Sperm Preparation, Handling, and Storage

SOLUTIONS FOR THE ANDROLOGY LABORATORY
Help at Every Step
Simpler processes, less stress, and better results

- Retrieval/Rinse Oocytes
- Separate Sperm
- Wash
- Multipurpose Handling Medium Complete
- Continuous Single Culture Medium Complete (CSCM-C/CSCM-NXC)
- Hyaluronidase
- Denude (ICSI)
- Preincubate
- Continuous Single Culture Medium Complete (CSCM-C/CSCM-NXC)
- ICSI
- IVF
- Continuous Single Culture Medium Complete (CSCM-C/CSCM-NXC)
- Vitrification
- Vit Kit
- Vit Kit-NX
- Transfer Blastocyst
FUJIFILM Irvine Scientific has been a well-recognized supplier of innovative media solutions and lab supplies to the ART community for over 35 years.

Media solutions, such as ISolate for sperm preparation and Freezing Medium TYB for cryopreservation, have set industry standards in the field of andrology.

FUJIFILM Irvine Scientific pioneered both the use of vitrification to increase survival rates of cryopreserved oocytes and embryos with Vit Kit and Vit Kit-NX, and the use of low lactate in Continuous Single Culture-NX, a clinically proven, single-step culture medium that helps maintain efficient metabolic rates by eliminating unnecessary stress.

Today, with a new generation of optimized, multi-use media, Multipurpose Handling Medium and Continuous Single Culture, FUJIFILM Irvine Scientific continues to increase workflow efficiency and contribute to successful pregnancies in clinics throughout the world.

Sperm Preparation, Handling and Storage

- Maintain high quality, viable sperm
- Improve chance of fertilization
- Maximize survival rates

Learn about the latest FUJIFILM Irvine Scientific solutions for reproductive technologies in our brochures:

- From gametes to blastocysts
- Vitrification of oocytes and embryos
- Sperm preparation, handling and storage

Visit our website at www.irvinesci.com
**Improve Chance of Fertilization**
from any semen sample

ISolate is one of the most widely used media for isolation and purification of sperm prior to IUI, ICSI and IVF.

Since 1997, its use for density gradient centrifugation of semen samples has been referenced in more than 250 peer-reviewed publications. ISolate maintains physiological pH under ambient conditions by utilizing a colloidal suspension of silica particles stabilized with covalently-bound hydrophilic silane in HEPES-buffered HTF.

Save Time and Ensure Consistency

**ISolate**
- One or two layer separations
- Ready to use 50% and 90%—no dilution required

**ISolate Stock Solution**
- One layer separations
- Ready-to-use, 90% gradients or dilute as required

**Prepare Custom Gradients**

**ISolate Concentrate**
- Dilute 100% isotonic solution as required

Select the ISolate product to meet requirements and IVF.

Well-established as a standard technique for separating healthy sperm, the concentrations of ISolate used in density gradient centrifugation can vary according to requirements for speed of preparation, level of purity or final sperm concentration. ISolate is available in a range of concentrations and sizes to meet the needs of every laboratory.

ISolate remains the gold standard for all facets in sperm preparation

Isolate performed best in all parameters against commercially available competitor media. 
*Panagiotidis, Y, et al; Iakentro, Thessaloniki, Greece.*
We use ISolate specifically to prepare frozen sperm samples. By using an improved method (provided by FUJIFILM Irvine Scientific) in combination with ISolate, we have improved the yield of motile spermatozoa and so reduced the number of vials required for each treatment cycle.

Charlotte Hall, Senior Embryologist, Sussex Downs Fertility Centre, Eastbourne, U.K.

Higher recovery

**Mean Sperm Count Recovery (mil/mL) by Age Group**

<table>
<thead>
<tr>
<th>Age</th>
<th>Leading commerical medium</th>
<th>ISolate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25-30</td>
<td>9</td>
<td>12.5</td>
</tr>
<tr>
<td>31-35</td>
<td>12.7</td>
<td>17.8</td>
</tr>
<tr>
<td>36-40</td>
<td>11</td>
<td>17.3</td>
</tr>
<tr>
<td>&gt;40</td>
<td>11</td>
<td>18</td>
</tr>
</tbody>
</table>

Data courtesy of Dr. J. G. Mehta, Laboratory Director, Queen’s Hospital, Romford, U.K.

Prepare high quality sperm from fresh or frozen samples

- Achieve high concentrations of progressive, motile spermatozoa
- Remove cellular debris, abnormal or immature sperm, seminal fluid, bacteria, and lymphocytes
- Increase recovery rate and number of total motile sperm

High percentage of morphologically normal forms
Maximize Sperm Survival
Maximize sperm survival rates after long- or short-term storage

Use less medium to reduce costs and minimize dilution of samples

Arctic Sperm Cryopreservation Medium is a new TYB-free, dual-buffered medium designed for modern sperm processing. It is formulated to require less medium per application to save money and minimize dilution of frozen samples.

- Designed to maintain consistent pH before and after freezing with dual buffer base (HEPES/MOPS)
- Use 3:1 ratio of semen to medium
- Improve post-thaw performance with the aid of key antioxidants and amino acids

Increase recovery, maintain post-thaw viability

Freezing Medium TYB uses glycerol and the unique ability of TEST-yolk buffer (TYB) to protect sperm at low temperatures during long term storage. Freezing Medium TYB is the first and only CE-marked, FDA-cleared cryopreservation medium that contains egg yolk.

- Maximize sperm survival from healthy or poor quality samples

Higher post-thaw recovery with improved quality

<table>
<thead>
<tr>
<th></th>
<th>Fresh Raw semen</th>
<th>Freezing Medium TYB</th>
<th>Commercial medium, glycerol only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor quality semen (n=35)</td>
<td>Normal morphology (%)</td>
<td>11.7 ± 6.1</td>
<td>9.3 ± 5.6</td>
</tr>
<tr>
<td></td>
<td>Condense chromatin (%)</td>
<td>78.9 ± 10.3</td>
<td>70.7 ± 10.8</td>
</tr>
<tr>
<td></td>
<td>Motility (%)</td>
<td>28.3 ± 22.5</td>
<td>13.3 ± 9.9</td>
</tr>
<tr>
<td>Healthy semen (n = 25)</td>
<td>Normal morphology (%)</td>
<td>26.3 ± 7.5</td>
<td>22.2 ± 6.4</td>
</tr>
<tr>
<td></td>
<td>Condense chromatin (%)</td>
<td>92.4 ± 8.5</td>
<td>88.7 ± 11.2</td>
</tr>
<tr>
<td></td>
<td>Motility (%)</td>
<td>52.8 ± 27.3</td>
<td>32.7 ± 19.1</td>
</tr>
</tbody>
</table>


A Higher motility than competitor’s medium

B Better viability vs. competitor media in normal sperm samples

C Better viability vs. competitor media in subfertile sperm samples

Evgeni, L, et al; Cryogonia Cryopreservation Bank; Athens, Greece.

Freezing Medium TYB
For cryopreservation, FDA-cleared. Ready-to-use.

Arctic Sperm Cryopreservation Medium
Convenient kit size and refrigerated storage. Ready to use.
One-step alternative to cryopreservation—enable semen storage off-site

- Preserve sperm viability during short-term storage at 2° to 8°C
- Store semen up to four days—no freezing, glycerol-free*

TYB Protects Sperm During Refrigeration

<table>
<thead>
<tr>
<th></th>
<th>Seminal fluid: TYB 1:1, 4°C</th>
<th>Seminal fluid only, 4°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motility after 48 hours</td>
<td>29.6 ± 21.5</td>
<td>6.2 ±/- 9.2</td>
</tr>
</tbody>
</table>

*Baek et al. Can men produce and store semen at home? Poster presented at: ASRM 2006, Louisiana, USA P-1006

High number CASA analysis demonstrated significantly increased parameters for CASA motility categories.

CE-marked TYB medium was found to be a superior cryoprotective medium than a glycerol-only sperm freezing medium.

Chey Dearing, Hammersmith Hospital, London UK
Maintain Quality
Maintain high quality, viable sperm

Process sperm in a safe environment

Multipurpose Handling Medium provides a versatile solution for swim up preparation, sperm washing, oocyte retrieval and rinsing, IUI, ICSI, and embryo transfer.

- Maintain physiological pH 7.2–7.4 and osmolality over a broad temperature range
- Support maintenance of cellular homeostasis
- Reduce risk of toxicity using a dual buffer system (HEPES and MOPS)
- Save time—no mixing or filtering, ready to use

Multipurpose Handling Medium
Add preferred supplements.

Multipurpose Handling Medium-Complete
Ready-to-use.
The use of a combined buffering system containing HEPES and MOPS, such as MHM, allows adjustment of pKa and optimal buffering capacity not available in mono-buffered media. This permits formulation of a custom medium with a lower individual buffer concentration while maintaining a similar buffer range, which creates a low toxicity and stable environment for gametes and embryos. This comparison is demonstrated by comparing pH after an acid/base challenge.
Work Outside the Incubator

Sperm Washing Medium is suitable for washing, swim up preparation, holding sperm prior to IUI and IVF, and other sperm processing procedures performed outside of a CO₂ incubator.

- Save time: ready-to-use, no mixing or filtering
- Maintain physiological pH at ambient temperature

Sperm Washing Medium

pH maintained at room temperature and at 37°C, without oil and under oil. CReATe Fertility Centre, Toronto, Canada.

Discover the FUJIFILM Irvine Scientific Advantage

With more than four decades of cell culture experience, FUJIFILM Irvine Scientific has cultivated deep industry knowledge, advanced technical expertise, superior customer service, and reliable results—positioning us as a trusted partner of ART professionals across the world.

From novel IVF media solutions to innovative technology, FUJIFILM Irvine Scientific delivers the most advanced, economical, and flexible range of products for the modern IVF laboratory.
## Ordering Information

<table>
<thead>
<tr>
<th>Item</th>
<th>Catalog #</th>
<th>Size</th>
<th>Additional Information</th>
<th>Shelf Life</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISolate</td>
<td>99264</td>
<td>12 x 6 mL (up to 18 isolations) 2 x 50 mL (up to 25 isolations) 2 x 100 mL (up to 50 isolations)</td>
<td>Ready-to-use density gradient: 50% upper layer, 90% lower layer</td>
<td>2 years*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>ISolate Stock Solution</td>
<td>99275</td>
<td>100 mL</td>
<td>Ready-to-use or for dilution: 90% density gradient</td>
<td>2 years*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>ISolate Concentrate</td>
<td>99306</td>
<td>100 mL</td>
<td>100% isotonic solution for custom dilution</td>
<td>2 years*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>Freezing Medium TYB</td>
<td>90128</td>
<td>20 x 5 mL 100 mL</td>
<td>Contains 20% egg yolk—from USDA certified SPF (Virus Free) laying flocks, heat inactivated at 56°C for 30 minutes, 12% (w/v) glycerol, gentamicin 10 µg/mL</td>
<td>2 years*</td>
<td>-10°C</td>
</tr>
<tr>
<td>Arctic Sperm Cryopreservation Medium</td>
<td>90170</td>
<td>12 x 5 mL</td>
<td>Ready-to-use, egg yolk-free and antibiotic-free. Contains 28% (v/v) glycerol, 2% HSA</td>
<td>18 months*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>Refrigeration Medium TYB</td>
<td>90129</td>
<td>20 x 5 mL</td>
<td>Contains 20% egg yolk - from USDA certified SPF (Virus Free) laying flocks, heat inactivated at 56°C for 30 minutes, gentamicin 10 µg/mL</td>
<td>2 years*</td>
<td>-10°C</td>
</tr>
<tr>
<td>Multipurpose Handling Medium-Complete (MHM-C)</td>
<td>90166</td>
<td>100 mL 500 mL 12 x 12 mL</td>
<td>Ready-to-use. Contains key amino acids, 0.5% HSA, gentamicin 10 mg/L.</td>
<td>12 months*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>Multipurpose Handling Medium (MHM)</td>
<td>90163</td>
<td>100 mL 500 mL</td>
<td>Contains gentamicin 10 mg/L. Add preferred supplements.</td>
<td>12 months*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>Sperm Washing Medium</td>
<td>9983</td>
<td>12 x 12 mL 100 mL</td>
<td>Ready-to-use outside the incubator. Contains 0.5% HSA. Add preferred antibiotics.</td>
<td>2 years*</td>
<td>2–8°C</td>
</tr>
</tbody>
</table>

*From date of manufacture.
# Ordering Information

## Supplements and micromanipulation solutions

<table>
<thead>
<tr>
<th>Item</th>
<th>Catalog #</th>
<th>Size</th>
<th>Additional Information</th>
<th>Shelf Life</th>
<th>Storage</th>
</tr>
</thead>
<tbody>
<tr>
<td>7% Polyvinylpyrrolidone (PVP) Solution with HSA</td>
<td>90121</td>
<td>5 x 0.5 mL</td>
<td>Decrease sperm motility for easier micromanipulation during ICSI. Contains 5 mg/mL HSA.</td>
<td>6 months*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>10% Polyvinylpyrrolidone (PVP) Solution with HSA</td>
<td>90123</td>
<td>5 x 0.5 mL</td>
<td>Decrease sperm motility for easier micromanipulation during ICSI. Contains 5 mg/mL HSA.</td>
<td>6 months*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>Modified HTF Medium</td>
<td>90126</td>
<td>100 mL</td>
<td>For handling sperm outside of an incubator. HEPES-buffered. Contains 10 mg/L gentamicin. Requires protein supplement.</td>
<td>12 months*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>Human Serum Albumin Solution (HSA)</td>
<td>9988</td>
<td>12 x 5 mL</td>
<td>Essential supplement to basal medium. Contains HSA 100 mg/mL in normal saline.</td>
<td>3 years*</td>
<td>2–8°C</td>
</tr>
<tr>
<td>Serum Substitute Supplement (SSS)</td>
<td>99193</td>
<td>12 x 12 mL, 100 mL</td>
<td>Essential supplement to basal medium. Contains HSA 50 mg/mL, alpha and beta globulins 10 mg/mL.</td>
<td>2 years*</td>
<td>2 years*</td>
</tr>
</tbody>
</table>

*From date of manufacture