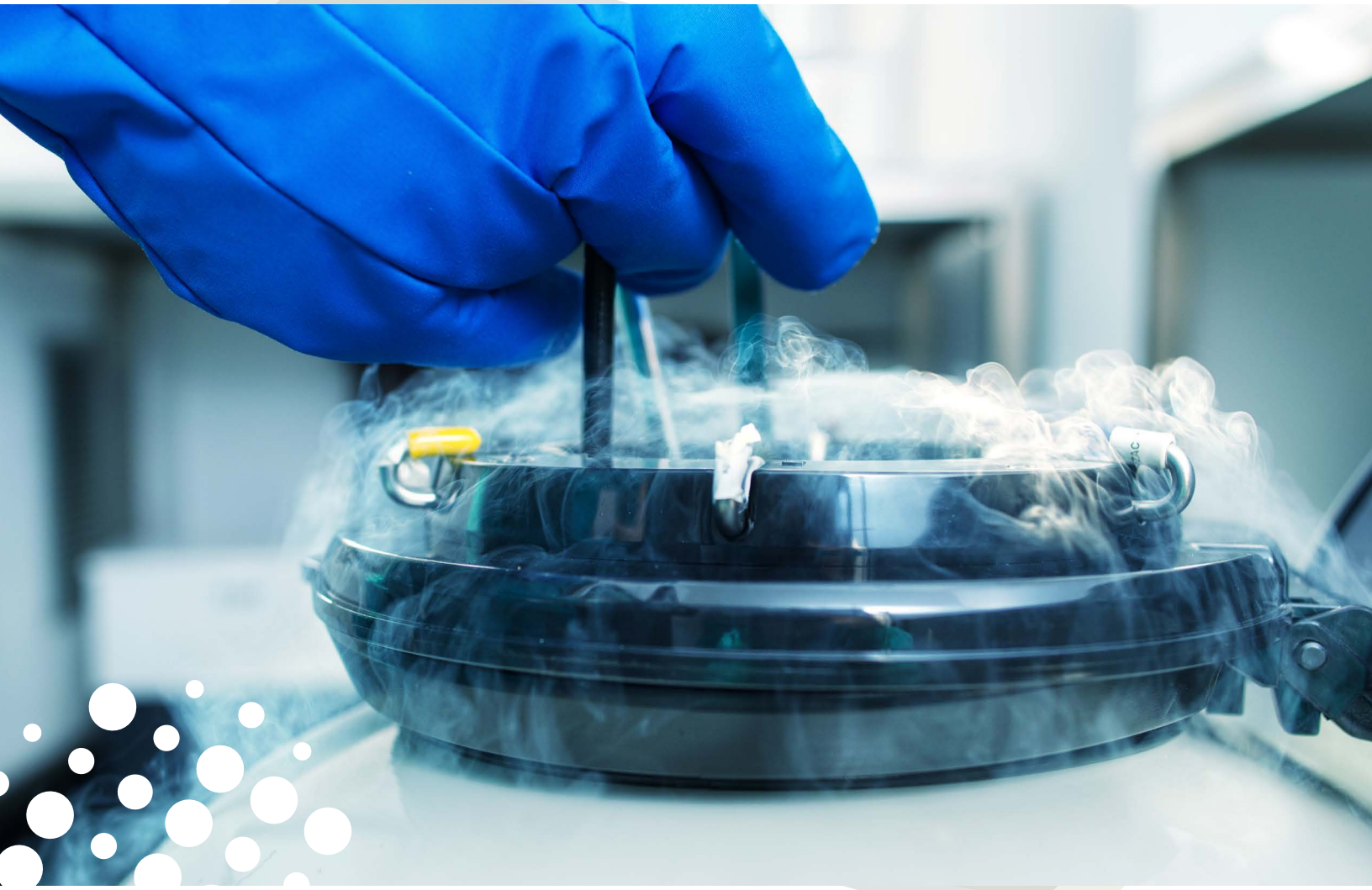
FUJIFILM
Value from Innovation

IrvineScientific

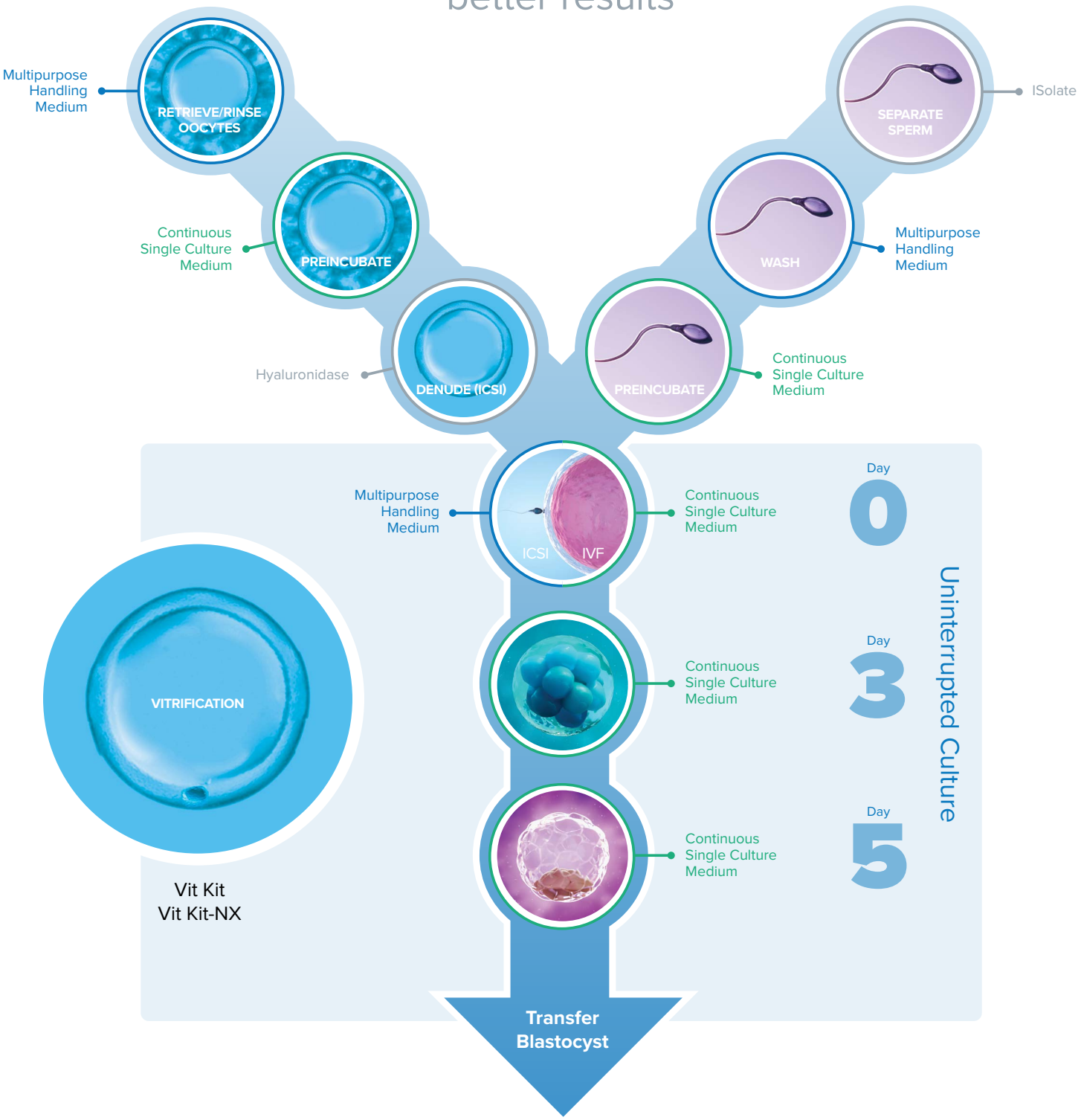


Vitrification of Oocytes & Embryos

MAXIMIZE SUCCESS WITH A VERSATILE CRYOPRESERVATION SYSTEM

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 almost 30 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 the use of vitrification to increase survival rates of cryopreserved oocytes and embryos with Vit Kit - Freeze and Vit Kit - Thaw.

Today, our next generation vitrification media, Vit Kit - Freeze NX and Vit Kit - Warm NX, build upon the advances of our optimized, multi-use media, Multipurpose Handling Medium and Continuous Single Culture Medium. With this combined system, FUJIFILM Irvine Scientific continues to increase workflow efficiency and contribute to successful pregnancies in clinics throughout the world.

Vitrification of Oocytes and Embryos

- Versatile system—expand therapeutic strategies, maximize conception potential
- Complete solution—compatible with any device

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

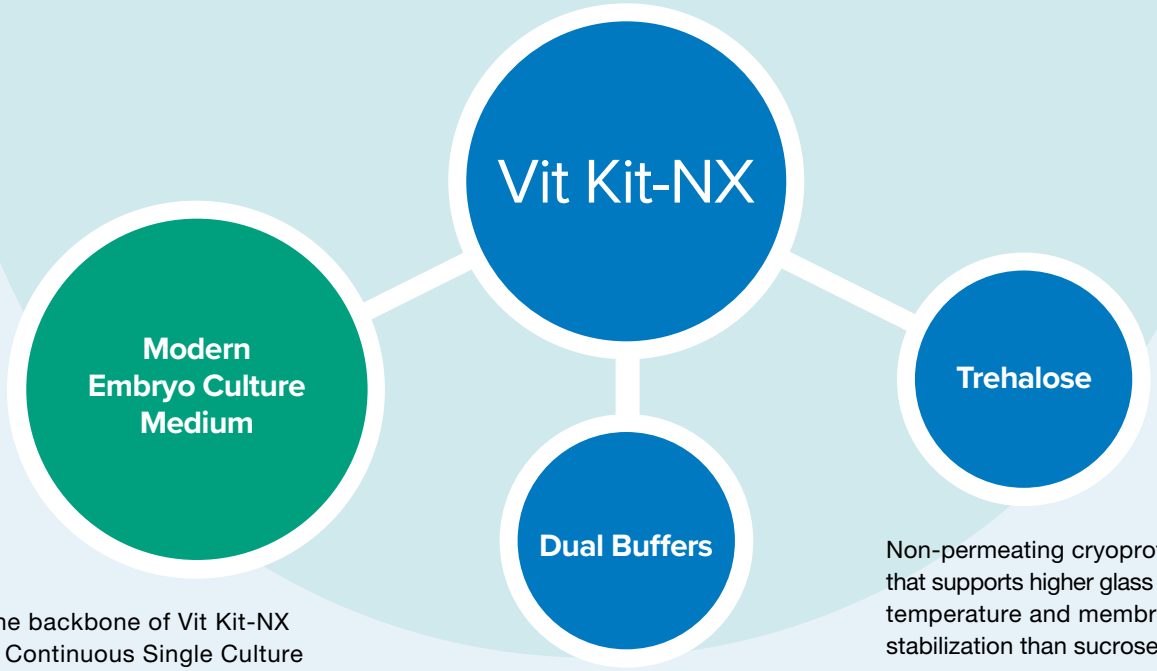
Visit our website at www.irvinesci.com

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.

Vit Kit-NX
Enhanced IVF Media for Better Vitrification

Vit Kit-NX integrates key ingredients used in the culture and handling steps of IVF with recent advancements in vitrification to provide a next-generation cryopreservation solution.



The backbone of Vit Kit-NX is Continuous Single Culture Medium (CSCM), an IVF medium intended for conventional fertilization, as well as culture from Day 1 and beyond.

CSCM delivers a consistent, embryo-friendly environment through the IVF cycle.

Vit Kit-NX is buffered by both HEPES and MOPS to provide a more secure pH environment for oocytes and embryos during vitrification.

Non-permeating cryoprotectant that supports higher glass transition temperature and membrane stabilization than sucrose.

Founded on a Trusted Formula

The new Vit Kit-NX retains the key benefits of the original Vit Kit, including:

- DMSO and EG as permeating cryoprotectants
- Dextran serum supplement as a protein source
- Gentamicin as an antibiotic

Increased Embryo Implantation and Pregnancy Rates

Embryo Performance	Before	Cross-Warming	After
	Vit Kit - Freeze & Vit Kit - Thaw	Vit Kit - Freeze & Vit Kit - Warm NX	Vit Kit - Freeze NX & Vit Kit - Warm NX
Total Warmed:	2,343	310	229
Survival Rate:	97.7%	99.2%	98.8%
Single Embryo Transfer Rate:	78.4%	81.9%	89.1%
Implantation Rate:	49.6%	54.0%	56.5%
Clinical Pregnancy Rate:	56.0%	60.0%	60.3%

Excellent performance was observed in embryos vitrified and warmed with Vit Kit - Freeze NX and Vit Kit - Warm NX. Embryos were first vitrified with Vit Kit - Freeze and warmed with Vit Kit - Warm NX (cross-warming), and it was demonstrated that high implantation and pregnancy rates could be achieved, and that results were equivalent to utilizing Vit Kit - Thaw. Performance remained consistent after vitrifying embryos with the new Vit Kit - Freeze NX and warming with the new Vit Kit - Warm NX (after), indicating a smooth transition to the Vit Kit-NX suite. Study was performed by Houston Fertility Institute, Texas, USA.

Strong Performance of Oocytes Vitrified and Warmed with Vit Kit-NX

Oocyte Performance	
Total Warmed (n):	123
Survival Rate:	98.4%
Fertilization Rate:	79.3%
Blast Utilization Rate:	61.5%
Euploidy Rate (PGT-A Tested):	74.1%
Clinical Pregnancy Rate:	63.0%

Vit Kit-NX performance on oocytes was calculated using data collected from 123 oocytes (22 donor cycles). Data were collected and provided courtesy of Dr. Matthew “Tex” VerMilyea, VP of Scientific Advancement, Ovation Donor Services, USA.

Reduce Stress on Oocytes and Embryos with a Continuous System

Building on the benefits of Continuous Single Culture Medium (CSCM) and Multi-purpose Handling Medium (MHM), Vit Kit-NX brings the vitrification process in line with both the culture and handling steps of IVF by eliminating the need to transfer precious specimens to different media formulations for vitrification.

> Reduce stress on embryos and oocytes, simplify laboratory processes, and achieve high survival rates.

Flexible Vitrification Solutions for the Modern IVF Laboratory

Vit Kit - Freeze NX

Vit Kit - Freeze NX is an adaptable, cost-effective system for use in the vitrification of oocytes, pronuclear zygotes, cleavage stage embryos, and blastocyst stage embryos. Each kit can be used for up to 50 freezing applications for oocytes and 60 applications for embryos.

- Reduce costs by using less media with our microdrop protocol
- Minimize waste with a one-year shelf life for unopened products and two-week shelf life for open products
- Ready to use—no mixing required
- Compatible with any vitrification device
- Contains no phenol red

Vit Kit - Warm NX

Vit Kit - Warm NX is an adaptable, cost-effective system for use in the thawing of oocytes, pronuclear zygotes, cleavage stage embryos, and blastocyst stage embryos. Each kit can be used for up to 12 warming applications with embryos or oocytes.

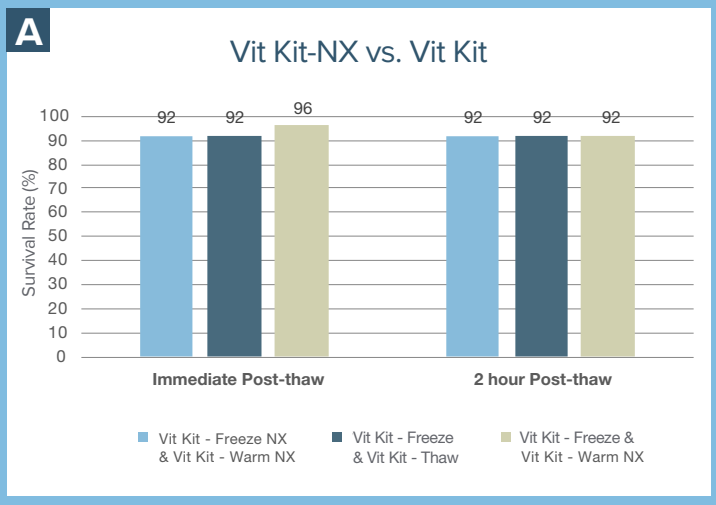
- Simplify the workflow with a flexible kit configuration
- Minimize waste with a one-year shelf life for unopened products and two-week shelf life for open products
- Ready to use—no mixing required
- Contains no phenol red

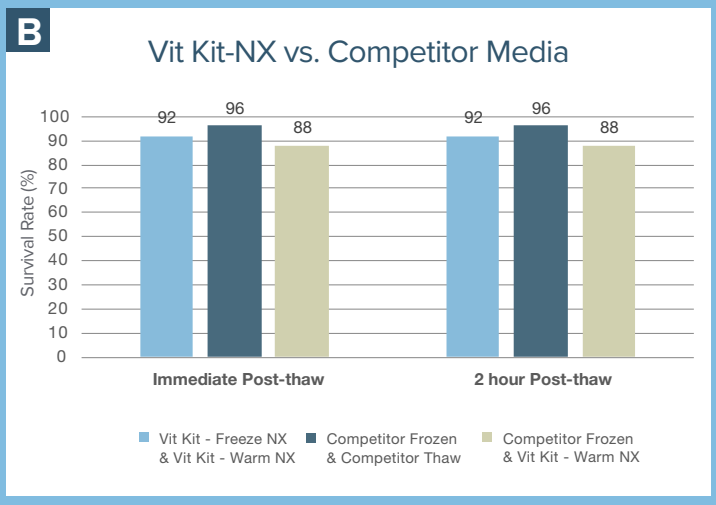
Vit Kit-NX Performance vs. Competitor's Vitrification Media

	Vit Kit - Freeze NX & Vit Kit - Warm NX	Competitor Freezing & Warming Media
Total Warmed (n):	65	69
Clinical Pregnancy Rate:	58.5%	49.3%

Data were collected between May 2020 and January 2021 at Yamashita Shonan Yume Clinic, Japan, via single Day 5 blastocyst transfer after vitrification and warming in either Vit Kit - Freeze NX and Vit Kit - Warm NX by FUJIFILM Irvine Scientific, or competitor's freezing and warming media.

Versatile Formulas Deliver Consistent Survival Rates Across Different Vitrification Media





Vit Kit - Warm NX was capable of warming human oocytes frozen in Vit Kit (A) and a top competitor's vitrification media (B). Previously frozen MII oocytes were re-frozen in different vitrification media with the Cryolock device. MII oocytes were counted towards the survival rate and were recovered in CSCM-NXC for the immediate and 2h post-thaw time points. Study was performed in collaboration with World Egg Bank in Phoenix, Arizona, USA.

Vitrification Pioneers

Since FUJIFILM Irvine Scientific pioneered its use, vitrification has become the standard for cryopreservation in fertility clinics around the world, proven to increase survival and pregnancy rates when compared to slow freezing.

Vitrification kits from FUJIFILM Irvine Scientific use permeating (DMSO and ethylene glycol) and non-permeating (sucrose or trehalose) cryoprotectants to dehydrate oocytes and embryos before they are plunged into liquid nitrogen. This prevents the formation of ice crystals associated with slow freezing which can be lethal to cells.

An optimal combination to ensure success

In Vit Kit and Vit Kit-NX, the hazards associated with the use of cryoprotectants are minimized by using them in combination at reduced concentrations within freeze/thaw protocols to minimize exposure times and enable rapid freezing.

In addition, Cryolock and HSV Straws provide a choice of semi-closed or closed storage devices that ensure a rapid, even rate of heat transfer to enhance the freezing process and prevent ice-crystal formation.

The Original Vit Kit:

Vit Kit - Freeze & Vit Kit - Thaw

Simplify your processes

- One kit for oocytes and all stages of embryos
- Ready-to-use
- Compatible with any vitrification device
- Shelf life 8 weeks after opening

Vitrified/warmed human blastocysts.

Photo courtesy of Juergen Liebermann, PhD, HCLD, Director of Laboratories at Fertility Centers of Illinois (Chicago)

Follow simple, verified protocols using optimized solutions

Vit Kit Solutions	DMSO (v/v)	Ethylene Glycol (v/v)	Sucrose	Basal Medium
Equilibration Solution (ES)	7.5%	7.5%	0	Modified M199, including 21 mM HEPES, 20% DSS (HSA and dextran, containing 10 mg/mL protein, 35 µg/mL gentamicin)
Vitrification Solution (VS)	15%	15%	0.5M	
Thawing Solution (TS)	0%	0%	1.0M	
Dilution Solution (DS)	0%	0%	0.5M	
Washing Solution (WS)	0%	0%	0	

Original Vit Kit Performance

Vitrify specimens at any stage

- Maximize use of embryos from a single cycle
- Optimize outcomes from elective single embryo transfer

Achieve high survival and pregnancy rates

Oocytes	Survival rate	Pregnancy Rate	Reference
n = 123**	90.2%	50% clinical 45% ongoing	1
n = 325	89%	50% clinical	2
n = 48**	89.6%	-	3

Independent clinical data—see back cover for references.
Vitrification device: **HSV Straw.

> I have been using Vit Kit - Freeze and Vit Kit - Thaw since 2010. My average oocyte and blastocyst survival rates have been in the range 93–100% and my average clinical pregnancy rates have been well over 50%. With the amount of trophectoderm biopsy and pre-implantation genetic screening my laboratory does, it is imperative that our vitrification program performs consistently well, guaranteeing nearly 100% survivability of warmed euploid embryos.
>
> *Matthew VerMilyea, PhD, HCLD/CC (ABB) Vice President of Scientific Advancement- Ovation Fertility; Scientific Director - Texas Fertility Centers; Laboratory and Operations Director- Ovation Fertility Austin & San Antonio, TX*

Maximize survival rates and help ensure successful pregnancies

Embryos	Survival Rate	Pregnancy Rate	Reference
Blastocysts n = 116	98.3%	(58.4% Implantation Rate) 61.2% clinical 54% ongoing	4
Biopsied, re-vitrified blastocysts n = 24	87.5%	(52.4% Implantation Rate) 56.3% clinical 47.6% ongoing	
Artificially collapsed blastocysts* n = 266 cycles	99.6%	(52.4% Implantation Rate) 72.2% overall per cycle	5
Embryos** n = 1239 Day 2 n = 590 Day 3 n = 356 Day 5	92.1% Day 2 95.6% Day 3 90.4% Day 5	-	6
Artificially collapsed blastocysts** n = 65	98.7%	(44.6% Implantation Rate) 57.5% clinical 51.7% ongoing	7
Biopsied, re-vitrified blastocysts*** n = 15	100%	(60% Implantation Rate) 62% clinical	8

Independent clinical data—see back cover for references. Vitrification devices: *Cryolock, **HSV Straw, ***CryoTip

Vit Kit and Vit Kit-NX are intended for use with oocytes (MII), pronuclear (PN) zygotes through day 3 cleavage stage embryos and blastocyst stage embryos.

Vit Kit - Freeze

Vit Kit - Thaw

Complete Solution

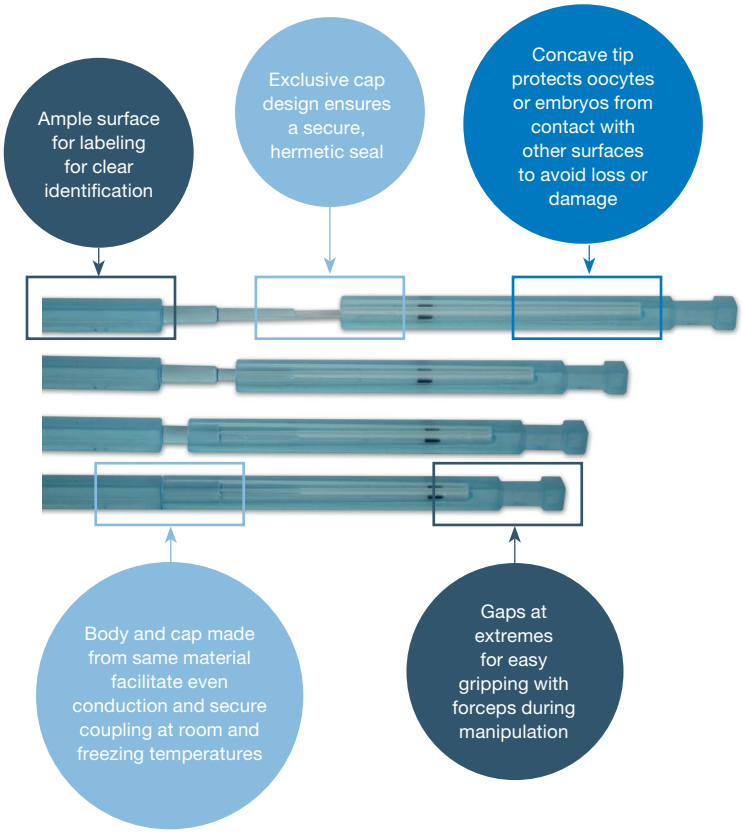
The complete vitrification solution compatible with any device

Cryolock & S-Cryolock

Efficient, secure closed or semi-closed system

Cryolock vitrification devices, manufactured by Biotech Inc. (an ISO 13485:2016 registered Medical Device Manufacture Company) are for holding, cryopreservation and storage of oocytes or embryos in liquid nitrogen.

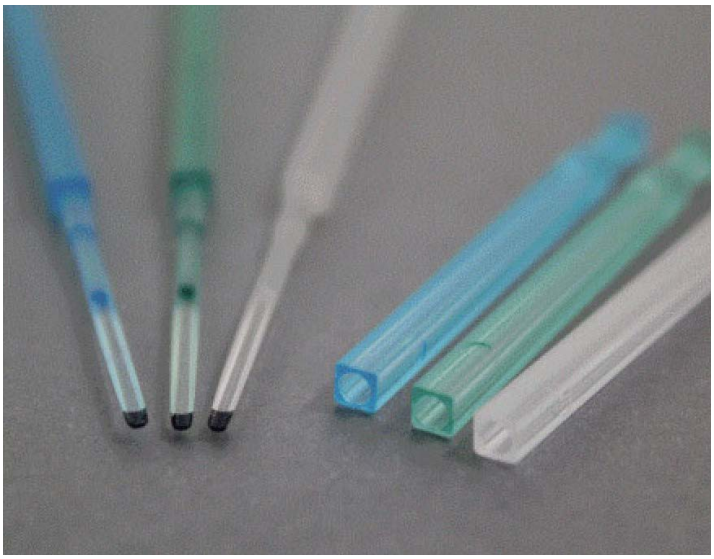
- No extra equipment or accessories required
- Fully compatible with Vit Kit and Vit Kit-NX
- Maximized specimen safety—secure, hermetic seal keeps tip isolated from liquid nitrogen
- FDA 510(k) Cleared, CE-marked, and Health Canada approved

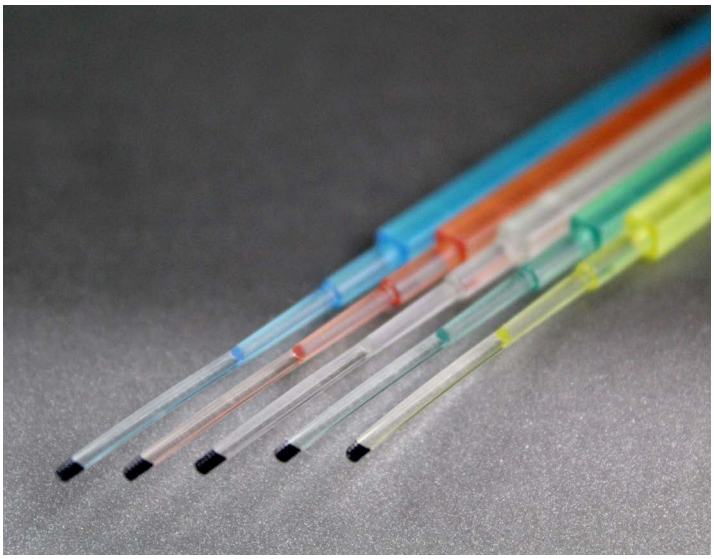


High survival and pregnancy rates

n	Survival Rate	Clinical Pregnancy Rate	Reference
325 Oocytes	89%	50%	2
116 Blastocyts	98.3%	61.2%	4
266 cycles (artificially collapsed blastocysts)	99.6%	72.2% overall per cycle	5

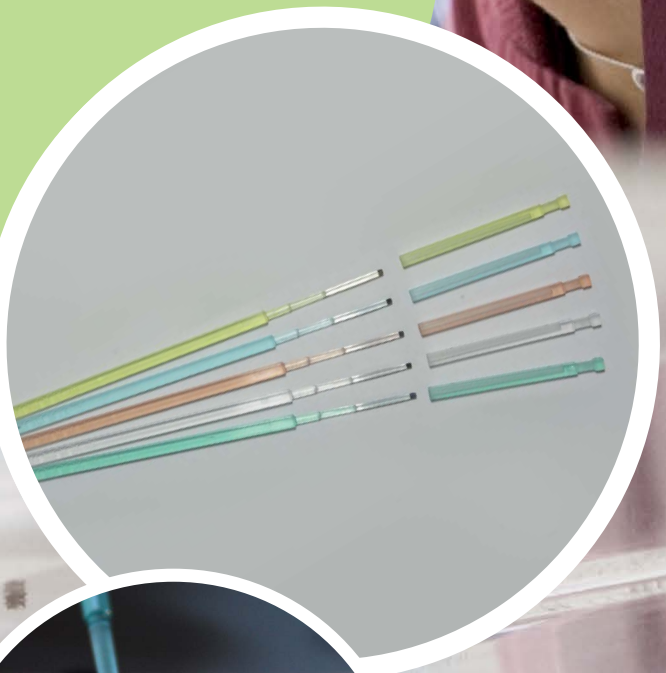
Independent clinical data—see back cover for references.

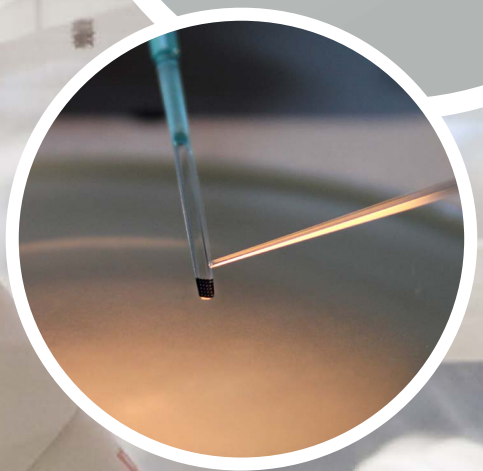




A range of colors facilitates traceability

With Cryolock or S-Cryolock, vitrification can be performed in Open, Closed, and Semi-Closed Systems, where the difference lies on the contact with liquid nitrogen (LN2). The semi-closed system has the advantage of the simplicity of an open system, along with its high cooling rate, and the safety of a closed system where there is no recirculation of LN2 during storage, enhancing survival, and embryo developmental rates.





Ordering Information

Media	Catalog #	Size	Additional Information	Shelf Life	Storage
Vit Kit - Freeze NX	90188	3x1 mL Equilibration Solution 3x1 mL Vitrification Solution 1x1 mL Washing Solution	- Dual-buffered solution (HEPES and MOPS) of Continuous Single Culture Medium (CMSM) containing Gentamicin Sulfate - Contains Dimethyl Sulfoxide (DMSO) and Ethylene Glycol (EG) - 50 applications with oocytes & 60 applications with embryos	1 year* 2 weeks after opening	2-8° C
Vit Kit - Warm NX	90183	6x2 mL Thawing Solution 2x1 mL Dilution Solution 4x1 mL Washing Solution	- Dual-buffered solution (HEPES and MOPS) of CMSM containing Gentamicin Sulfate - Contains Trehalose - 12 applications with oocytes and embryos	1 year* 2 weeks after opening	2-8° C
Vit Kit - Freeze	90133-SO	2x1 mL Equilibration Solution 2x1 mL Vitrification Solution	- HEPES buffered solution of M-199 containing Gentamicin Sulfate - Contains DMSO and EG - 33 applications with oocytes & 40 applications with embryos	1 year* 8 weeks after opening	2-8° C
Vit Kit - Thaw	90137-SO	4x2 mL Thawing Solution 1x2 mL Dilution Solution 1x2 mL Washing Solution	- HEPES buffered solution of M-199 containing Gentamicin Sulfate - Contains Sucrose - 8 applications with oocytes and embryos	1 year* 8 weeks after opening	2-8° C

All of our vitrification and warming media are for use with oocytes (MII), pronuclear (PN) zygotes through day 3 cleavage stage embryos and blastocyst stage embryos.

All of our vitrifiation media are supplemented with Dextran Serum Supplement (DSS) at 20% (v/v) for a final concentration of 10 mg/mL Human Serum Albumin (HSA) and 4 mg/mL Dextran.

*From date of manufacture

Item	Catalog #	Size	Additional Information
Cryolock (Blue, Green, Clear, Orange, Yellow)	CL-R-CT-B, CL-R-CT-G, CL-R-CT-C, CL-R-CT-O, CL-R-CT-Y	50 devices/pack	Sterile, sealed tyvek pouch
S-Cryolock (Blue, Green, Clear, Orange, Yellow)	SCL-R-CT-B, SCL-R-CT-G, SCL-R-CT-C, SCL-R-CT-O, SCL-R-CT-Y	50 devices/pack	Sterile, sealed tyvek pouch

References

1. Stoop D, De Munck N, Jansen E, et al. Clinical validation of a closed vitrification system in an oocyte-donation programme. Reproductive BIoMedicine Online. 2012; 24(2):180-185; **2.** Lim J, Holmes R, O'Leary T, et al. Efficiency of cryodevice in egg banking: Is one device superior than others? Fertil Steril. 2015 Supplement; 104(3):e187; **3.** De Munck N, Verheyen G, Van Landuyt L, Stoop D, Van De Velde H. Survival and post-warming in vitro competence of human oocytes after high security closed system vitrification. J Assist Reprod Genet. 2013; 30:361-369; **4.** Taylor T, Patrick J, Gitlin S, Wilson J, Crain J, Griffin D. Outcomes of blastocysts biopsied and vitrified once versus those cryopreserved twice for euplod blastocyst transfer. Reprod Biomed Online. 2014; 29: 59-64; **5.** Fields R, Werland H, Nguyen J, Sieren K, Turner T, Silverberg K. Laser collapsing of blastocysts prior to vitrification leads to better embryonic survival and improved overall IVF cycle outcome. Fertil Steril. 2013 Supplement; 100(3):S106; **6.** Van Langendockt A, Fasano G, Antonacci R, et al. Clinicaloutcomes of Day-2, Day-3, and Day-5 embryos vitrified with a closed system. ESHRE 2015, O-155; **7.** Liebermann J, Pelts E, Matthews J, Sanchez S, Rapisarda J, Lederer K. Does artificial collpase of human Day 6 blastocysts Prior to the cooling steps of vitrification improve their probability of increased outcome? Fertil Steril. 2012 Supplement; 98(3):S127; **8.** Popwell, J, Dougall K, Conaghan J. Clinical pregnancy and implantation rates of warmed, biopsied and re-vitrified blastocysts (W-CCS). Fertil Steril. 2014 Supplement; 101(2):e20.

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