Prof. V. Fanos** *A preterm infant with feeding difficulties, an infant born by caesarean section with early antibiotic exposure, and a 3-year-old child with a sleep disorder and language delay: each group identifies the risk factors, assesses the contribution of metabolomic data and sets up a follow-up pathway.* 75 min · clinical case exercise
17:45–18:30	**Plenary feedback and key messages** **Prof. Vassilios Fanos, Dr Carla Marzetti** *Comparison of the groups' proposals; criteria for specialist referral and for shared follow-up between paediatrics, neonatology and child neuropsychiatry.* 45 min · guided discussion

OPTIONAL TEACHING COURSE C

Sunday 21 February 2027

Teaching Course C · From profile to plan: precision nutrition and microbiota modulation in clinical practice

Tutors: Dr Carla Marzetti (Bologna) • Prof. Vassilios Fanos (Cagliari)

09:30 – 13:00 | Ravenala Attitude Hotel | 3.5 hours | max 30 participants, small-group work

Objective: by the end of the teaching course, participants will be able to translate a metabolomic profile, together with the available clinical and genetic data, into a personalised nutritional plan and follow-up schedule, critically appraising the evidence on microbiota modulation.

Time	Lecture
09:00–09:30	*Teaching course registration*
09:30–10:15	**Probiotics and microbiota modulation: evidence, indications and reading multi-omic data** **Prof. Vassilios Fanos** · Cagliari *What studies say about strains, timing and populations; when microbiota modulation is indicated; how to read sequencing and metabolomic data critically.* 45 min · interactive lecture
10:15–11:00	**Precision nutrition: from metabolic phenotype to dietary plan** **Dr Carla Marzetti** · Bologna *Building a dietary plan from the patient's metabolic profile and habits; adapting recommendations to multi-ethnic settings, with Mauritius as a case study.* 45 min · interactive lecture
11:00–11:30	**Obesity and diabetes: risk stratification and integrated follow-up** **Prof. Vassilios Fanos** · Cagliari *Integrating genetic, metabolomic and clinical data to stratify risk and define the timing and tools of monitoring, from childhood to adulthood.* 30 min · interactive lecture
11:30–12:30	**Small-group exercise: from clinical case to personalised plan** **Dr C. Marzetti, Prof. V. Fanos** *Starting from a case with a metabolomic profile, each group designs a nutritional plan, assesses whether microbiota modulation is appropriate and defines a follow-up schedule, including when to repeat the profile.* 60 min · clinical case exercise
12:30–13:00	**Plenary feedback and key messages** **Prof. Vassilios Fanos, Dr Carla Marzetti** *Comparison of the plans developed by the groups; criteria for assessing the effectiveness of the intervention over time.* 30 min · guided discussion

OPTIONAL TEACHING COURSE D

Sunday 21 February 2027

Teaching Course D · Infections, antibiotics and immunity: protecting the microbiota from childhood to adulthood

Tutors: Dr Carla Marzetti (Bologna) • Prof. Vassilios Fanos (Cagliari)

15:00 – 18:30 | Ravenala Attitude Hotel | 3.5 hours | max 30 participants, small-group work

Objective: by the end of the teaching course, participants will be able to assess the impact of infections and antibiotic therapy on the microbiota and metabolome, apply the principles of appropriate antibiotic use in children, and recognise the links between dysbiosis, allergy and systemic inflammation, setting up prevention and follow-up strategies.

Time	Lecture
14:30–15:00	*Teaching course registration*
15:00–15:45	**Antibiotics and the microbiota in children: appropriate use and long-term consequences** **Prof. Vassilios Fanos** · Cagliari *Effects of early antibiotic exposure on microbiota composition and the metabolic profile; associations with allergy, obesity and immune disorders; principles of antimicrobial stewardship in the most common paediatric infections.* 45 min · interactive lecture
15:45–16:30	**Microbiota, gut barrier and food allergy: prevention and follow-up** **Dr Carla Marzetti** · Bologna *The role of microbial diversity and the timing of food introduction in acquiring tolerance; multiple food allergies; when and how to reassess the patient and what the metabolomic profile can contribute.* 45 min · interactive lecture
16:30–17:00	**Oral microbiota and inflammation: practical guidance for clinicians** **Prof. Vassilios Fanos** · Cagliari *The oral cavity as part of the physical examination; factors that disrupt the oral microbiota (medication, diet, smoking); prevention messages for patients across the life course.* 30 min · interactive lecture
17:00–18:00	**Small-group exercise: infections, antibiotics and allergy in clinical practice** **Dr C. Marzetti, Prof. V. Fanos** *An infant with recurrent infections and repeated courses of antibiotics, a child with multiple food allergies, and an adult with periodontitis and metabolic syndrome: each group assesses the appropriateness of treatment and its possible impact on the microbiota and metabolome and sets up a prevention and follow-up plan.* 60 min · clinical case exercise
18:00–18:30	**Plenary feedback and key messages** **Prof. Vassilios Fanos, Dr Carla Marzetti** *Comparison between groups; practical messages on appropriate antibiotic use and protecting the microbiota across the life course.* 30 min · guided discussion

SESSION II

Monday 22 February 2027

Precision paediatrics: microbiota, immunity, neurodevelopment and metabolism

Chairs: Prof. Massimo Agosti (Varese) • Prof. Vassilios Fanos (Cagliari)

16:00 – 20:00 | Ravenala plenary room | 4 lectures of 60 minutes

Time	Lecture
09:30–12:30	***One-to-one meetings with the faculty, by appointment*** *— see "One-to-one meetings with the faculty"*
16:00–17:00	**Managing newborns and infants with cow's milk protein allergy: the microbiota–metabolome axis and the path to tolerance** **Prof. Carlo Capristo** · **Naples** *Clinical spectrum and diagnosis of cow's milk protein allergy in the first months of life (IgE-mediated and non-IgE-mediated forms, including FPIES and allergic proctocolitis); diagnostic elimination diet and oral food challenge. Nutritional management: protecting breastfeeding, choosing between extensively hydrolysed and amino acid-based formulas, growth monitoring; natural history and timing of reintroduction. The microbiota–metabolome axis as the common thread: early dysbiosis, short-chain fatty acids (especially butyrate) and the acquisition of immune tolerance; the contribution of the metabolomic profile to follow-up and personalised management.* 40 min presentation · 20 min interactive discussion
17:00–18:00	**Autism spectrum disorder: the gut–brain axis and metabolomic subtypes** **Prof. Marco Carotenuto** · **Naples** *Tryptophan metabolism, microbial metabolites, sleep dysregulation and dysbiosis; towards a metabolomic characterisation of clinical subtypes and evidence-based nutritional approaches.* 40 min presentation · 20 min interactive discussion
18:00–19:00	**Childhood obesity: from metabolomic profile to personalised nutritional plan** **Dr Pamela Paoletti** · **Mauritius** *Urinary metabolomics as a precision-nutrition tool in children: assessment of the metabolic phenotype, eating habits in multi-ethnic settings, prevention and follow-up.* 40 min presentation · 20 min interactive discussion
19:00–20:00	**Diabetes in children and adolescents: from genetic predisposition to metabolomic signature** **Dr Suren Budhan** · **Mauritius** *Genetic focus: monogenic forms (MODY and neonatal diabetes), polygenic risk and gene–environment interaction in multi-ethnic populations. Insulin resistance and early metabolomic changes; integrating genetic and metabolomic data for risk stratification, differential diagnosis and personalised follow-up in childhood and adolescence.* 40 min presentation · 20 min interactive discussion

SESSION III

Tuesday 23 February 2027

Adult medicine: inflammation, metabolism and brain ageing

Chairs: Prof. Massimo Agosti (Varese) • Prof. Gjeorgjina Kuli-Lito (Tirana, Albania)

16:00 – 20:00 | Ravenala plenary room | 4 lectures of 60 minutes

Time	Lecture
09:30–12:30	***One-to-one meetings with the faculty, by appointment*** *— see "One-to-one meetings with the faculty"*
16:00–17:00	**Keynote lecture — Metabolome–microbiome interaction and disease: from dysbiosis to chronic disease** **Prof. Vassilios Fanos** · **Cagliari** *The dialogue between microbiome and metabolome as a key to understanding adult diseases: host–microbiota co-metabolism, microbial metabolites with systemic activity (short-chain fatty acids, tryptophan derivatives, secondary bile acids), chronic low-grade inflammation and its impact on metabolic, cardiovascular and neurodegenerative diseases. Introductory framework for the day.* 40 min presentation · 20 min interactive discussion
17:00–18:00	**Oral microbiota and the immune system: from the mouth to systemic inflammation** **Prof. Cristiano Rumio** · **Milan** *Mucosal barriers and innate and adaptive immunity; the mouth–gut axis; oral dysbiosis as a driver of chronic low-grade inflammation and its links with metabolic and neurodegenerative diseases.* 40 min presentation · 20 min interactive discussion
18:00–19:00	**Obesity, metabolic syndrome and type 2 diabetes in adults: metabolomic phenotypes and personalised intervention** **Dr Suren Budhan** · **Mauritius** *Obesity, fatty liver disease, insulin resistance and type 2 diabetes in multi-ethnic populations; metabolomic biomarkers predictive of progression and complications; from biochemical profile to personalised nutritional and therapeutic intervention, with continuous monitoring tools in clinical practice.* 40 min presentation · 20 min interactive discussion
19:00–20:00	**Parkinson's disease and dementia: urinary metabolomic biomarkers for early diagnosis and monitoring** **Dr Carla Marzetti** · **Bologna** *The dopaminergic pathway, mitochondrial oxidative stress and the microbiota–gut–brain axis; the metabolomic profile in mild cognitive impairment (MCI) and Alzheimer's disease; prevention and monitoring.* 40 min presentation · 20 min interactive discussion
20:00–20:15	***Final discussion, key messages and closing*** *— V. Fanos*
20:15	*Completion of the satisfaction questionnaire*

One-to-one meetings with the faculty

On the mornings of the three plenary days, participants can meet a faculty member individually to discuss one of their own clinical cases, the reading of a metabolomic profile or the introduction of metabolomics into their professional practice. The experts available each morning are chosen in line with the theme of the afternoon session.

When	Friday 19, Monday 22 and Tuesday 23 February 2027, from 09:30 to 12:30
Format	Individual 30-minute meetings with a faculty expert (6 meetings per expert per morning)
Content	Discussion of a clinical case brought by the participant; guided reading of a metabolomic profile; setting up follow-up pathways; integrating metabolomics into one's own clinical work
Booking	Through the organising secretariat, subject to availability; meetings are allocated in order of request
Requirements	Clinical cases must be presented anonymously, without any data that could identify the patient

Available experts

Morning	Experts and areas of discussion
Friday 19 February *Foundations and early origins*	**Prof. Vassilios Fanos** — urinary metabolomics, neonatology and the early origins of health
	Dr Carla Marzetti — reading and interpreting the urinary metabolomic profile
	Prof. Massimo Agosti — perinatal period, postpartum depression and breastfeeding
Monday 22 February *Precision paediatrics*	**Prof. Carlo Capristo** — cow's milk protein allergy and the path to tolerance
	Prof. Marco Carotenuto — neurodevelopment, autism spectrum disorder and sleep
	Dr Pamela Paoletti — paediatric nutrition and childhood obesity
Tuesday 23 February *Adult medicine*	**Prof. Cristiano Rumio** — oral microbiota, immunity and systemic inflammation
	Dr Suren Budhan — obesity, metabolic syndrome and type 2 diabetes
	Dr Carla Marzetti — metabolomic biomarkers in neurodegeneration

The one-to-one meetings are for educational purposes only and do not constitute clinical consultation on individual patients.