



14th CONGRESS of the INTERNATIONAL SOCIETY FOR AUTONOMIC NEUROSCIENCE

Joint Meeting with EFAS - European Federation of Autonomic Societies



BOLOGNA – ITALY, 2-5 SEPTEMBER 2026



PROGRAM

Organizing Secretariat:



Ph: +39 051-6564300

conference@avenue-media.eu - www.avenuemedia.eu



CHAIRS

Chiara Berteotti - Davide Martelli
(University of Bologna)

ORGANIZING COMMITTEE

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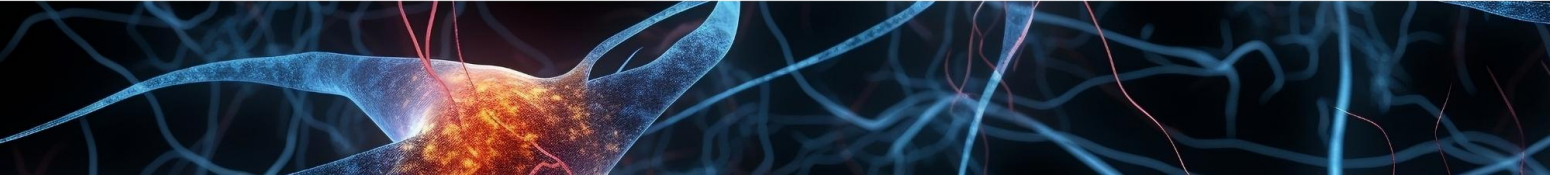
PRESENTATION

The 14th Congress of the International Society for Autonomic Neuroscience (ISAN), jointly organized with the European Federation of Autonomic Societies (EFAS), held at the University of Bologna (Italy), will focus on current advances in the understanding of autonomic nervous system physiology and pathophysiology, with particular emphasis on mechanisms of disease and translational perspectives.

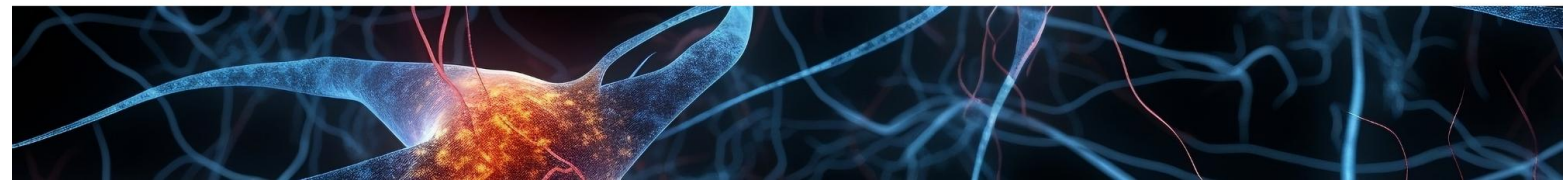
The scientific program is structured around keynote lectures, thematic symposia, hot topic sessions, and poster presentations covering both basic and clinical research. Major areas include cardiovascular autonomic regulation in health and disease, molecular and cellular drivers of cardiac autonomic dysfunction, and altered sympathetic activity in heart failure. Specific sessions address electroceuticals and neuromodulation strategies, including vagus nerve stimulation, as well as transcriptomic and circuit-level analyses of autonomic ganglia.

Neuroimmune interactions represent a central theme of the meeting, with dedicated sessions exploring inflammatory neural circuits, sympathetic regulation of immune responses, and the role of autonomic pathways in obesity and cancer progression. Additional program components examine autonomic dysfunction in neurodegenerative disorders, multiple system atrophy, multiple sclerosis, protein misfolding diseases, and lysosomal storage disorders, with attention to mechanisms and clinical implications.

Clinical autonomic disorders are addressed through sessions on orthostatic syndromes and their management, as well as on sleep, circadian biology, and interoception in relation to autonomic regulation. Interdisciplinary perspectives also include autonomic involvement in gastrointestinal function and broader systemic diseases.



Overall, the congress program provides an integrated overview of current research directions in autonomic neuroscience, spanning molecular mechanisms, systems physiology, disease models, and clinical applications in the context of autonomic disorders, that represent a substantial and often under-recognized clinical burden across multiple medical specialties and require continued advances in mechanistic understanding to improve diagnostic and therapeutic strategies.



WEDNESDAY, 2 September 2026

ROOM 1

10.00 – 13.00 **EFAS session**
Practical session: Hands on

13.00 – 14.00 *Registration*

ROOM 1

14.00 – 15.00 **Opening ceremony**

15.00 – 16.00 **Keynote lecture ISAN**
Sympathetic neuroimmunity in obesity
Ana Domingos, *University of Oxford, UK*

16.00 – 18.00 Chemoreflex and Autonomic Dysfunction: From Mechanisms to Therapeutic Targets Across Diseases

Chair: Rodrigo Del Rio (University of Kansas Medical Center, USA)

Heart Failure with Preserved Ejection Fraction: Role of chemoreflex drive on tuning disease progression

Rodrigo Del Rio

Chemoreflex Adaptations in Metabolic Disease and Obesity

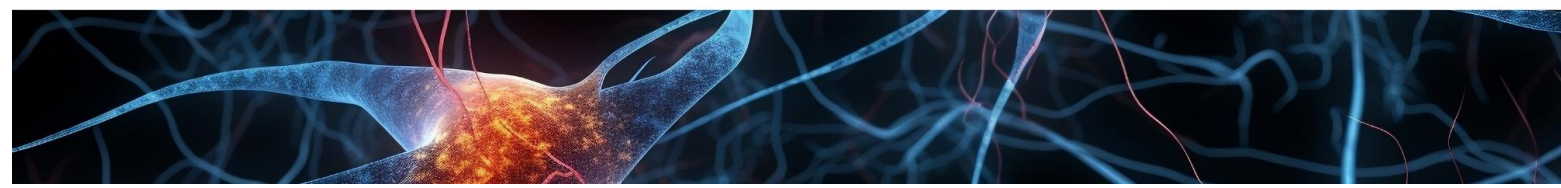
Silvia Conde

Chemoreflex Plasticity and Hypertension: Central and Peripheral Mechanisms

Deborah Colombari

Chemoreflex Sensitivity as a Therapeutic Target in Sleep Apnea and Heart Failure

Alberto Giannoni



WEDNESDAY, 2 September 2026

ROOM 2

16.00 – 18.00

Central and peripheral investigation of the autonomic regulation of cardiovascular function in health, disease and injury

*Chairs: Clement Menuet (Aix-Marseille University, France)
Davi J.A. Moraes (University of São Paulo, Brazil)*

Acute intermittent carotid bodies stimulations induce long-term facilitation of respiratory-cardiovascular coupling in rats

Ambre Linossier

Lateral parafacial neurons evoked expiratory oscillations driving neurogenic hypertension

Davi J.A. Moraes

Investigating end-organ regulation through direct cardiac autonomic nerve recordings

Julia Shanks

Heart and respiratory central regulation changes during the acute phase of brain injury

Baptiste Balanca



WEDNESDAY, 2 September 2026

ROOM 3

16.00 – 18.00

Beyond the Average Human: New Insights from Interindividual Variability in Autonomic Control

Chairs: Lauro C. Vianna (University of Brasília, Brazil)

James P. Fisher (University of Auckland, New Zealand)

Interindividual Variability in Muscle Sympathetic Nerve Activity at Rest and During Exercise: Disconnection with Blood Pressure

Philip Millar

Interindividual Variability in Sympathetic Contributions to Hypertension and Response to Interventional Therapies

Jens Jordan

Interindividual Variability in Autonomic and Hemodynamic Responses in Pulmonary Arterial Hypertension

Michael Plunkett

Interindividual Variability in Orthostatic Disorders: Mechanistic and Clinical Insights

Marie-Claire Seeley



WEDNESDAY, 2 September 2026

ROOM 4

16.00 – 18.00

Early detection and monitoring of disease progression in protein misfolding diseases and lysosomal storage disorder

Chairs: Astrid Juhl Terkelsen (Aarhus University Hospital, Denmark)

Max Hilz (Universitätsklinikum Erlangen, Germany & Icahn School of Medicine at Mount Sinai, USA)

Screening of patients with polyneuropathy and neurogenic autonomic dysfunction for early detection of amyloidosis and Lewy Body Disease

Astrid Juhl Terkelsen

Polyneuropathy as an early manifestation of REM body sleep disorder?

Naja Helt Andersen

Monitoring of patients and asymptomatic carriers with hereditary transthyretin amyloidosis to identify disease progression

Pietro Guaraldi

Similarities and differences between Fabry Disease and TTR Amyloidosis

Max Hilz

18.00 – 20.00

Welcome cocktail



THURSDAY, 3 September 2026

ROOM 1

08.30 – 10.30

Cardiovascular Autonomic Disorders in Clinical Practice

Chairs: Celine Gallagher (University of Adelaide, Australia)

Helen Eftekhari (University of Warwick, UK)

Mechanistic Insights into POTS and IST: Autonomic Dysfunction, Inflammation and Hemodynamic Regulation

Artur Fedorowski

Autonomic Mechanisms in Postural Orthostatic Tachycardia Syndrome: Reduced Stroke Volume, Brain Perfusion, and Postural Hyperventilation

Jacque Baker

Cardiovascular Autonomic Abnormalities in Post-Acute Sequelae of COVID-19: Mechanistic Overlap with POTS and Implications for Management

Marie-Claire Seeley

Clinical presentation & diagnostic work-up of post-viral/autoimmune POTS

Fabian Leys

Fixing Perturbed Physiology: Dietary Salt and Compression to Treat Postural Orthostatic Tachycardia Syndrome (POTS)?

Satish Raj

Patient's perspective: the POTS face we don't see, patient insights on living with POTS

Jennifer Camaradou



THURSDAY, 3 September 2026

ROOM 2

08.30 – 10.30

The Failing Dialogue: Molecular and Cellular Drivers of Cardiac Autonomic Dysfunction.

Chairs: Beth Habecker (OHSU School of Medicine, Portland, USA)

Hanjun Wang (University of Nebraska Medical Center, Nebraska, USA)

Precise nanomedicine targeting cardiac sympathetic afferents to treat chronic heart failure

Hanjun Wang

Non-invasively targeting cardiac sympathetic neurons with millimeter precision in patients with recurrent ventricular arrhythmias. A first in human study

Neil Herring;

The role of glial cells in the cardiac autonomic nervous system: The missing link for nervous hearts?

Katarina Scherschel

Head to heart: non-invasive assessment of sympathetic tone using sympathetic vasomotion.

Peter Pellegrino



THURSDAY, 3 September 2026

ROOM 3

08.30 – 10.30

Neuroimmune interaction: how much more do we have to discover?

Chairs: Alessandra Occhinegro (The Florey Institute, Australia)

Pedro Trevizan-Bau (McKnight Brain Institute, USA)

Peripheral mechanism of sympathetic anti-inflammatory action

Alessandra Occhinegro

Lung-innervating sympathetic nerves regulate airway inflammation

Pedro Trevizan-Bau

Disruption of vagal signaling impairs the central nervous system immune response to infection with murine neurotropic hepatitis virus JHM strain

Kaitlin Murray

TNF- α drives carotid body and autonomic dysfunction in dysmetabolic states: reversal through anti-inflammatory modulation

Silvia Conde

ROOM 4

08.30 – 10.30

Autonomic Dysfunction in Neurodegenerative Disorders: From Mechanisms to Therapies

Chairs: Giovanna Calandra Buonauro (University of Bologna, Italy)

Walter Struhal (University Hospital Tulln, Austria)

Mechanisms of Neurodegeneration

Paolo Calabresi

Autonomic Dysfunction in Neurodegenerative Disorders

Valeria Iodice

Symptomatic and Disease-Modifying Treatments in Neurodegenerative Disorders

Alessandra Fanciulli

10.30 – 11.30

Poster session 1 (and refreshment)

THURSDAY, 3 September 2026

ROOM 1

11.30 – 12.30	<p>Keynote lecture Sleep and the Autonomic Nervous System: Clinical Insights and Pathophysiology Pietro Cortelli; <i>University of Bologna, Italy</i></p>
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12.30 – 13.30 *Lunch*

ROOM 1

13.30 – 15.00 **Hot topic session**
TBD

15.00 – 16.00 *Poster session 2 (and refreshment)*

ROOM 1

16.00 – 18.00 Electroceuticals for controlling cardiorespiratory diseases
Chair: David J. Paterson (Oxford University, UK)

Selective stimulation of nerve fascicles within the vagus nerve
Swetlana Mastitskaya

Stellate ganglion modulation to control autonomic transmitter release
Tina Vrabec

Visceral afferent and autonomic modulation of cardiovascular function
John Osborn

Bionic pacemaking
Julian F.R. Paton



THURSDAY, 3 September 2026

ROOM 2

16.00 – 18.00

Precisely what is torpor? Can we synthesise it?

Chairs: Megan Elley (University of Bristol, UK);

Carla Frare (University of Bristol, UK)

Autonomic changes during natural torpor in the mouse

Steven Swoap

Engineering hibernation: Exploring synthetic torpor induction methods and future perspectives

Timna Hitrec

Brain Circuits and Central Mechanisms Enabling Survival under Extreme Conditions

Natalia Machado

Synthetic torpor: clone or counterfeit

William Wheatley

ROOM 3

16.00 – 18.00

Cardiac innervation patterns governing cardiovascular function in health and disease

Chairs: Olujimi Ajijola (University of California, USA)

Zixi Jack Cheng (University of Central Florida, USA)

Innervation of the human heart and changes associated with cardiomyopathy

Peter Hanna

Cardiac sympathetic neurons: victims and culprits in Arrhythmogenic Cardiomyopathy (ACM)

Tania Zaglia



THURSDAY, 3 September 2026

Cardiac vagal innervation of myocardial vasculature in the ovine heart

Julia Shanks

Heterogeneous cardiac sympathetic innervation gradients promote arrhythmogenesis in murine dilated cardiomyopathy

Olujimi Ajjola

ROOM 4

16.00 – 18.00

Autonomic Dysfunction in Multiple Sclerosis: From Mechanisms to Clinical Implications

Chairs: Claire Hentzen (Sorbonne Université, France)

Mario Habek (University Hospital Center Zagreb, Croatia)

How do the autonomic and immune systems communicate in multiple sclerosis?

Mario Habek

Central autonomic network disturbance in multiple sclerosis: implications for the clinic and research

Giorgio Guido

Urogenital and gastroenterological dysfunction in multiple sclerosis: implications for the clinic and research

Claire Hentzen



FRIDAY, 4 September 2026

ROOM 1

08.30 – 10.30

Dysfunction of the autonomic nervous system in cardiovascular disease

Chairs: Molly O'Reilly (Academic Medical Centre, Netherlands)

Laura Fedele (King's College London, UK)

Sympathetic neurons are involved in arrhythmogenic cardiomyopathy

Induja Perumal Vanaja

Ageing impairs the neurovascular interface in the heart

Julian Wagner

Superior Cervical Ganglion: a driver of carotid bodies hyperexcitation in hypertension

Igor Felipe

Sympatho-vagal cross talk in health and disease

Marmar Vaseghi

ROOM 2

08.30 – 10.30

Vagus nerve stimulation in epilepsy

Chairs: Vaughan Macefield (Monash University Melbourne, Australia)

Ayse Dereli (Université catholique de Louvain, Belgium)

Electrophysiological biomarkers for VNS in patients with refractory epilepsy

Riem El Tahry

Microelectrode recordings from the human vagus nerve during clinical vagus nerve stimulation

David Farmer

Vagus nerve activity modulations during absence seizures, NREM sleep, wake, and hypercapnia in epilepsy rat models

Elise Collard

Hypercapnic cardiorespiratory responses in epileptic rat models

Ayse Dereli

FRIDAY, 4 September 2026

ROOM 3

08.30 – 10.30 **Neuropeptides as Core Integrators of Cardiac Autonomic Function**

Chairs: Julia Shanks (*University of Auckland, New Zealand*)

Neil Herring (*University of Oxford, UK*)

The Cardio-Protective Mechanism of CGRP

Susan Brain

Rapid Measure and Closed-Loop Control of Neurotransmitters in the Porcine Heart

Corey Smith

Glucagon-like peptide 1 as a peptide modulator of cardiac electrophysiology

Frederike Lubberding

NPY Signalling in Human Cardiomyocytes and the Parallels in Patients Experiencing Myocardial Infarction

Neil Herring

ROOM 4

08.30 – 10.30 **Multiple system atrophy: from bench to bedside**

Chair: Alessandra Fanciulli (*University of Innsbruck, Austria*)

MSA: mechanisms of disease

Antonio Heras-Garvin

Advances in AI-supported MSA diagnostics and biomarker research

Christopher Gibbons

Cure MSA

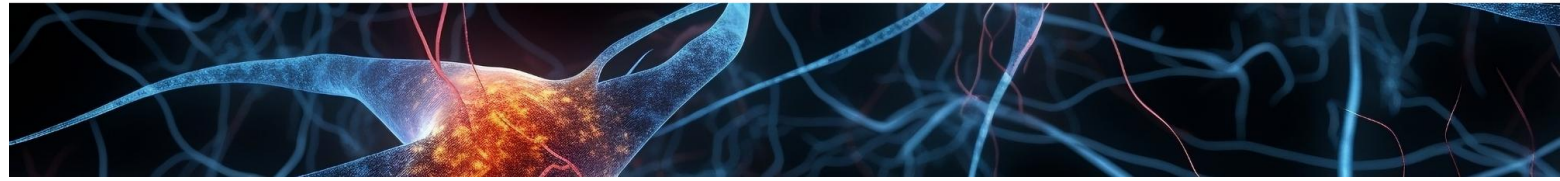
Margherita Fabbri

Care for people living with MSA

Alessandra Fanciulli

10.30 – 11.30

Poster session 3 (and refreshment)



FRIDAY, 4 September 2026

ROOM 1

11.30 – 12.30

Keynote lecture

Cancer neuroscience: the autonomic nervous system regulates cancer progression and treatment response

Erica K. Sloan; *Monash University, Australia*

12.30 – 13.30

Lunch

ROOM 1

13.30 – 15.30

Rethinking the definition of sympathetic and parasympathetic nervous systems

Chair: Thiago Moreira (*University of Sao Paulo, Brazil*)

The emergence of the terms sympathetic and parasympathetic. Scientific and clinical consequences

Alexandru Barboi

The sympathetic and other related systems of nerves

Jean Francois Brunet

Novel insights into neuro-humoral aspects involved in urinary bladder control

Monica A Sato

The autonomic nervous system: just a bunch of central pattern generators?

Vaughan Macefield



FRIDAY, 4 September 2026

ROOM 2

13.30 – 15.30

Transcriptomic Signatures of Autonomic Ganglia in Health and Disease

Chairs: Olujimi Ajijola (*University of California, USA*)

Neil Herring (*University of Oxford, UK*)

Developmental transcriptomic programs shaping sympathetic neuron identity and plasticity

Rejji Kuruvilla

Molecular heterogeneity and sensory coding in visceral afferent and parasympathetic pathways

Yuki Oka

Intrinsic Cardiac Ganglia & transcriptomic signatures in human cardiovascular disease

Peter Hanna

Spatial transcriptomic mapping of autonomic circuits in cardiovascular pathology

Karin A. Ziegler

ROOM 3

13.30 – 15.30

Altered regulation of sympathetic nerve activity in heart failure with preserved ejection fraction

Chair: Rohit Ramchandra (*University of Auckland, New Zealand*)

Control of muscle sympathetic nerve activity during rest and dynamic exercise in HFpEF

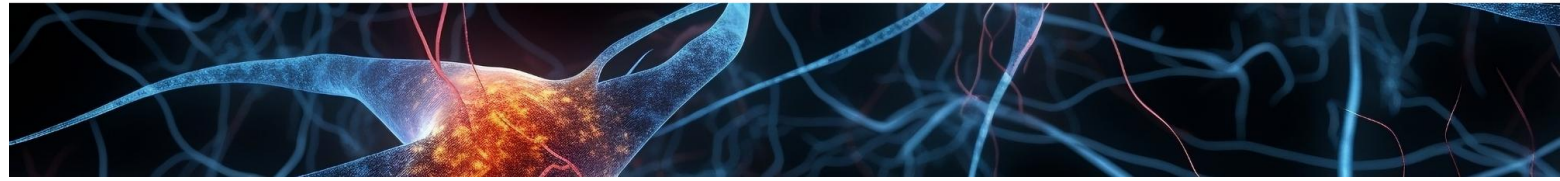
John Floras

Sex differences in sympathetic neural control in HFpEF

Qi Fu

Control of cardiac sympathetic nerve activity in ovine hypertensive HFpEF

Joshua Chang



FRIDAY, 4 September 2026

ROOM 4

13.30 – 15.30 **Interplay of interoception and the autonomic nervous system in health and disease**

Chairs: Diogo Reis Carneiro (University of Coimbra, Portugal)

Roland Thijs (Epilepsie Instellingen Nederland (SEIN), The Netherlands & Leiden University Medical Centre, Netherlands)

The new science of interoception and its relationship with the autonomic nervous system

Lucia Ricciardi

Measuring brain-heart and other organs interactions

Diego Candia-Riveira

Clinical implications of interoceptiveautonomic changes

Diogo Carneiro

15.30 – 16.30 *Poster session 4 (and refreshment)*

ROOM 1

16.30 – 17.30 **ISAN AGM**

19.30 – 23.00 *Conference dinner*



SATURDAY, 5 September 2026

ROOM 1

09.00 – 11.00

Inflamed Circuits: Brain Immune Cells Shaping Cardiovascular Outcomes

Chairs: Vagner R. Antunes (*University of Sao Paulo, Brazil*)

Song T. Yao (*The University of Melbourne, Australia*)

The effects of exercise training on blood pressure, microglia activation and BBB function.

Paula Gomes

Microglia and autonomic dysfunction in an ovine model of heart failure and cardiopulmonary by pass.

Lindsea Booth

IL-1b mediated increases in blood pressure in the area postrema via direct projections to the rostral ventrolateral medulla

Song Yao

Neuroimmune Crosstalk in Hypertension: ROR γ t as a Mediator of Angiotensin II-Induced Microglial Activation and BBB Breakdown

Shunguang Wei

ROOM 2

09.00 – 11.00

Interdisciplinary studies of nervous systems associated with the gastrointestinal tract and beyond

Chairs: Hiromi Tamada (*University of Fukui, Japan*)

Shinji Tanaka (*The University of Tokyo Hospital, Japan*)

Definition of molecular enteric neuron classes and their intrinsic connectivity patterns within the gut wall

Ulrika Marklund

Advances in our understanding of sensory nerves in the gut-brain axis –

Nick Spencer



SATURDAY, 5 September 2026

Volume-EM analysis for exploring new comprehension in gut innervation regulatory system

Hiromi Tamada

GLP-1 released from the gut protects the kidney through the nervous system

Shinji Tanaka

ROOM 3

09.00 – 11.00

Autonomic regulation in cardiovascular disorders: mechanisms and interventions

Chairs: Satish R. Raj (*University of Calgary, Canada*)

Kalyanam Shivkumar (*UCLA, USA*)

Interactions between Stroke Volume and Cerebral Blood Flow Dynamics

Martin Miranda-Hurtado

Autonomic Dysfunction in Atrial Fibrillation- Does Targeting the ANS Alter Outcomes

Varun Malik

Stellate Ganglionectomy for Ventricular Arrhythmias.

Peter Hanna

Carbon Dioxide as a Treatment for Orthostatic Hypotension.

Jacque Baker



SATURDAY, 5 September 2026

ROOM 4

09.00 – 11.00

Circadian System and Autonomic Regulation

Chairs: Pietro Cortelli (*University of Bologna, Italy*)

Max Hilz (*Universitätsklinikum Erlangen, Germany & Icahn School of Medicine at Mount Sinai, USA*)

Anatomy of Circadian System

Eduardo Benarroch

Circadian disorders and the Autonomic Nervous System

Federica Provini

Resetting the Circadian Clock: Emerging Approaches

Ambra Stefani

ROOM 1

11.00 – 12.00

Morning refreshment followed by

Keynote lecture ISAN.

Immunoregulation by sympathetic nerves: can neutrophils be selectively targeted?

Alexander A. Steiner; University of Sao Paulo

12.00 – 13.00

Closing ceremony

GENERAL INFORMATION

THE VENUE

Alma Mater Studiorum - Università di Bologna - Plesso Belmeloro

Via Andreatta, 8

40126 Bologna

USEFUL CONTACTS

Taxi Cotabo +39 051 372727

Radio Taxi Cat Bologna +39 051 4590

Private Car +39 051 519090

ORGANIZING SECRETARIAT



Viale Aldini 222/4 – 40136 Bologna - Italy

Tel. +39 051 6564300 | conference@avenue-media.eu | www.avenuemedia.eu

www.isan2026.com