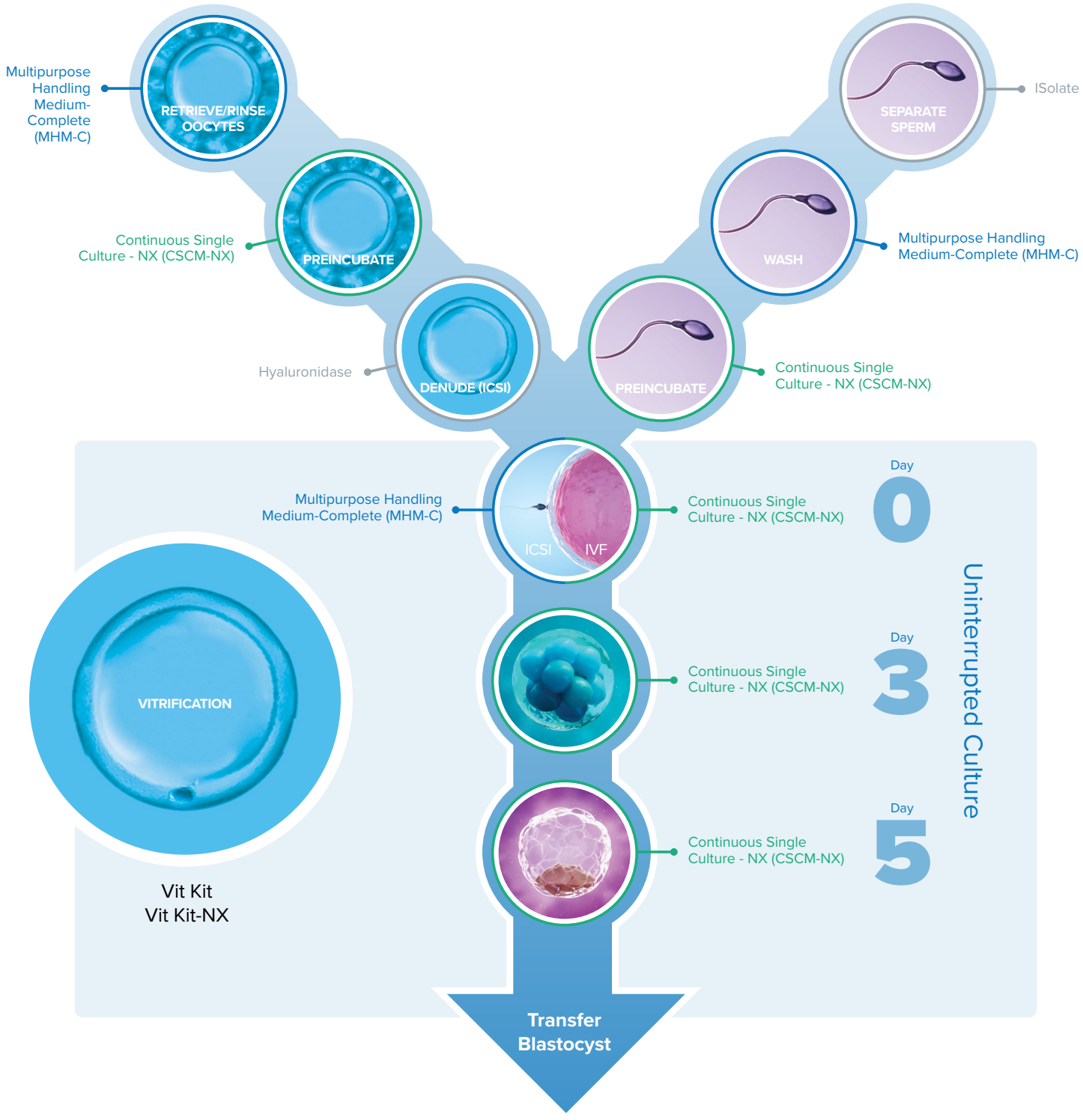
FUJIFILM
Value from Innovation

Sperm Preparation, Handling, and Storage

SOLUTIONS FOR THE ANDROLOGY LABORATORY

Help at Every Step

Simpler processes, less stress, and better results



Leading The Way to Greater Workflow Efficiency and Increased Pregnancy Rates

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

Peace of Mind at Every Step

FUJIFILM Irvine Scientific was the first ART manufacturing company in the USA to receive ISO 13485:2016 quality system certification, the rigorous international quality assurance standard designed specifically for Medical Devices. Every FUJIFILM Irvine Scientific product is subject to a stringent Quality System, unrivaled in the industry, and produced in well-established, cGMP compliant facilities.

Improve the Chances of Fertilization

Separates Motile Sperm From Any Semen Sample

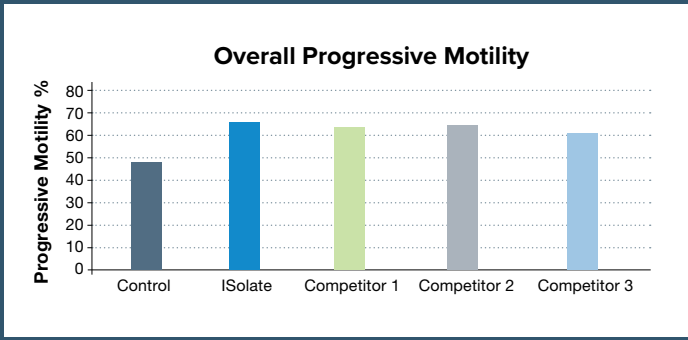
ISolate is one of the most widely used media for isolation and purification of sperm prior to IUI, ICSI and IVF.

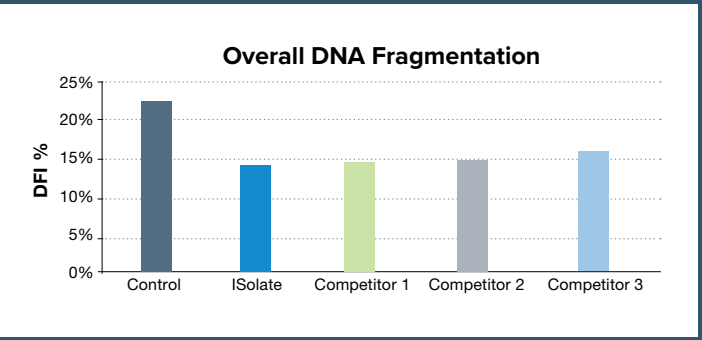
Since 1997, its use for density gradient centrifugation of semen samples has been referenced in more than 250 peer-reviewed publications. ISolate maintains physiological pH under ambient conditions by utilizing a colloidal suspension of silica particles stabilized with covalently-bound hydrophilic silane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

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.[1]

Save Time and Ensure Consistency

ISolate

- Upper and lower layer separations
- Ready-to-use 50% and 90%–no dilution required

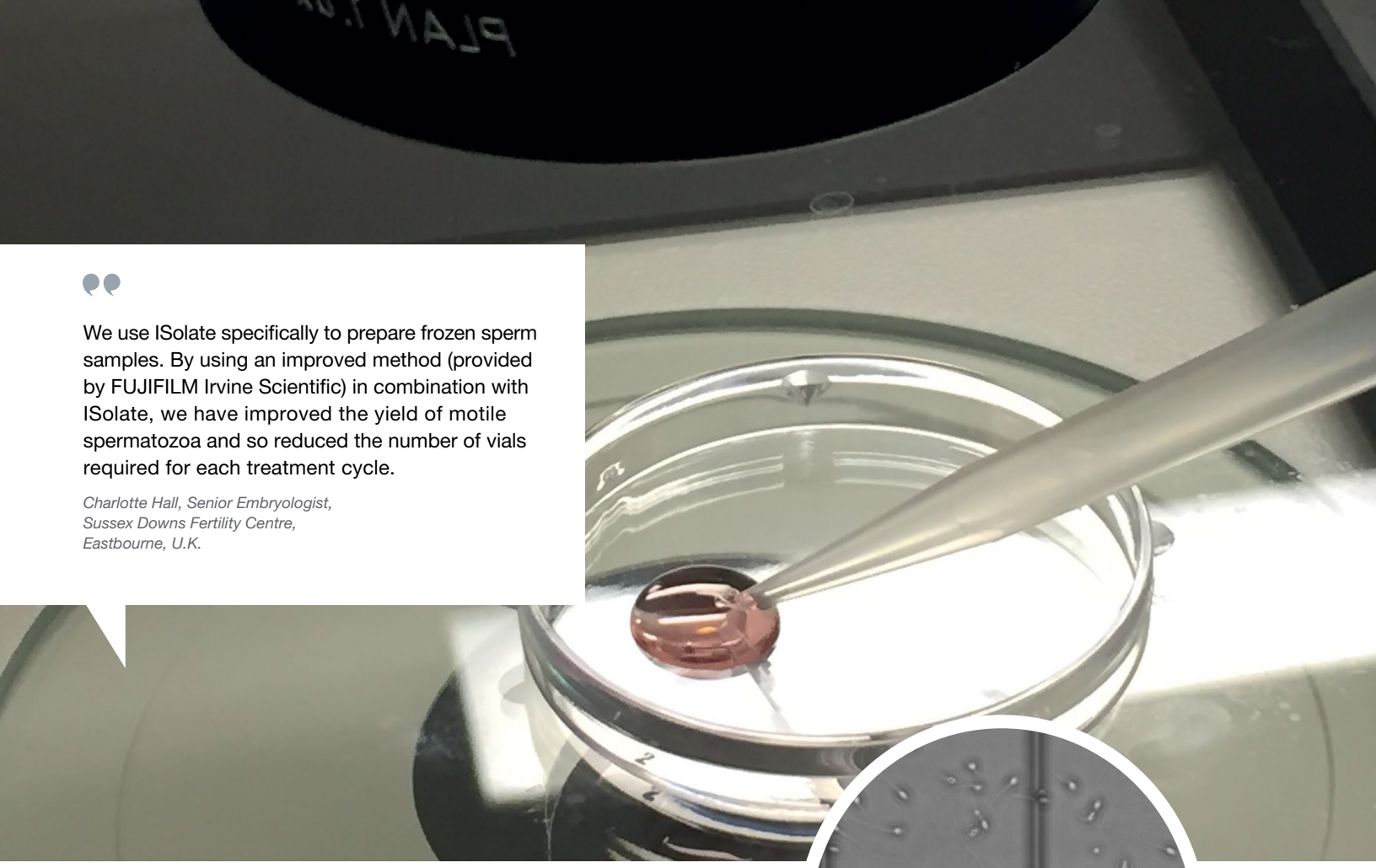
ISolate Stock Solution

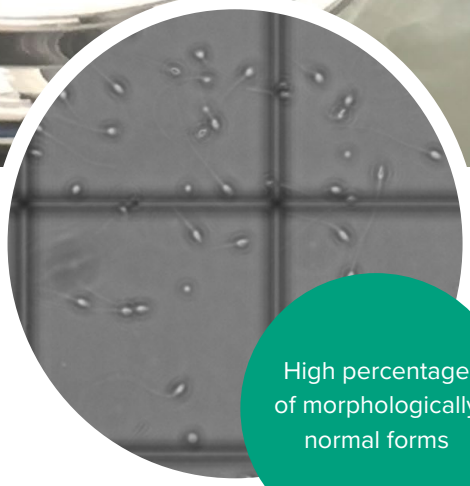
- Single layer separation
- Ready-to-use, 90% gradients or dilute as required

1 Courtesy of Panagiotidis Y, et al.

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.

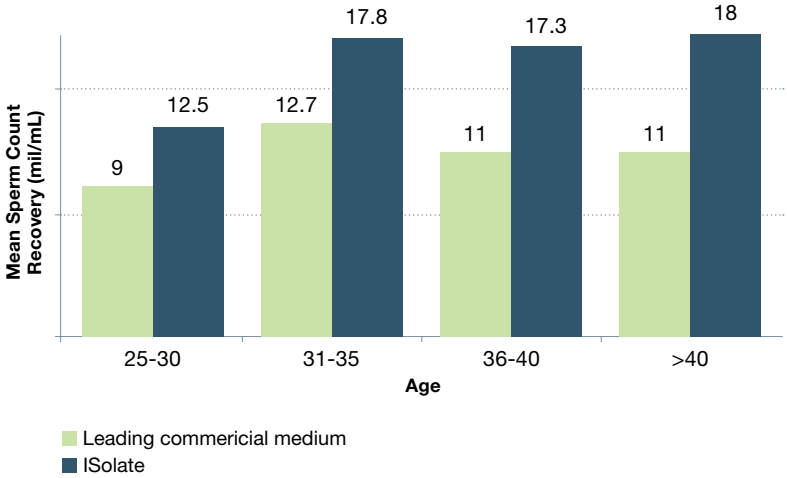




High percentage of morphologically normal forms

Higher recovery

Mean Sperm Count Recovery (mil/mL) by Age Group[2]



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

2 Mehta JG (2019)

Maximize Sperm Survival

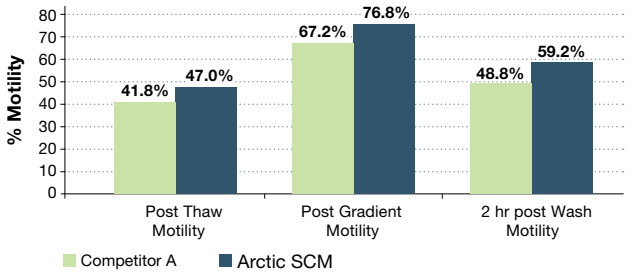
Maximize sperm survival rates after long- or short-term storage

Use less medium to reduce costs and minimize dilution of samples

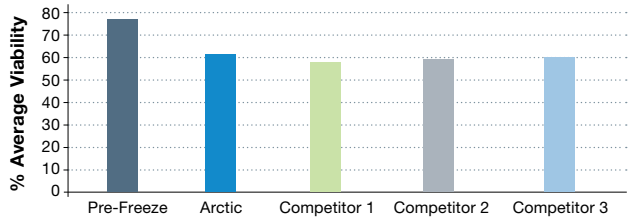
Arctic Sperm Cryopreservation Medium is a TYB-free, dual-buffered medium designed for modern sperm processing. It is formulated to require less medium per application to save money and minimize dilution of frozen samples.

- 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

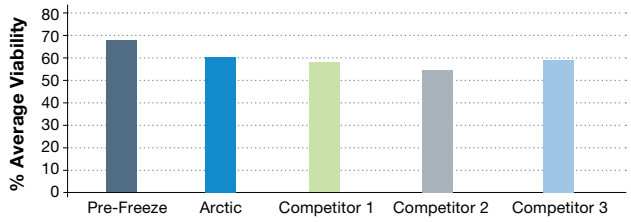
A **Higher motility than competitor's medium[3]**



B **Better viability vs. competitor media in normal sperm samples**



C **Better viability vs. competitor media in subfertile sperm samples**



3 Courtesy of Evgeni L, et al.
4 Hammadeh ME, et al. (2001)

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[4]

		Fresh	Post-thaw	
		Raw semen	Freezing Medium TYB	Commercial medium, glycerol only
Poor quality semen (n=35)	Normal morphology (%)	11.7 ± 6.1	9.3 ± 5.6	7.8 ± 4.2
	Condensed chromatin (%)	78.9 ± 10.3	70.7 ± 10.8	64.6 ± 13.0
	Motility (%)	28.3 ± 22.5	13.3 ± 9.9	10.7 ± 7.5
Healthy semen (n = 25)	Normal morphology (%)	26.3 ± 7.5	22.2 ± 6.4	19.4 ± 6.5
	Condensed chromatin (%)	92.4 ± 8.5	88.7 ± 11.2	85.5 ± 12.5
	Motility (%)	52.8 ± 27.3	32.7 ± 19.1	29.1 ± 17.1

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[5]

	Seminal fluid: TYB 1:1, 4°C	Seminal fluid only, 4°C
Motility after 48 hours	29.6 + 21.5	6.2 +/- 9.2

5 Baek K, et al. (2006)

Refrigeration Medium TYB
Simply add medium to semen and refrigerate.

> 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*

A Consistent Environment for Handling of Gametes and Embryos

One medium for multiple handling steps

A versatile handling medium that streamlines lab processes by supporting a consistent environment outside the incubator

Multipurpose Handling Medium-Complete (MHM-C) is intended for use in assisted reproductive procedures involving manipulation of gametes or embryos.

- **Sperm Preparation:** Washing, swim up, and gradient preparation prior to IVF and/or ICSI procedures
- **Oocyte Manipulation:** Handling and retrieval during ovarian follicle aspiration (not for flushing ovarian follicles) and micromanipulation
- **Embryo Manipulation:** Handling and transporting embryos to the uterus during embryo transfer procedures

Features

- Reduce risk of toxicity using a dual-buffer system
- Ready-to-use medium - no mixing or filtering required
- Maintain physiological pH 7.2–7.4 and osmolality over a broad temperature range
- Packaged in 100 mL, 500 mL, and 12 x 12 mL kits to accommodate lab needs

Multipurpose Handling Medium-Complete
Ready-to-use

Table 1: Better Rapid Progressive Sperm Over 48 hours

Medium	Estimated Difference in Mean Motility	95% Confidence Interval	p Value
COMP-A			
8 H	-5.20	(-9.39, -1.00)	0.017
48 H	-13.16	(-18.71, -7.09)	8.53e-05
SPWASH			
8 H	-8.21	(-12.40, -4.02)	0.000321
48 H	-10.60	(-16.09, -5.04)	0.0011

Table 2: Better Sperm Quality Over 48 hours

Medium	Estimated Difference in Mean Motility	95% Confidence Interval	p Value
COMP-A			
8 H	-7.12	(-10.57, -3.68)	0.000162
48 H	-17.04	(-21.65, -12.44)	3.38e-09
SPWASH			
8 H	-16.60	(-20.04, -13.18)	2.71e-12
48 H	-17.14	(-21.71, -12.57)	2.58e-09

Sperm viability, motility percent, and rapid progression in MHM-C displayed significantly better performance than single buffer controls, presumably due to synergistic pHe and pHi stabilization afforded by a dual-buffered system. There was a notable estimated difference in mean rapid progression percent of sperm preserved in Competitor A (COMP-A) compared to MHM, and in Sperm Washing Medium (SPWASH) compared to MHM, at 8 hours and at 48 hours.[6]

6 Bormann CL, et al (2018)

Dual-buffer culture medium delivers improved sperm performance, including sperm viability, motility, and rapid progression.[6]

Charles L. Bormann and Carol L. Curchoe,
Optimization of Sperm Culture Conditions for Human Assisted Reproductive Technologies

Prepare Sperm with a Dependable Media

Supports all steps of sperm preparation prior to fertilization

Sperm Washing Medium is suitable for washing, swim up preparation, holding sperm prior to IUI and IVF, and other sperm processing procedures.

- **Save time:** ready-to-use, no mixing or filtering
- **Formulation:** HEPES-buffered HTF with human serum albumin
- Does not contain antibiotics

Sperm Washing Medium
Add preferred antibiotics

Discover the FUJIFILM Irvine Scientific Advantage

With more than five 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

Item	Catalog #	Size	Additional Information	Shelf Life	Storage
ISolate	99264	12 x 6 mL (up to 18 isolations) 2 x 100 mL (up to 50 isolations)	Ready-to-use density gradient: 50% upper layer, 90% lower layer	2 years*	2–8°C
ISolate Stock Solution	99275	100 mL	Ready-to-use or for dilution: 90% density gradient	2 years*	2–8°C

Item	Catalog #	Size	Additional Information	Shelf Life	Storage
Freezing Medium TYB	90128	20 x 5 mL	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	2 years*	-10°C

Item	Catalog #	Size	Additional Information	Shelf Life	Storage
Arctic Sperm Cryopreservation Medium	90170	12 x 5 mL	Ready-to-use, egg yolk-free and antibiotic-free. Contains 28% (v/v) glycerol, 2% HSA	18 months*	2-8°C

Item	Catalog #	Size	Additional Information	Shelf Life	Storage
Refrigeration Medium TYB	90129	20 x 5 mL	Contains 20% egg yolk - from USDA certified SPF (Virus Free) laying flocks, heat inactivated at 56°C for 30 minutes, gentamicin 10 µg/mL	2 years*	-10°C

Item	Catalog #	Size	Additional Information	Shelf Life	Storage
Multipurpose Handling Medium–Complete (MHM-C)	90166	100 mL 500 mL 12 x 12 mL	Ready-to-use. Contains key amino acids, 0.5% HSA, gentamicin 10 mg/L.	12 months*	2–8°C
Multipurpose Handling Medium (MHM)	90163	100 mL 500 mL	Contains gentamicin 10 mg/L. Add preferred supplements.	12 months*	2–8°C
Sperm Washing Medium	9983	100 mL	Ready-to-use outside the incubator. Contains 0.5% HSA. Add preferred antibiotics.	2 years*	2–8°C

*From date of manufacture.

Ordering Information

Supplements and micromanipulation solutions

Item	Catalog #	Size	Additional Information	Shelf Life	Storage
7% Polyvinylpyrrolidone (PVP) Solution with HSA	90121	5 x 0.5 mL	Decrease sperm motility for easier micromanipulation during ICSI. Contains 5 mg/mL HSA.	6 months*	2–8°C
10% Polyvinylpyrrolidone (PVP) Solution with HSA	90123	5 x 0.5 mL	Decrease sperm motility for easier micromanipulation during ICSI. Contains 5 mg/mL HSA.	6 months*	2–8°C
Modified HTF Medium	90126	100 mL 500 mL	For handling sperm outside of an incubator. HEPES-buffered. Contains 10 mg/L gentamicin. Requires protein supplement.	12 months*	2–8°C
Human Serum Albumin Solution (HSA)	9988	12 x 5 mL	Essential supplement to basal medium. Contains HSA 100 mg/mL in normal saline.	3 years*	2–8°C
SSS-NX (Serum Substitute Supplement-NX)	90194	100 mL 12 x 10 mL	Contains approximately 50 mg/mL, or 5% (w/v), of total protein consisting of: • ≥ 41.5 mg/mL HSA (≥83%) • ≤ 8.5 mg/mL αβ globulins (≤17%) and gamma globulins (≤1%)	1 year*	2–8°C
PBS 1X - Dulbecco"s Phosphate Buffered Saline Solution	9235	500 mL	Ready-to-use, liquid. Does not contain protein components.	12 months*	15–30°C

*From date of manufacture

References

1. Courtesy of Panagiotidis Y, et al; Iakentro, Thessaloniki, Greece.
2. Mehta JG, *Case Study: Focus on Sperm to Achieve Better Pregnancy Rates.* FUJFILM Irvine Scientific. 2019.
3. Courtesy of Evgeni L, et al; Cryogonia Cryopreservation Bank; Athens, Greece
4. Hammadeh ME, Greiner S, Rosenbaum P, Schmidt W. Comparison between human sperm preservation medium and TEST-yolk buffer on protecting chromatin and morphology integrity of human spermatozoa in fertile and subfertile men after freeze-thawing procedure. *J Androl*. 2001;22(6):1012-1018. doi:10.1002/j.1939-4640.2001.tb03442.x
5. Baek K, Feliciano M, Wang A, Rosenwaks G, Palermo GD. Can men produce and store semen at home? ASRM. 2006. USA; P-1006
6. Bormann CL, Curchoe CL. Optimization of Sperm Culture Conditions for Human ART: Dual-buffer culture medium delivers improved sperm performance, including sperm viability, motility, and rapid progression. *Global Journal of Reproductive Medicine*, Juniper Publishers Inc. volume3 (issue 5), pages 98-102, March. DOI: 10.19080/GJORM.2018.03.555625

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