World's First Device for Assessing Oocyte Quality

Bringing Clarity and Confidence to Every Egg

opal

OOCYTE QUALITY ANALYZER SERIES

What is opal™ ?

Opal™ measures the viscoelasticity of retrieved oocytes to assess their developmental potential.

Unlike traditional imaging technologies that look at morphology alone, Opal analyzes **both morphological and viscoelastic properties** to identify oocytes with a higher likelihood of forming usable blastocysts and achieving implantation success.

Opal's Highlights

- Oocyte grading using objective and standardized AI-powered tools
- Accurate prediction of blastocyst development potential
- Integrated oocyte management system that tracks sERa, granularity, and vacuoles

Current Challenges in Oocyte Management

Oocyte quality is a key determinant of fertilization, embryo development, and clinical outcomes in assisted reproductive technology.

Yet, current selection methods remain subjective, relying heavily on morphology with no universally accepted standards.

"Even the most skilled embryologists face uncertainty when predicting blastocyst viability based on morphology alone."

Additional Factors

Regulatory constraints
Some countries restrict the number of fertilized oocytes per cycle.

Biological variability
Patient-specific factors impact oocyte yield and embryo competence.

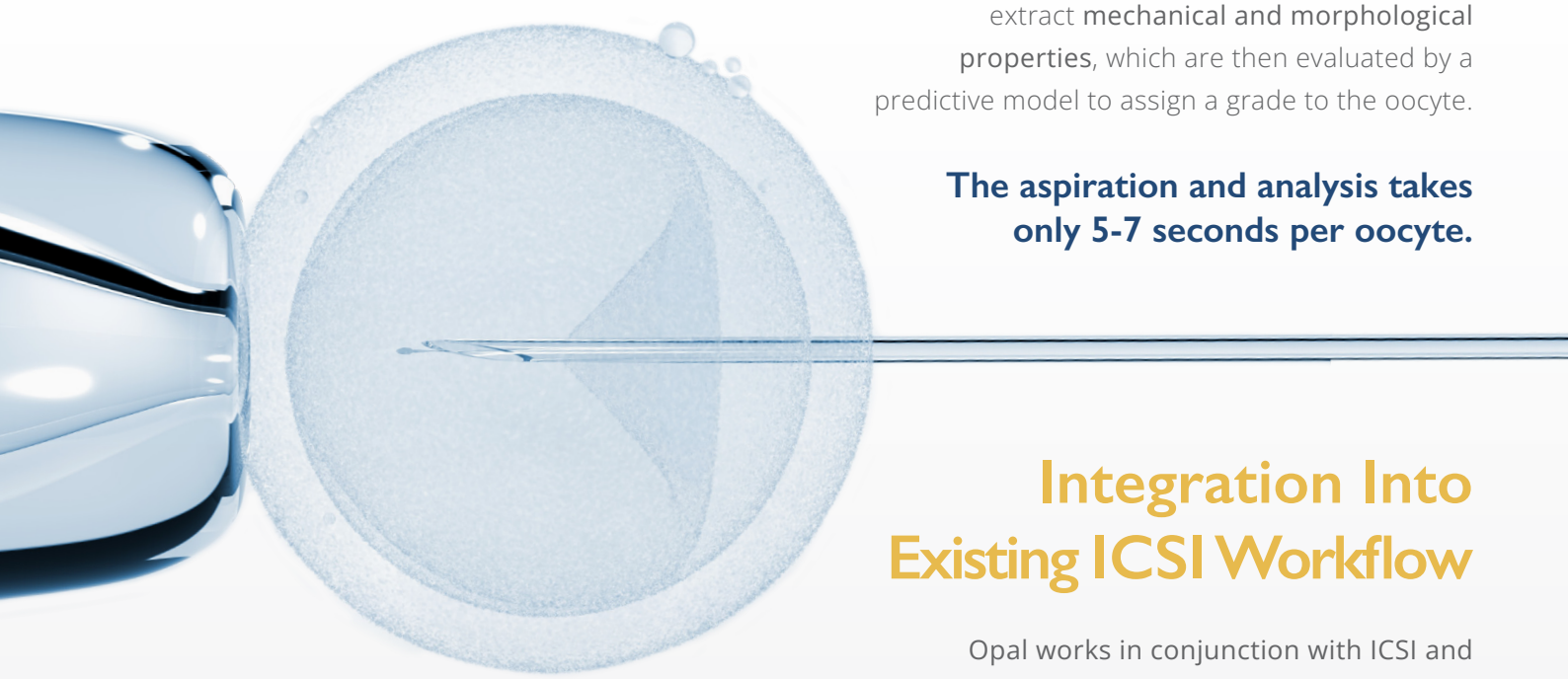
Embryo Culture Preferences
Some labs only culture embryos up to day 3, without knowing if they can fully develop into a blastocysts.

How does opal™ work?

Opal uses a dedicated micropipette to aspirate an oocyte, recording both video of the aspiration and the resulting pressure.

The processing engine uses these inputs to extract **mechanical and morphological properties**, which are then evaluated by a predictive model to assign a grade to the oocyte.

The aspiration and analysis takes only 5-7 seconds per oocyte.



Integration Into Existing ICSI Workflow

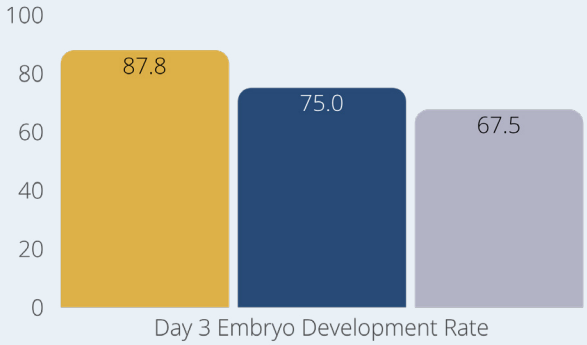
Opal works in conjunction with ICSI and can be easily integrated immediately after oocyte retrieval and before sperm injection.

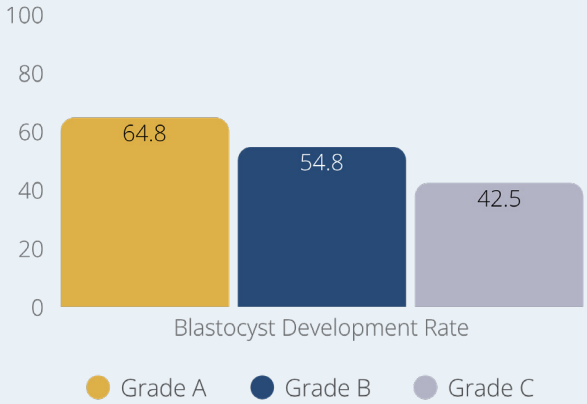
Scientific Data

Oocytes' viscoelastic properties have shown strong predictive value for blastocyst formation.[1,2]

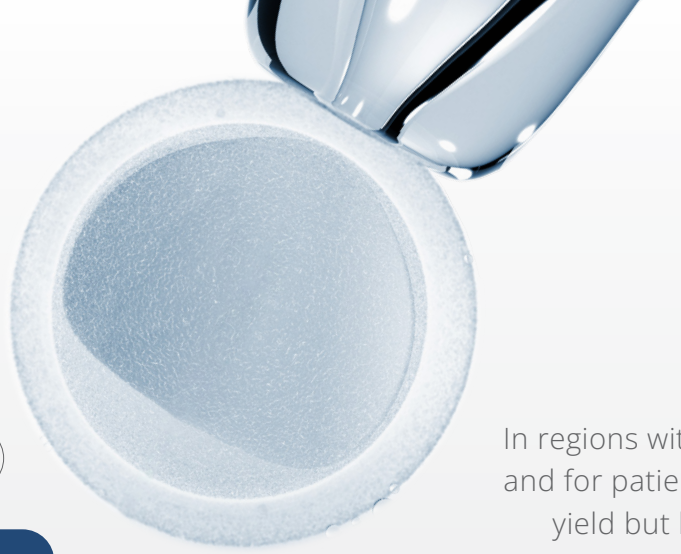
Higher-grade oocytes detected by Opal were associated with improved embryo quality, greater blastocyst formation rates, and better reproductive outcomes.

By measuring oocyte viscoelasticity prior to ICSI, Opal offers a safe and reliable solution for assessing oocyte quality and selecting those with the highest developmental potential.[3]





Clinical Use Cases



Oocyte Cryopreservation

Oocyte Retrieval

→ opal Grading

→ Evaluation Report

→ Cryopreservation

Opal provides **objective oocyte grading prior to cryopreservation**, supporting better reproductive planning.

The analysis helps identify oocytes with higher developmental potential—useful for **social freezing, fertility preservation, and oocyte donation**, where higher-graded oocytes can lead to more viable embryos.

If not enough oocytes are available, the process can be repeated with a new oocyte retrieval cycle.

IVF Treatments

In regions with fertilization limits, and for patients with high oocyte yield but low pregnancy rates (e.g., PCOS), Opal supports the**selection of the most competent oocytes.**

When multiple euploid embryos are available, **Opal's traceable oocyte scores help guide embryo transfer sequencing**, allowing clinicians **to prioritize which embryo to transfer first**—enhancing treatment precision.

Oocyte Thawing

→ opal Grading

→ ICSI

→ Embryo Transfer

Clinical Safety & Data Protection

Clinical studies confirm that Opal is non-invasive and does not affect fertilization or embryo development.[2]

Validated through IRB-approved, multi-center studies, Opal follows strict ethical and data privacy standards, meeting key benchmarks for translational medical technology.[2]

References

1. Yanez LZ, Han J, Behr BB, Pera RAR, Camarillo DB. Human oocyte developmental potential is predicted by mechanical properties within hours after fertilization. Nat Commun. 2016;7:10809. Published 2016 Feb 24. doi:10.1038/ncomms10809

2. Meyer D, Kort J, Chen CH, et al. Development and evaluation of a usable blastocyst predictive model using the biomechanical properties of human oocytes. PLoS One. 2024;19(5):e0299602. Published 2024 May 2. doi:10.1371/journal.pone.0299602

3. CI Lee, CH Chen, HH Chen, et al. Successful Application Of A Novel Oocyte Viability Test Utilizing Viscoelastic Properties. ESHRE 2025 abstract.

Operation Workflow & Timing

Opal integrates smoothly into the clinical workflow, requiring just 5–7 seconds per oocyte to complete a full analysis.

1

Micropipette Alignment
Ensures precise positioning of the micropipette and the oocyte under the microscope lens.

2

Micro-suction Process
Applies gentle aspiration to evaluate the oocyte's viscoelastic properties.

3

Image Capture & Feature Extraction
Captures high-resolution images and video and extracts viscoelastic and morphological parameters.

4

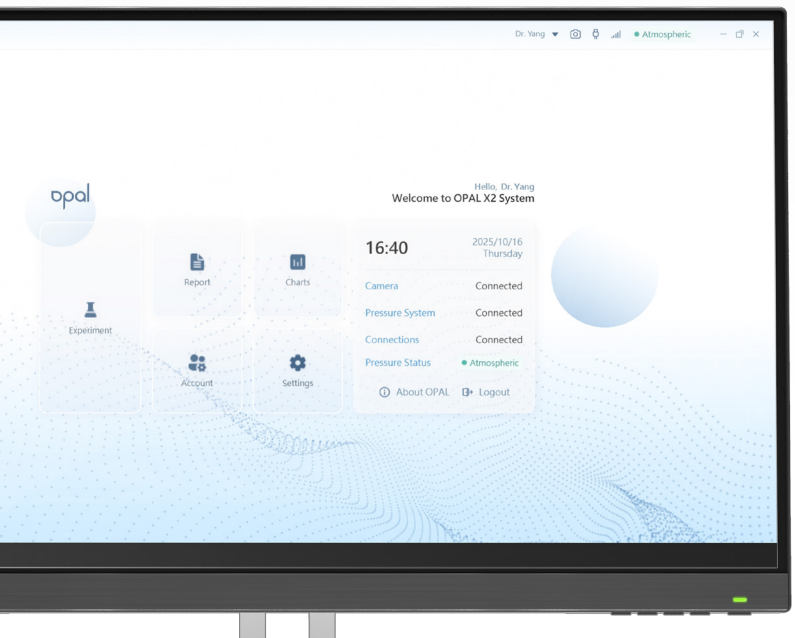
AI Grading Output
Calculates and assigns a standardized score for each oocyte using Opal's AI model.

Expanded Software Features

Opal offers advanced software modules to support clinical workflows and personalized patient communication

Personalized Oocyte Management

Track and manage oocyte grading history and developmental outcomes across treatment cycles.



Integrated Reporting System

Generate visual, auto-formatted reports to support clinician-patient discussions and documentation.

Product Specs & Operation

Controller

Dimensions	95 x 88 x 46 mm (±5 mm)
Weight	0.4 kg (± 5%)

Core Unit

Dimensions	90 x 90 x 250 mm (±5 mm)
Weight	2.0 kg (± 5%)

Controller Connector
1 x 15-pin DB15 (D-sub) port

Tubing Connection
Diameter ø 2mm

Power Input
100–240V AC, 50/60 Hz

Power Output
24V, 2.5A, 60W MAX

opal™

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