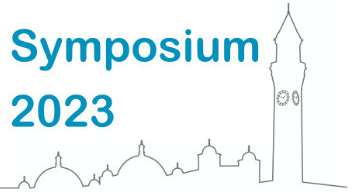


# ARCS Symposium 2023

Association of Reproductive & Clinical Scientists



**The Fry Suite  
Edgbaston Park Hotel  
University of Birmingham**

**Friday 29<sup>th</sup> September 2023**



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# Welcome to the ARCS Symposium 2023

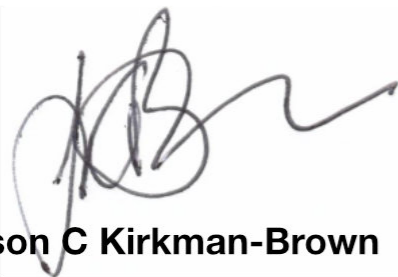
It is our pleasure to welcome you back to the ARCS Symposium, held at the Edgbaston Park Hotel, University of Birmingham. Building on the success of last years event, we are delighted that we can bring ARCS members together to celebrate another successful year.

The emphasis on this meeting is to provide up to date information, support and an applied approach to reproductive sciences, allowing delegates time to network and meet with exhibitors and colleagues in a relaxed, friendly environment.

ARCS is a multi-disciplinary society, bringing together all aspects of Reproductive Science. Whether you are an Andrologist, Embryologist, a Research Scientist, a Mathematician(!) or anything in-between, ARCS is here to support and promote the needs and development of our global community.

We would like to thank all our sponsors, including the Centre for Human Reproductive Science at the University of Birmingham which has a notable history in reproduction, as well as Dr Meurig Gallagher, local organiser, for hosting us, and acknowledge the hard work and dedication of the ARCS Programme Committee to put this year's scientific programme together.

We very much look forward to a fantastic day of high-quality science and the chance to meet face-to-face again with as many members as possible.



**Jackson C Kirkman-Brown**  
Chair ARCS



**Karen Schnauffer**  
Chair ARCS Programme Committee

**ARCS**  
Association of Reproductive & Clinical Scientists

# Welcome back to Birmingham

Welcome back to Brum, the UK's Second City!

Birmingham dates back to 10,500 years ago, when a Stone Age settlement was formed in the Digbeth area, now better known for the Selfridges 'Bullring' building. The Romans also left their mark on the city's landscape, with a major fort actually on the site of the University (just across the road from the train station).

Once famous as a 'City of a Thousands Trades' and the 'Toyshop of Europe', Birmingham was a world leader in the production of toys, pens, buckles, buttons, jewellery and guns. Locals boast of having 'more canals than Venice' (35 miles as opposed to 26 miles!).

Birmingham became known as a leading model for 'municipal socialism' in Britain, guided by Joseph Chamberlain; the clock tower on campus is named 'Old Joe' in his memory. At the end of the 19<sup>th</sup> century, George Cadbury opened his chocolate factory and founded the Bournville village for the factory workers. JRR Tolkien was born locally and took inspiration for many places in Lord of the Rings from the city.

Today, Birmingham is a city that is energised by youth, with 65,000 students at our three universities and two university colleges.

We hope you enjoy your trip here, and take some time to explore...

**Meurig T Gallagher**  
Symposium Organiser

# Scientific Programme

Friday 29<sup>th</sup> September 2023

- 09:00 **Open registration, welcome refreshments, and exhibition**
- Morning session - The Fry Suite, Edgbaston Park Hotel**
- 10:00 **Welcome and introduction**
- Chairs:** Karen Schnauffer & Meurig Gallagher
- 10:10 **Non-invasive metabolic imaging and AI; innovative opportunities for gamete and embryo selection**  
Fabrizzio Horta, Monash University, Melbourne, Australia
- 10:40 **Reproductive Scientists: Necessity is the Mother of Invention**  
Helen Priddle, Laboratory Manager and Quality Lead at London Women's Clinic, Wales and Bristol
- 11:10 **Coffee break**
- 11:30 **Free communications session**  
*Generating a three-dimensional organoid culture model to study SSC maintenance and spermatogenesis in vitro* - Rajwa Mecca  
*Increasing awareness of routes into clinical academia for reproductive scientists* - Mollie Mcgrane  
*Functionalisation of human embryonic kidney 293T-cell-derived extracellular vesicles as a means of enhancing delivery towards boar sperm* - Montserrat Vallet Buisan
- 12:30 **Lunch, poster session, and exhibitor breakout sessions**
- Afternoon session - The Fry Suite, Edgbaston Park Hotel**
- Chair:** Celine Jones & Ellen Armstrong
- 14:00 **Minimally invasive microrobotic embryo transport for cases of recurrent implantation failure**  
Mariana Medina Sánchez, IFW Dresden
- 14:30 **A socio-legal perspective on experiences of donor conception and direct-to-consumer genetic testing: what is the role of law?**  
Caroline Redhead, The University of Manchester
- 15:00 **Coffee break and exhibitor breakout sessions**
- 15:45 **TRS Debate Live: This house believes that ICSI practices should be revised and updated.**  
For: Bryan Woodward, Against: Rachel Gregoire  
Chair: Jackson Kirkman-Brown
- 16:30 **ARCS Showcase**  
Jackson Kirkman-Brown, Hannah Newby
- 16:50 **Andy Glew People's Prize & Close**  
Jackson Kirkman-Brown
- 17:00 - 18:00 **Networking with refreshments**
- 19:00 **Conference dinner - The Lloyd Suite, Edgbaston Park Hotel**

## PICSI® Dish Clinical Outcome Data (2022)

A data sheet evidencing Physiological ICSI using the PICSI® Dish helps to improve outcomes for older couples and for patients with previous ICSI failure.

Large randomized control trials (RCTs) are the gold standard for effective research. Since hyaluronan-based sperm selection, so-called physiological ICSI, was introduced in the early 2000's (*Huszar et al., 2007*), many articles, including small RCTs, have been published claiming benefits of the technique: improved embryo development, increased pregnancy and implantation rates and decreased miscarriage rates (*Avalos-Duran et al., 2018*).

However, the need for a properly planned and large RCT persisted. In this data sheet we explore the latest publications: a large RCT and a recent retrospective study, supporting improved outcomes for older couples and patients with previous ICSI failure.

### Study One

**Physiological, hyaluronan-selected intracytoplasmic sperm injection for infertility treatment (HABSelect): a parallel, two-group, randomized trial (Miller et al., 2019).**

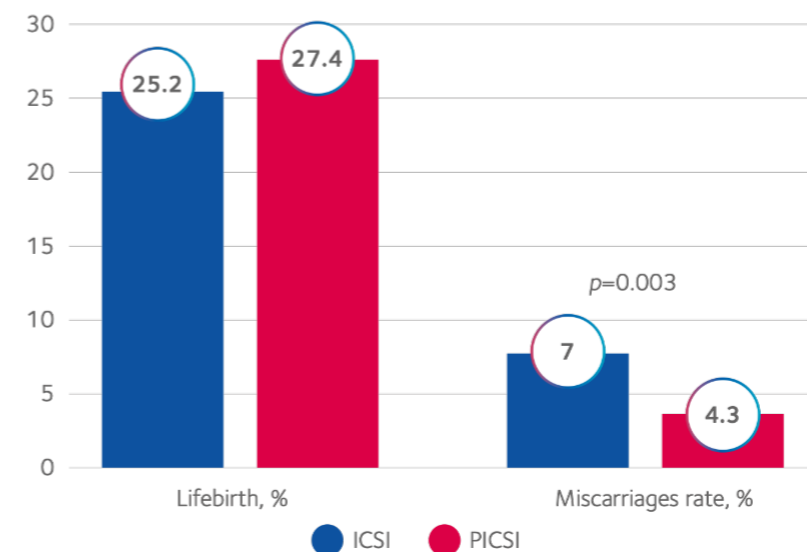
In 2019, Miller and colleagues published results from their HABSelect study – an RCT, supported by the UK National Institute for Health and Care Research.

- Carried out in 18 IVF centres in the UK
- Including 2,752 couples undergoing cycles of assisted reproduction
- Study compared physiological ICSI with PICSI® Dish with conventional ICSI

### Outcomes of study

- Live birth rate was not significantly improved by physiological ICSI using the PICSI® Dish
- The use of PICSI® Dish led to a significant decrease in the miscarriage rate (secondary outcome) compared to conventional ICSI (Fig.1)

Figure 1: Parallel, two-group, double-blinded RCT, carried out in 16 IVF clinics in the UK on 2,752 couples undergoing ICSI or PICSI



HABSelect study primary and secondary outcomes. PICSI significantly reduces miscarriage rates compared to conventional ICSI

# Invited Speaker

## Abstracts & Profiles

### **Fabrizio Horta**

Dr Fabrizio Horta is a medical reproductive scientist who started his career as a research Andrologist. He has been involved in IVF as a clinical Andrologist, clinical embryologist and lately as Scientific Supervisor of R&D. He has undertaken studies in Medical Science, Medicine, Master of Clinical Embryology and PhD studies at Monash University in Melbourne, including a fellowship in molecular and clinical Andrology as well as training in biomedical innovation and entrepreneurship. He currently works lecturing and developing research at the department of obstetrics and gynecology, Monash University and his research is focused on idiopathic infertility, male infertility, biomarkers and non-invasive biomarkers of gamete and embryo quality, sperm selection, Artificial Intelligence, reproductive genetics and technology innovation in Assisted Reproductive Technologies. Additionally, he also consults as Scientific Advisor in reproductive genetics and innovation in assisted reproductive technologies.

### **Helen Priddle**

Helen began her scientific career in stem cell research after a PhD in Molecular Biology in 1996. Whilst working for the University of Nottingham in collaboration with Nurture Fertility, she took an opportunity to retrain as a clinical embryologist in 2006. With the addition of an MA in psychotherapy in 2008, she has often focussed on more personal aspects of Fertility, researching and publishing on the experiences of the LGBTQI+ community, and the occupational health of the ART professional. Helen has served the Profession as Webmaster and Treasurer of ACE, and was part of the steering group taking ABA, ACE and BAS towards the formation of ARCS in 2020. In 2020, she was admitted as a Fellow to the Royal College of Pathologists, and just this year has gained Higher Specialist Scientists status with the Academy for Healthcare Science.

### **Mariana Medina Sánchez**

Dr. Mariana Medina Sánchez, a Mechatronics Engineering graduate from the University of San Buenaventura in Bogotá, Colombia, served as an assistant professor and researcher for nearly five years at the same university, skillfully balancing teaching and research. She furthered her education with postgraduate studies in education and biomedical engineering. Her pursuit of knowledge led her to Spain, where she earned both her Master's and PhD degrees at the renowned Catalan Institute of Nanoscience and Nanotechnology in Barcelona. There, she specialized in developing state-of-the-art nanomaterials-based and inkjet-printed electrochemical biosensors for disease diagnosis. Later, as a postdoctoral researcher at the Leibniz Institute in Dresden, Germany, Dr. Medina Sánchez made significant contributions, focusing on magnetically-actuated microcarriers for immotile sperm transport and highly sensitive rolled-up microsensors for nucleic acid detection. Her outstanding work earned her a promotion to group leader. Her research centers on medical microrobots and miniaturized sensors and actuator systems for biomedical applications, particularly in vivo assisted reproduction and targeted drug delivery. Recognized with a prestigious European Research Commission grant, she has served as an independent group leader since 2020. This year she was appointed as an Ikerbasque Research Professor at NanoGUNE, in San Sebastian-Spain.

### **Caroline Redhead**

Caroline Redhead is a Research Fellow in the Centre for Social Ethics and Policy at The University of Manchester. Having worked as a commercial solicitor for many years, in the UK and in Hong Kong, she moved from private practice to academia in 2020.

Caroline's research interests lie broadly in the dynamic interplay between law, ethics (particularly bioethics) and social change. She is particularly interested in the way legal and ethical frameworks are interpreted and experienced by people in their everyday lives, in decision-making processes and practices, and in exploring the role of law, regulation and the common good, especially in healthcare regulation. Caroline is currently working on the ConnecteDNA project, examining how the use of direct-to-consumer genetic testing is changing the landscape in which donor conception is experienced, and how it impacts the management of information about donor conception.

### **Bryan Woodward**

Bryan is a clinical embryologist at X&Y Fertility in Leicester, a clinic in the East Midlands specialising in male fertility. He trained in Sheffield and went on to read for a PhD in micromanipulation at the University of Nottingham. There he spent several years researching how to optimise the ICSI technique in various species including the mouse, cow and human. He is familiar with different types of ICSI rigs and use of polarised light imaging to observe oocyte ultrastructure.

Bryan previously served on the ExCos of ACE (as Secretary) and ABA (as Chair) and is presently the embryology representative on the ExCo of the British Fertility Society. He is a Fellow of the RCPATH and chaired the curriculum writing group for Part 1 and 2 in Reproductive Science.

In his spare time he climbs mountains and this photo was taken after the ascent of Aconcagua, the highest mountain in the Americas.

### **Rachel Gregoire**

Rachel has worked in the field of embryology for 21 years, starting her clinical training at Ninewells Hospital, Dundee where she completed a PhD in Developmental Medicine. In 2008 she moved to the Hewitt Fertility Centre Liverpool, one of the UK's largest assisted conception providers, as Senior and then Lead Clinical Embryologist. In 2014 she moved to Glasgow Royal Infirmary as Consultant Embryologist and HFEA Person Responsible where she led the scientific service in delivering cutting edge techniques and achieved a significant improvement in clinical and laboratory success rates. In 2017 Rachel returned to the Hewitt Fertility Centres in Liverpool and Knutsford as the Scientific Director and HFEA Person Responsible, where she continues to strive for excellence in laboratory techniques, and in clinical and laboratory success rates. The Hewitt Centres are leaders in the provision of training for future Reproductive Scientists with 11 Andrology and Embryology STPs currently training at the two centres. Rachel is passionate about the training and professional development of Reproductive Scientists, and is Co-Chair for the ARCS Education SIG who are working together to review and develop all curricula available for the ARCS membership. Rachel is also current Chair for NEQAS Reproductive Science Steering Committee for Embryology.

## Acknowledgements

ARCS and the local organisers would like to thank the following sponsors of ARCS and the Symposium who made the meeting possible, please take time to encourage their future support and find out more about them.



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# General Information

**Abstract submission:** Friday 1<sup>st</sup> September 2023, 23:59hrs.

**Meeting Registration:** The registration desk will be situated just inside the Fry Suite at the Edgbaston Park Hotel – from the entrance to the hotel, continue straight, turning right at the end of the bar.

The desk will be open from 9am on Friday 29<sup>th</sup> September 2023.

**Admission:** Entry to the scientific sessions and meal will be limited to badge wearers.

**Presentation format:** All oral presentations will be via PowerPoint. Any other presentation needs can only be catered for if speakers request in advance.

Speakers are asked to either email their presentations or bring a USB stick at least 20 minutes in advance of the session in which they are speaking in.

**Poster set-up:** Poster boards will be available in the Fry Suite where the meeting will be held. Please set up your poster during the open registration period, from 9am - 10am.

**Andy Glew Prize:** A judging panel selected a number of the poster abstracts for oral presentation at the meeting. The prize will be awarded for the top presentation on the day.

**Accommodation:** Accommodation booked during registration for the ARCS Symposium is located in the conference venue, the Edgbaston Park Hotel.

The address is:

53 Edgbaston Park Road,  
Birmingham. B15 2RS

<https://www.edgbastonparkhotel.com/meetings-and-events/fry>

Alternative accommodation of all types and budgets is also available for private booking within Birmingham city centre.

## Finding the conference site:

Conference activities will either take place in the Fry Suite (Scientific Programme), or the Lloyd Suite (Evening Programme), both are part of the Edgbaston Park Hotel.

**By road:** Please be aware that the centre of Birmingham now has a clean air zone ([www.shorturl.at/hvzHQ](http://www.shorturl.at/hvzHQ)). The conference venue is not within this zone, but if you are coming from the North you may pass through it.

Car parking is available in the Northeast Carpark, Pritchatts Road, B15 2SA. If your accommodation is in the Edgbaston Park Hotel, you should use this car park also.

**By rail:** The University of Birmingham has its own train station (University, see map), which is about a 10 minutes local train ride outside of the central station, Birmingham New Street, which runs almost every 15 minutes. Alternatively, a taxi from New Street Station takes around 15 minutes.

**Important Contact Numbers:** Edgbaston Park Hotel: 0121 414 8888



Fry Suite  
(Scientific Programme)  
Edgbaston Park Hotel

Lloyd Suite  
(Evening Programme)  
Edgbaston Park Hotel

Car parking

University Station

Route to Venue

