



**3RD WORLD CONFERENCE ON
LUTEINIZING HORMONE IN ART:
APPLYING TECHNOLOGIES
LEARNING FROM NATURE**

**27-28 MAY 2022
NAPLES, ITALY**

FINAL PROGRAM



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WELCOME MESSAGE

Dear Colleagues,

It is a great pleasure to welcome you to the **3rd World Conference on Luteinizing Hormone in ART: Applying technologies, learning from nature**

This year's event builds upon the success of our first international conference on luteinizing hormone held in 2016. We will discuss the management of low prognosis patients in greater detail. Notably, we will move beyond controlled ovarian stimulation to explore further the role of LH activity when personalizing luteal phase support in IVF and for male infertility. Also, on the agenda will be extra-gonadal effects of LH, including a potential immune-modulation impact in the endometrium.

As your hosts, we would like to thank you for joining us here in Naples and hope that you will find this educational event scientifically stimulating, highly engaging, and enjoyable.

With kind regards,

CHAIRS



Carlo Alviggi
Federico II University
Naples, Italy



Sandro C. Esteves
Androfert – Andrology and Human
Reproduction Clinic
Campinas, Brazil



Robert Fischer
Fertility Centre Hamburg
Hamburg, Germany



Peter Humaidan
Fertility Clinic, Skive Regional Hospital
Faculty of Health, Aarhus University
Aarhus, Denmark

A night sky filled with stars, transitioning from a deep blue at the top to a lighter teal near the horizon. Below the sky, the dark silhouettes of mountain peaks are visible against the twilight sky. A white rectangular box with a dark teal tab on its left side is positioned in the lower right corner, containing the text 'GENERAL INFORMATION'.

GENERAL INFORMATION

3RD WORLD CONFERENCE ON LUTEINIZING HORMONE IN ART: APPLYING TECHNOLOGIES LEARNING FROM NATURE

CONFERENCE OVERVIEW

The role of luteinizing hormone (LH) during folliculogenesis has intrigued the scientific and medical community for at least three decades. There is an emerging galaxy of research to explore concerning this enigmatic subject. The availability of recombinant drugs now offers, for the first time, the opportunity to examine the role of follicle stimulating hormone and LH separately. An emerging topic during last year's conference was LH supplementation to improve the outcome in a subgroup of low prognosis patients selected according to POSEIDON classification.

During this conference we will discuss the management of these low prognosis patients in greater detail. Notably, we will move beyond controlled ovarian stimulation to explore further the involvement of LH in personalizing the luteal phase and in male infertility. Also the extra-gonadal effect of LH will be on the agenda, including potential immunomodulation at the endometrium.

Following the precedent set at last year's conference, considerable time will be devoted to basic science, alongside such controversial issues as progesterone rise and pharmacogenomics. This year we have attracted prominent scientists from the worlds of endocrinology, andrology, immunology and embryology to take part in our engaging educational program.

EDUCATIONAL OBJECTIVES

After attending the educational activities, learners will be able to:

- Estimate the importance of luteinizing activity during folliculogenesis and beyond.
- Assess the dynamics of hypothalamic-pituitary axis in the pathogenesis of hypo- and normo-gonadotropic amenorrhea.
- Comprehend the concept of relative gonadotropin deficiency.
- Discuss and debate the management of low prognosis patients.
- Comprehend the clinical utility of LH supplementation to patients classified according to the POSEIDON criteria.
- Discover the clinical relevance of LH supplementation in ART.
- Analyse the relevance of LH during the luteal phase and introduce the concept of individualized luteal phase support.
- Explore the potential role of LH in male infertility treatment.

TARGET AUDIENCE

This program is designed for clinicians and biologists working in assisted reproductive medicine, who want to acquire up-to date information to improve their current practice.

CONTINUING MEDICAL EDUCATION

The 3rd World Conference on Luteinizing Hormone in ART: Applying Technologies, learning from nature. Naples, Italy, 27/05/2022-28/05/2022 has been accredited by the European Accreditation Council for Continuing Medical Education (EACCME®) with 8 European CME credits (ECMEC®s). Each medical specialist should claim only those hours of credit that he/she actually spent in the educational activity.

Through an agreement between the Union Européenne des Médecins Spécialistes and the American Medical Association, physicians may convert EACCME® credits to an equivalent number of AMA PRA Category 1 Credits "TM". Information on the process to convert EACCME® credit to AMA credit can be found at www.ama-assn.org/education/earn-credit-participation-international-activities.

Live educational activities, occurring outside of Canada, recognised by the UEMS-EACCME® for ECMEC®s are deemed to be Accredited Group Learning Activities (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada.



This program has been submitted for accreditation to The CPD Certification Service, UK



VENUE

This conference will take place at the:

Royal Continental Hotel

Via Partenope, 38/44

80121 – Naples, Italy

www.royalgroup.it/royalcontinental/en

LANGUAGE

The official language of this conference is English.

PARTNERSHIPS

This program is designed in partnership with:

Italian Society of Embryology, Reproduction, and Research (SIERR) www.sierr.it

Italian Society of Fertility and Sterility (SIFES) www.sifes.it

Italian Society of Gynecology and Obstetrics (SIGO Federation) www.sigo.it

Portuguese Society of Reproductive Medicine (SPMR) www.spmr.pt

Turkish Reproductive Health Association (TSRM) www.tsrn.org.tr



PARTNERS



Archipelagos Institute of Marine Conservation
www.archipelago.gr

Archipelagos Institute of Marine Conservation is a non-profit, non-governmental organization committed to researching and defending the biodiversity of the Greek seas and islands, as well as the northeastern Mediterranean.

SCIENTIFIC SECRETARIAT

Luigi Carbone
Federico II University
Naples, Italy

Giuseppe Iorio
Federico II University
Naples, Italy

Raffaella Di Girolamo
Federico II University
Naples, Italy

Marika Rovetto
Federico II University
Naples, Italy

CME PROVIDER



Med.E.A. Medical Education Academy
Senior Medical Education Manager: Chloe Xilinas
chloe.xilinas@medea.academy
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ORGANIZING SECRETARIAT



Event Planet s.r.l.
Project coordinator: Marta Pani
marta.pani@eventplanet.it
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CHAIRS

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Carlo Alviggi

Federico II University
Naples, Italy

Sandro C. Esteves

Androfert · Andrology and Human
Reproduction Clinic
Campinas, Brazil

Robert Fischer

Fertility Centre Hamburg
Hamburg, Germany

Peter Humaidan

Fertility Clinic, Skive Regional Hospital
Faculty of Health, Aarhus University
Aarhus, Denmark

NATIONAL SCIENTIFIC COMMITTEE

Giuseppe Bifulco

Federico II University
Naples, Italy

Giuseppe De Placido

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St. Anna Hospital
Turin, Italy

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Federico II University
Naples, Italy



FACULTY

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Carlo Alviggi

Federico II University
Naples, Italy

Angela Baerwald

University of Saskatchewan
Saskatoon, Canada

Ernesto Bosch

IVRMA
Valencia, Spain

Klaus Bühler

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and Reproductive Medicine
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Livio Casarini

University of Modena and Reggio Emilia
Modena, Italy

Annamaria Colao

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IVIRMA Madrid
Universidad Rey Juan Carlos
Madrid, Spain

Peter Humaidan

Fertility Clinic, Skive Regional Hospital
Faculty of Health, Aarhus University
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Francesca Gioia Klinger

Saint Camillus International University of
Health Science
Rome, Italy

Antonio La Marca

Mother, Child and Adult
University of Modena and Reggio Emilia
Modena, Italy

Giuseppe Matarese

Federico II University
Naples, Italy

Raoul Orvieto

Tel-Aviv University
Tel-Aviv, Israel

Nikolaos P. Polyzos

Dexeus University Hospital
Barcelona, Spain

Roberta Rizzo

University of Ferrara
Ferrara, Italy

Matheus Roque

MATER PRIME - Reproductive Medicine
São Paulo, Brazil

Manuela Simoni

University of Modena and Reggio Emilia
Modena, Italy

Sesh K. Sunkara

King's College London
London, UK

Filippo Maria Ubaldi

GeneraLife, Centres for Reproductive
Medicine
Rome, Italy

Hakan Yarali



Anatolia IVF and Women's Health Center
Ankara, Turkey



AGENDA

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Day 1 – Friday, 27 May 2022

- 08.00 **Registration**
- 08.40 **Med.E.A. – Medical Education Academy welcome**
R. Fischer, Germany
- 08.45 **Conference welcome**
C. Alviggi, Italy
- 08.50 **Local welcome**
Gaetano Manfredi, *Mayor of Naples*
Matteo Lorito, *Rector of Federico II University*
Giuseppe Bifulco, *Director of the Maternal-Infant Health Department, University Hospital Federico II*
- 09.00 **Introduction and objectives**
 **Poll questions day 1**
S. C. Esteves, Brazil; P. Humaidan, Denmark
- 09.10  **Introductory lecture**
The dialogue between endocrine and immune systems in human reproduction
Seeking for a perfect ecosystem
G. Matarese, Italy

SESSION I

A deep dive into Folliculogenesis

Chairs: F. M. Ubaldi, Italy – E. Bosch, Spain

- 09.30  **New insights in follicular growth**
Continuous flow or cyclic waves?
A. Baerwald, Canada
- 09.50  **LH throughout follicle life**
From ocean depths to final undertow
A. La Marca, Italy
- 10.10  **Discussion**
- 10.30  **Coffee break**

SESSION II

Rays of light on impaired gonadotropins function

Chairs: M. Simoni, Italy – S. K. Sunkara, UK

10.50



FSH and LH deficiency

The sunrise of a new concept

C. Alviggi, Italy

11.10



LH in hypothalamic amenorrhea and PCOS

The breeze and the windstorm

A. Colao, Italy

11.30



LH activity and male infertility

The eighth color in the rainbow

S. C. Esteves, Brazil

11.50



Discussion

SESSION III

LH in good prognosis women: Hiking through the mountains of literature

Chairs: P. Humaidan, Denmark – H. Yarali, Turkey

12.20



Defining the right indicators of efficacy

A steep mountain to climb

S. K. Sunkara, UK

12.40



State of the art according to EBM

What's the view from the top?

M. Roque, Brazil

13.00



Discussion

13.20










Lunch

AGENDA

SESSION IV

LH in low prognosis patients: Seeking the balance in the forest

Chairs: R. Fischer, Germany – C. Alviggi, Italy








- 14.20  **Capability of Bologna criteria to discriminate low prognosis patients**
The original roots
H. Yarali, Turkey
- 14.40  **Capability of Poseidon criteria to discriminate low prognosis patients**
The growing tree
S. C. Esteves, Brazil
- 15.00  **Coffee break**
- 15.20  **LH in poor responders according to the Bologna and Poseidon criteria**
Diversity for evolution
P. Humaidan, Denmark
- 15.40  **LH in advanced maternal age and hypo-responders**
Exploring new paths in the wood
A. Conforti, Italy
- 16.00  **Revisiting poll questions day 1**
-  **Discussion**
- 16.30 **End of the first day**

Day 2 – Saturday, 28 May 2022

SESSION V

LH before, during and after COS: the cycle of soil cultivation

Chairs: K. Buhler, Germany; A. La Marca, Italy







- 09.00  **Wrap-up from day 1**
Poll questions day 2
- 09.10  **Androgens priming before COS**
The care in preparing furrows
N. P. Polyzos, Spain
- 09.30  **LH across COSs: The Duo-Stim**
The art of nourishing the soil
J. A. García Velasco, Spain
- 09.50  **LH for ovulation triggering**
The good harvest
R. Orvieto, Israel
- 10.10  **LH activity for luteal phase support**
Towards the final storage
P. Humaidan, Denmark
- 10.30  **Discussion**
- 11.10  **Coffee break**

AGENDA

SESSION VI

LH beyond the “frozen” concepts

Chairs: C. Alviggi, Italy – S. C. Esteves, Brazil

- 11.30  **New insights into the anti-apoptotic activity of LH**
Defending life in the world of ice
L. Casarini, Italy
- 11.50  **LH in fertility preservation**
A new way to prevent melting of glaciers
F. G. Klinger, Italy
- 12.10  **Extra gonadal activity of LH**
What's below the tip of the iceberg?
R. Rizzo, Italy
- 12.30  **Revisiting poll questions day 2**
-  **Discussion**
- 12.55 **Concluding remarks**
- 13.00  **End of the conference and closing lunch**



FACULTY DISCLOSURES

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The following faculty provided information regarding significant commercial relationships and/or discussions of investigational or non-EMEA/FDA approved (off-label) uses of drugs:

Carlo Alviggi	Declared receipt of honoraria or consultation fees: provision of services as consultant/advisor for Event Planet, EXCEMED and IBSA; and receipt of research grants from Merck. Participation in a speaker's bureau for Event Planet, EXCEMED, IBSA and Merck.
Angela Baerwald	Declared no potential conflict of interest.
Ernesto Bosch	Declared receipt of grants and contracts from Gedeon-Richter; honoraria or consultation fees from Ferring, Merck, MSD, Gedeon-Richter, IBSA and Roche Diagnosis; to be member of Ferring, Merck, MSD, Gedeon-Richter, Roche Diagnosis, Abbott and IBSA advisory boards; participation in Ferring, Merck, MSD, Gedeon-Richter speaker's bureaus; research funding from IBSA and Roche Diagnosis.
Klaus Bühler	Declared receipt of honoraria or consultation fees from Merck KGaA and Stiftung Endometrioseforschung.
Livio Casarini	Declared receipt of a grant and a speaker's honorarium from Merck KGaA.
Annamaria Colao	Declared no potential conflict of interest.
Alessandro Conforti	Declared receipt of honoraria or consultation fees from Merck Serono and Federico II University.
Sandro C. Esteves	Declared receipt of lectures fees from Merck and Medea, and research grants from Merck.
Robert Fischer	Declared receipt of honoraria or consultation fees for lectures from Merck.
Juan Antonio García Velasco	Grants, speaker fees or honoraria from Merck, Gedeon Richter, Ferring, Theramex, Organon, MSD and IBSA.

FACULTY DISCLOSURES

Peter Humaidan	Declared receipt of honoraria for lectures and unrestricted research grants: Merck, MSD, IBSA, Gedeon-Richter, Ferring, Theramex.
Francesca Gioia Klinger	Declared receipt of honoraria or consultation fees from AcadeMe Webinar and to be member of CryoLab advisory board.
Antonio La Marca	Declared receipt of grants, contracts and honoraria or consultation fees from Merck, MSD, Ferring, IBSA, Teva, Beckman, Roche and participation in Merck, Ferring speaker's bureau.
Giuseppe Matarese	Declared receipt of grants/contracts and honoraria/consultation fees from Merck, Biogen, Novartis, Amryt, Roche.
Raoul Orvieto	Declared receipt of honoraria or consultation fees from Merck and Ferring.
Nikolaos P. Polyzos	Declared receipt of grant from Merck Serono, Ferring, Theramex, IBSA, Organon, Besins International, Roche and Gedeon Richter and receipt of honoraria or consultation fees from Merck Serono, Ferring, Theramex, IBSA, Organon, Besins International, Roche and Gedeon Richter. Declared that his presentation will include discussion of off-labeled use of products.
Roberta Rizzo	Declared no potential conflict of interest.
Matheus Roque	Declared receipt of honoraria for lectures from Merck.
Manuela Simoni	Declared receipt of grants and contracts and honoraria or consultation fees from Merck.
Sesh K. Sunkara	Declared receipt of honoraria from Merck, Ferring, MSD, Pharmasure for non-promotional educational meetings.
Filippo Maria Ubaldi	Declared receipt of honoraria or consultation fees from Merck, MSD, Ferring, Gedeon Richter, Organon and Ibsa.
Hakan Yarali	Declared receipt of honoraria or consultation fees from Merck and IBSA.





FACULTY BIOGRAPHIES



CARLO ALVIGGI

Federico II University
Naples, Italy

Carlo Alviggi earned his MD degree in 1994, from the Faculty of Medicine of the University of Naples “Federico II” in Naples, Italy; he specialized in obstetrics and gynaecology in 1998, and gained a PhD in 2001, from the same university. During his career, he collaborated with: The Imperial College of London, in London, UK; the Laboratory of Immunology of the Italian National Research Council in Naples; and the Autoimmunity and Tolerance Laboratory of the University of California in Los Angeles, CA, USA. This network resulted in various publications, some of which concern new hypotheses on the pathogenesis of pelvic endometriosis. He is now an associate professor in reproductive medicine at the Fertility Unit of the University of Naples “Federico II”.

Professor Alviggi’s current research interests are the role of luteinizing hormone (LH) in folliculogenesis; the use of LH-containing drugs in patients undergoing ovarian controlled stimulation for IVF; the pathogenesis of pelvic endometriosis; oncofertility; reproductive endocrinology; and the genetics of human reproduction. He has participated in several national and international (phase 2 and 3) multicentric, prospective randomized trials.

Professor Alviggi has published extensively and has been invited to lecture at over 100 international meetings dealing with reproductive medicine and gynaecological endocrinology; he has also served as an ad hoc reviewer for international journals in these fields.



FSH and LH deficiency

The sunrise of a new concept



ANGELA BAERWALD

University of Saskatchewan
Saskatoon, Canada

Angela Baerwald PhD MD CCFP is a Family Physician, Clinician Investigator and Director of the Women's Health Research Lab in the Department of Academic Family Medicine at the University of Saskatchewan, Canada. Her research team studies the growth dynamics of ovarian follicles, corpora lutea, and the endometrium, in association with changes in hormone production, throughout the menstrual cycle. She has acquired expertise in characterizing how ovarian structure and function are altered in women using hormonal contraception and during the transition to menopause. Dr Baerwald's team also develops novel tools for imaging female reproductive tissues, including the ultrasound biomicroscope and synchrotron.



New insights in follicular growth
Continuous flow or cyclic waves?



ERNESTO BOSCH

IVI-RMA
Valencia, Spain

Ernesto Bosch is Medical Director of the Human Reproduction Unit of the Valencia Infertility Institute in Valencia, Spain, a position he has held since May 2010. He graduated from the medical school of the University of Valencia in 1992; this was followed by extensive training and experience in obstetrics, gynaecology, and reproductive medicine. The subject of his doctoral thesis, completed cum laude in 1999, was the influence of luteinizing hormone on oocyte quality. He has a Master's degree in Research on Health Sciences and an MBA in Healthcare Management.

Dr Bosch received the Scientific Program Prize Paper Award at the 2008 Annual Meeting of the American Society for Reproductive Medicine (ASRM). He is a member of the special interest group on reproductive endocrinology of the European Society of Human Reproduction and Embryology (ESHRE) and was a national representative of the Spanish clinicians on the ESHRE committee from 2014 to 2016.

Dr Bosch has published 62 papers in peer-reviewed journals and written more than 50 book chapters in the field of in vitro fertilization; he serves on the editorial board of *Fertility and Sterility* and *Reproductive BioMedicine Online*. He has given over 250 lectures at international meetings around the world.



KLAUS BÜHLER

Centre for Gynaecological Endocrinology and Reproductive Medicine
Stuttgart, Germany

Klaus Bühler is a specialist in reproductive medicine working in the Centre for Reproductive Medicine and Gynaecological Endocrinology in Stuttgart, Germany, and for the Endometriosis - Centre of the University Hospitals of Saarland – Frauenärzte am Staden – in Saarbrücken.

He specialized in Obstetrics and Gynaecology at the University of Tübingen where he also worked as a Senior Assistant until 1986. He furthermore operated as Assistant medical director at the University of Essen with special field of engagement in gynaecological endocrinology and reproductive medicine.

In addition to his clinical work, Dr. Bühler is Vice-Chairman of the German Scientific Endometriosis Research Foundation (SEF) and President of the German Dachverband for Biology and Medicine of Reproduction (peak-organisation of all scientific societies engaged in the field of reproductive medicine in Germany). He is also a member of the board of the European Society of Obstetrics and Gynaecology of German-French languages.

Since more than 20 years he is engaged in the National German IVF-Registry (Deutsches IVF-Register – DIR), the oldest IVF-registry and actually greatest with more than 1.5 million electronically documented treatment cycles. Dr. Bühler was the chairman from 2007 up to 2014.

He has also participated in several national and international symposia and workshops in the field of Reproductive Medicine. He published more than 100 scientific papers and book contributions.

He is honorary member of the Società Italiana di Medicina Perinatale and in 1989 he received the Research Award of the German Endometriosis Research Foundation.



LIVIO CASARINI

University of Modena and Reggio Emilia
Modena, Italy

Livio Casarini, Ph.D. in evolutionary biology, is researcher and professor of Molecular and Translational Endocrinology at the University of Modena and Reggio Emilia. Responsible of the research team in basic and translational endocrinology, where he studies the endocrine regulation of human reproduction, glycoprotein and sex steroid hormones and their receptors. His main scientific achievements account for studies of gonadotropin-mediated signaling, GPCR heteromerization and allosteric modulation of hormone-induced intracellular signals.



New insights into the anti-apoptotic activity of LH

Defending life in the world of ice



ANNAMARIA COLAO

Federico II University
Naples, Italy

Annamaria Colao is a Full Professor of Endocrinology at the Federico II University. She studied medicine from 1977 to 1983 at the same university. She was a fellow in Pituitary Physiopathology mentored by Prof. G. Lombardi from 1981-1986. She graduated in Endocrinology and Metabolic Diseases Magna cum Laude discussing a thesis on inferior petrosal sinus sampling in 1986 and received her PhD fellow in Endocrinological and Metabolic Sciences at the Department of Molecular Pathology, University Federico II of Naples in 1991. She was Chair of the Unit of Endocrinology of the Federico II University of Naples. She is also the Chair of the Health Care Provider University Hospital Federico II for Rare Endocrine Diseases granted from the Italian Minister of Health. Prof. Colao was appointed as the Italian Coordinator of the Endocrine Reference Network for the European Commission for Rare Diseases (ENDO-ERN). She is Chair of the Excellence European Center for Neuroendocrine Tumors granted by the European Society of Neuroendocrine Tumors and the Excellence National Center for Obesity (C.I.B.O.) granted by the Italian Society of Obesity. She is a member of number councils such as the CNGR (Comitato Nazionale Garanti per la Ricerca) National Committee for Research from April 2012-April 2015. President of the CNGR (Comitato Nazionale Garanti per la Ricerca) National Committee for Research from April 2015-April 2016. Administrative Council of the II University of Naples (now University Vanvitelli of Campania) from 2013-2017 and the Administrative Council of the Italian Institute of Technology 2017 until present. She has characterised scientific activities by publication of more than 800 full papers in international journals (IF 3139), more than 100 chapters in books and monographs and has made 40.439 citations.



LH in hypothalamic amenorrhea and PCOS

The breeze and the windstorm



ALESSANDRO CONFORTI

Federico II University
Naples, Italy

Alessandro Conforti obtained his MD degree in 2009 and in 2010 he was a Clinical Visitor at IVF at Hammersmith Hospital, London UK directed by Mr Stuart Lavery. During his specialization training, he worked in the Minimally Invasive Therapy Unit & Endoscopy Training Center at the Royal Free Hospital as Clinical Research Fellow under the guidance of Mr Adam Magos, Consultant Gynaecologist, from 2012 to 2013. During this period, he worked as Clinical Research Fellow in the Fetal Medicine Unit under the guidance of Mr Demetrios Economides, Head of the Fetal Medicine Unit, at the Royal Free Hospital, London. He acquired his specialty in Obstetrics and Gynaecology in 2015. In 2017, he obtained his PhD from the University of Naples "Federico II" with a thesis in Neuroscience and Reproductive Medicine devoted to the role of genetic variants of gonadotropins and their receptors in controlled ovarian stimulation. From 2019, he is assistant professor in Obstetric and Gynecology at University of Naples Federico II. Dr Conforti research interests focus on Minimally Invasive and Reproductive Gynecological Surgery, Reproductive Medicine, Reproductive genetics, ART and Oncofertility. He has served as ad hoc reviewer for many international journals and was author or co-author of several articles published in international peer-reviewed journals.



LH in advanced maternal age and hypo-responders

Exploring new paths in the wood



SANDRO C. ESTEVES

Androfert · Andrology and Human
Reproduction Clinic
Campinas, Brazil

Sandro Esteves, is the Medical Director of ANDROFERT Clinic, a Professor of Urology at the Faculty of Medical Sciences of the University of Campinas (UNICAMP), Brazil, and Honorary Professor of Reproductive Medicine at Aarhus University, Denmark. Dr. Esteves is a Board-certified Urologist and a Consultant in Reproductive Medicine with over 25 years of clinical experience. He has built a strong clinical and research portfolio designing and executing studies examining the relationship between male infertility and assisted reproductive technology (ART) outcomes, and treatment protocols for infertile couples undergoing ART. His interests also include quality management in Fertility Clinics, reproductive endocrinology, and development of models for patient consultation and treatment planning. Dr. Esteves is a co-founder of the POSEIDON group and holds leadership positions in the WHO Infertility Guideline Interest Group and the Brazilian Society of Urology (São Paulo Section). He serves as an Associate Editor of Andrology, Frontiers in Endocrinology, and International Brazilian Journal of Urology, and on the editorial board of a dozen Journals, including Nature Reviews Urology. Dr. Esteves is the author of 10 textbooks on infertility and reproductive medicine and has published over 350 peer-reviewed scientific papers. His h-index is 59 while his citation count is over 11K.



LH activity and male infertility

The eighth color in the rainbow



Capability of Poseidon criteria to discriminate low prognosis patients

The growing tree



ROBERT FISCHER

Fertility Centre Hamburg
Hamburg, Germany

Robert Fischer is the founder and Medical Director of the Fertility Center Hamburg (FCH) in Hamburg, Germany. Dr Fischer trained in obstetrics and gynaecology at the University Hospital of Münster, Germany, from 1979 to 1982 and at the Queen's Medical Centre, University of Nottingham, UK. In 1983, Dr Fischer pioneered the first German outpatient IVF unit in Hamburg and became its Medical Director. The unit moved to a new location in 1998, and its name was changed to the "Fertility Center Hamburg".

In July 1998, the Fertility Center Hamburg was one of the first centres, both in Germany and worldwide, to introduce quality management, and it was certified according to the ISO 9001 and accredited for IVF laboratories (ISO 17025). Dr Fischer's main research interests are in the development of stimulation protocols, luteinizing hormone supplementation, and gonadotropin-releasing hormone agonist triggering, as well as further development of quality management systems in IVF centres. He is a founding member of the European Society of Human Reproduction and Embryology (ESHRE); a founding member of the POSEIDON (Patient Oriented Strategies Encompassing Individualized Oocyte Number) group); Member of the Scientific Committee of Excellence in Medical Education (EXCEMED- formerly the Serono Symposia International Foundation) and Scientific director of Med.E.A.(Medical Education Academy) .



JUAN ANTONIO GARCÍA VELASCO

IVIRMA Madrid
Universidad Rey Juan Carlos
Madrid, Spain

Juan Antonio García-Velasco, MD, PhD, is the Chief Scientific Officer for IVIRMA Global and Director of IVI Madrid, where he attends his patients. He is also Professor of Obstetrics and Gynaecology at Rey Juan Carlos University, Madrid, Spain, where he is Director of their Master's Degree Programme in Human Reproduction.

Professor García-Velasco graduated from University Medical School, Madrid, in 1990 and received his obstetrics and gynaecology certification from La Paz Hospital, Madrid, in 1995. He completed his PhD in Medicine at Autonoma University, Madrid, in 1995, and from 1997 to 1998 studied at Yale University, New Haven, CT, under a Reproductive Endocrinology and Infertility Fellowship.

Professor García-Velasco's main research interests have been in IVF and endometriosis. He is the Principal Investigator of projects funded by the Ministry of Education and Ministry of Health in Spain, and has received awards from the Spanish Fertility Society, Spanish Society of Obstetrics and Gynaecology, and the European Society of Human Reproduction and Embryology. He has published over 190 peer-reviewed articles and 22 book chapters on human reproduction, endometriosis and hypo- and hyper-ovarian stimulation response. He is the Co-Editor of Reproductive Biomedicine Online.



LH across COs: The Duo-Stim

The art of nourishing the soil



PETER HUMAIDAN

Fertility Clinic, Skive Regional Hospital
Faculty of Health, Aarhus University
Aarhus, Denmark

Peter Humaidan is a specialist in reproductive endocrinology; Professor at The Fertility Clinic at the Skive Regional Hospital, Aarhus University, in Aarhus; and Honorary Professor at Odense University, Odense, Denmark. His scientific work has focused primarily on developing individualized treatment protocols for patients with infertility. His doctoral thesis (DMSc) explored the role of luteinizing hormone (LH) during the follicular and luteal phases in controlled ovarian stimulation (COS); his main current fields of research interest are: triggering ovulation with gonadotropin-releasing hormone (GnRH) agonists; the role of LH during the follicular and luteal phase; use of GnRH antagonists; and prevention of ovarian hyperstimulation syndrome (OHSS).

Professor Humaidan is the founder of the international society The Copenhagen GnRHa Triggering Workshop Group and co-founder of the POSEIDON (Patient Oriented Strategies Encompassing Individualized Oocyte Number) group, which suggested a new stratification system for the low prognosis patient to assisted reproductive technology treatment, as well as being a board member of the European Society of Human Reproduction and Embryology (ESHRE) special interest group for endocrinology. He has authored or co-authored more than 173 articles in international peer-reviewed journals (h-index 45, Google Scholar), as well as authoring the Danish guidelines for OHSS prevention and several chapters in textbooks. Professor Humaidan has a wide international scientific network and is frequently invited to speak at international conferences.



LH in poor responders according to the Bologna and Poseidon criteria

Diversity for evolution



LH activity for luteal phase support

Towards the final storage



FRANCESCA GIOIA KLINGER

Saint Camillus International University of Health Science
Rome, Italy

Francesca Gioia Klinger is Professor in Histology at Saint Camillus International University of Health Science in Rome.

Francesca Gioia Klinger has a broad background in reproductive and developmental biology, in histology, and stem cell biology, with a primary focus on investigating how chemotherapy treatment can impact on subsequent female fertility and ovarian function.

Prof. Klinger possesses expertise on handling and culture oocytes and ovarian follicles, culture of primordial germ cells and stem cells of different sources (embryonic, adult, induced), morphological, biochemical, histological and molecular biology techniques.

This expertise has allowed Dr Klinger to establish strong collaborations with national and international research groups. Three main research lines are currently followed in the laboratory: 1) Study of new mechanisms to protect the ovary from chemotherapeutic treatments; 2) Effect of LH on damage induced in mouse ovarian somatic cells by chemotherapeutic drugs; 3) Reprogramming mesenchymal stem cells into PGCLCs in vitro.



LH in fertility preservation

A new way to prevent melting of glaciers



ANTONIO LA MARCA

Mother, Child and Adult
University of Modena and Reggio Emilia
Modena, Italy

Antonio La Marca is Professor of Obstetrics and Gynecology at the Mother-Infant Department of the University of Modena and Reggio Emilia, Italy and he is the Medical Director of Clinica Eugin, Modena, Italy. He graduated in Medicine and Surgery at the University of Siena in 1996, specializing in Obstetrics and Gynaecology at the same institution in 2001. In 2006 he obtained a PhD, again at the University of Siena.

He has been working at the Institute of Gynaecology and Obstetrics of the University Hospital of Modena since 2003. His clinical activity covers all the field of Reproductive Medicine and Surgery and has taken part in thousands of IVF cycles, laparoscopic and hysteroscopic surgical procedures. Present scientific interests include: ovarian reserve and pharmacological manipulation of ovarian activity.

His most impactful articles concerned the physiological significance of AMH and AFC, their measurement and clinical utility. Moreover, he has published a long list of original articles dealing with the prediction of ovarian reserve and response in IVF and the personalization of ovarian stimulation protocols. He is author or coauthor of 128 articles published in peerreviewed journals and authored many 26 Antonio La Marca University of Modena and Reggio Emilia and Clinica Eugin Modena, Italy chapters in national and international textbooks. He has been an Invited speaker in more than 100 international congresses. He is involved in several phase three and four trials as Principal Investigator and is the recipient of many competitively assigned research funds. He is an active member of many national and international professional and scientific societies and a consultant for the Italian Ministry of Health for female fertility-related issues.



LH throughout follicle life

From ocean depths to final undertow



GIUSEPPE MATARESE

Federico II University
Naples, Italy

Giuseppe Matarese obtained the degree in Medicine and Surgery in 1994 at the University "Federico II" in Napoli and in 1999 the Residency in Clinical Pathology; in 2004 he became a PhD in Endocrinological and Metabolic Sciences. During his residency, fulfilling his clinical and experimental training at the University of Napoli and at the Imperial College in London (UK), Prof. Matarese spent two years as research scientist at the Department of Immunology at the Imperial College of London (1997-1998). After education, Matarese settled his own laboratory at the Department of Cellular and Molecular Biology and Pathology of Federico II University and at the Institute of Experimental Endocrinology and Oncology at CNR in Napoli, where he guides a research group working on the relationship between immune system, autoimmune susceptibility and metabolism. Prof. Matarese has been appointed as Researcher in 2001 and First Class Researcher in 2005 at the Istituto di Endocrinologia e Oncologia Sperimentale del Consiglio Nazionale delle Ricerche (IEOS-CNR) in Napoli. In December 2010 Prof. Matarese obtained qualification as Full Professor in General Pathology & Immunology at University of Bari, and in December 2011 he has been appointed by the Faculty of Medicine from University of Salerno; in November 2015 he was appointed by Dipartimento di Medicina Molecolare e Biotecnologie Mediche (DMMBM) at Università di Napoli Federico II; is currently the group leader of the Laboratory of Immunometabolism and of the Treg Cell Lab at DMMBM and IEOS-CNR in Napoli. Prof. Matarese is a leading expert of immunometabolism, being one of the first to discover the link between adipose tissue, metabolism and Treg cell biology. Prof. Matarese is currently recipient of a series of Research Grants from private and public institutions and, among them, he is currently an ERC-Consolidator Grantee (call ERC call 2012 - acronym: menTORingTregs), and was among some of the few recipients in Italy of an ERC-Starting Grant (first ERC call 2007 - acronym: LeptinMS) of the very first call in 2007.



The dialogue between endocrine and immune systems in human reproduction

Seeking for a perfect ecosystem



RAOUL ORVIETO

Tel Aviv University
Tel Aviv, Israel

Raoul Orvieto is Professor of Obstetrics and Gynecology and incumbent of the Tarnesby-Tarnowski Chair for Family Planning and Fertility Regulation at the Sackler Faculty of Medicine, Tel Aviv University, Israel. Professor Orvieto is also Director of the Division of Reproductive Endocrinology and Infertility at the Sheba Medical Center Hospital – Tel Hashomer in Ramat Gan, Israel.

Professor Orvieto's scientific interests include: various aspects of controlled ovarian hyperstimulation (COH); the role of gonadotropin-releasing hormone (GnRH) analogues, and specifically GnRH agonist versus antagonist in COH for in vitro fertilization; pre-implantation genetic screening; and triggering final follicular maturation. He also focuses on several aspects of ovarian hyperstimulation syndrome: pathophysiology, prediction, prevention, and its relation to the inflammatory response.

Professor Orvieto is Co-Editor-in-Chief of *Reproductive Biology and Endocrinology* (impact factor 2.849). He has also authored or co-authored more than 300 publications in national and international journals.



LH for ovulation triggering

The good harvest



NIKOLAOS P. POLYZOS

Dexeus University Hospital
Barcelona, Spain

Nikolaos P. Polyzos is the Clinical and Scientific Director of the Department of Reproductive Medicine of Dexeus University Hospital in Barcelona, Spain, and a Professor of Reproductive Endocrinology in the Department of Clinical Medicine in the University of Aarhus in Denmark.

He has served as a Medical Director in the Centre for Reproductive Medicine in Brussels until 2017 and as a Professor in Brussels until 2019. Professor Polyzos is the principal investigator in several large pioneering multinational trials and a key opinion leader in the field of Reproductive Medicine for the treatment of poor ovarian responders in IVF programs, prediction of ovarian response and premature ovarian ageing, with more than 150 invited lectures in international congresses.

He is a Section Editor in RBMO, member of the ESHRE guideline development group for ovarian stimulation and has served as an Editorial Consultant for the PIER (Physician's Information and Education Resource) of the American College of Physicians (ACP). Professor Polyzos has published more than 140 publications in peer-reviewed journals indexed in Pubmed with more than 3600 citations and an h index of 36 in ISI web of Science. His research interests include reproductive endocrinology, ovarian reserve markers, poor ovarian response to stimulation and genetics of premature ovarian aging.



Androgens priming before COS

The care in preparing furrows



ROBERTA RIZZO

University of Ferrara
Ferrara, Italy

Roberta Rizzo is a Full Professor in Microbiology and Clinical Microbiology at the University of Ferrara (Italy). She is supervisor a number of projects in the field of viral infections in central nervous system diseases, pregnancy, female infertility, tumors and autoimmune diseases. During her career she made important researches to unraveling networks between herpesvirus infections and host immune system and the role of HLA-G molecules in pregnancy and autoimmune diseases. She has established national and international collaborations with leading group in the field of immunology and microbiology. These collaborations have been instrumental for developing her studies, as confirmed by the 182 peer reviewed manuscripts published in international journals.



Extra gonadal activity of LH *What's below the tip of the iceberg?*



MATHEUS ROQUE

MATER PRIME – Reproductive Medicine
São Paulo, Brazil

Matheus Roque is the Scientific Director at Origen – Center for Reproductive Medicine, Brazil. Dr. Roque obtained his degree in Medicine in 2003 at the Marília Medical School, Marília, Brazil and he is currently working towards his PhD in Women's Health at the Universidade Federal de Minas Gerais, Belo Horizonte, Brazil. He obtained his Masters in Reproductive Medicine in 2012 at the Universitat Autònoma de Barcelona, Barcelona, Spain, and completed a Fellowship in Human Reproduction during 2009 –2010 at the Universidade Federal de São Paulo, São Paulo, Brazil.

Dr. Roque has authored many scientific articles and book chapters, and has served as a reviewer for several indexed medical journals. He has been an active participant in many international and national congresses in reproductive medicine and urology, presenting abstracts and lectures. Dr. Roque has participated in the 2015 European Society of Human Reproduction and Embryology (ESHRE) Annual Meeting as an Invited Speaker delivering the lecture Towards a “freeze-all” policy. Fertility and Sterility has recently acknowledged Dr. Roque in recognition of his contribution to the quality of the journal. Moreover, one of his papers featured in the top 5 most highly cited papers published in Fertility and Sterility during 2014 and 2015. He has been recently awarded with the GFI – Grant for Fertility Innovation, with the project entitled “Pharmacogenetic algorithm for individualized Controlled Ovarian Stimulation (iCOS)”. He is currently a member of ESHRE, the American Society for Reproductive Medicine, the Brazilian Society for Assisted Reproduction, and the Brazilian Society of Urology.



State of the art according to EBM

What's the view from the top?



MANUELA SIMONI

University of Modena and Reggio Emilia
Modena, Italy

Manuela Simoni trained as a clinical endocrinologist at the Endocrinology Unit of the University of Modena in Italy between 1982 and 1990, following this with training as a molecular endocrinologist at the Institute of Reproductive Medicine of the University of Münster in Germany. She was Professor for Endocrinology and Molecular Biology of Reproduction at the University of Münster from 1998 to 2008, being appointed to her current position as Professor of Endocrinology at the University of Modena and Reggio Emilia in 2008.

Professor Simoni's research interests are in: gonadotropin and androgen action; testicular function; male infertility; and the endocrinology and pathophysiology of reproduction. She is a member of several societies, including the European Academy of Andrology (EAA) and the European Society of Endocrinology (ESE), serving as the ESE secretary until April 2018, and is active on the editorial boards of several journals in the fields of endocrinology and reproduction. She has been Co-Editor-in-Chief of *Andrology*, the official journal of the EAA and the American Society of Andrology (ASA), since January 2017.



SESH K. SUNKARA

King's College London
London, UK

Sesh Sunkara is a Senior Clinical Lecturer in Reproductive Medicine at King's College London. She is a Subspecialist in Reproductive Medicine and Surgery having initially specialised in general Obstetrics and Gynaecology. She is a Fellow of the Royal College of Obstetricians and Gynaecologists (FRCOG), UK. Her research work on poor responders undergoing IVF formed the basis for her thesis leading to her Research degree in Reproductive Medicine; Doctor of Medicine (MD) awarded by King's College London. She has dual accreditation with the UK General Medical Council as a Specialist in Obstetrics and Gynaecology as well as a Subspecialist in Reproductive Medicine. She worked as a Consultant gynaecologist and Subspecialist in Reproductive Medicine at the Aberdeen Fertility Centre, University of Aberdeen and then moved to Queens Hospital, Barking Havering and Redbridge University Hospitals, Essex UK to set up and leads the IVF service.

In addition to her clinical work, Dr Sunkara has published over 50 PubMed indexed peer reviewed research papers and authored several book chapters in the field of Reproductive Medicine. She is currently Associate Editor for Human Reproduction Update Journal was previously Associate Editor of the Human Reproduction Journal from 2014 to 2018. She is on the Editorial Board of Reproductive Biology and Endocrinology and Associate Editor of Gynecologic and Obstetric Investigation Journals. She has organized several national and international symposia and workshops.

Dr Sunkara is a member of the ESHRE Guideline Development Group (GDG) for Ovarian Stimulation in IVF and upcoming ESHRE Guideline on Unexplained Infertility. She is Deputy Chair for the RCOG Reproductive Medicine Clinical Studies Group (2015-current), which is actively involved in supporting multicenter research studies in the UK.



Defining the right indicators of efficacy

A steep mountain to climb



FILIPPO MARIA UBALDI

GeneraLife, Centres for Reproductive Medicine
Rome, Italy

Filippo Maria Ubaldi is the Scientific Director of GeneraLife, International Reproductive Medicine network (more than 30 Centres in Italy, Spain, Sweden and Czech Republic). With academic degrees in Ob & Gyn, Masters in Andrology and Reproductive Medicine, PhD in Andrology at the Vrije Universiteit Brussel, he is also intensely dedicated to scientific activity.

Author and co-author of 205 scientific papers with Scopus H-index of 53, he has been invited as speaker at > 600 National and International congresses on the topic of Reproductive Medicine. Member of the ESHRE Executive Committee during 2005-2009, he has been Chairman of the 26th ESHRE Annual Meeting held in Rome in June 2010.

In 2014 and 2019 he received the Italian National Scientific License as full Professor in Obstetrics and Gynaecology and at the present is the Chairman of the Italian Society of Fertility and Sterility (SIFES).



HAKAN YARALI

Anatolia IVF and Women's Health Center
Ankara, Turkey

Hakan Yarali, MD, is the founder and Clinical Director of Anatolia IVF Center, Ankara, Turkey, one of the busiest private IVF centers in Turkey, and is also Professor at Hacettepe University, Ankara, Turkey. Following medical school and residency training in OB/GYN at Hacettepe University, he did his clinical fellowship at University of British Columbia, Department of Obstetrics and Gynecology, Division of Reproductive Endocrinology and Infertility, Vancouver, Canada during 1991-1992.

His special interests are clinical IVF-all aspects, in particular, luteal phase in both fresh and frozen embryo transfer cycles and management of low-prognosis patients. Dr. Yarali has published over 120 original articles, 80 abstracts, 7 book chapters and delivered 60+ lectures worldwide. He has received several national and international awards, including his recognition by Human Reproduction to have produced the top contributing article to Human Reproduction's 2014 impact factor. Anatolia IVF is currently a part of several ongoing multi-nation and multi-center collaborative projects.

Professor Yarali and his team have been organizing several preceptorship programs, training clinicians and embryologists from diverse countries. He has also organized several national and international meetings. Dr. Yarali was the former president of Turkish Society of Reproductive Medicine (TSRM).



Capability of Bologna criteria to discriminate low prognosis patients

The original roots



FUNDING



FUNDING

Our educational activities are supported by an independent grant from the Healthcare business of Merck KGaA, Darmstadt, Germany; and additional support from FUJIFILM EUROPE GMBH, Fujifilm Italia S.p.A., FUJIFILM France S.A.S and S&R Farmaceutici Spa.



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