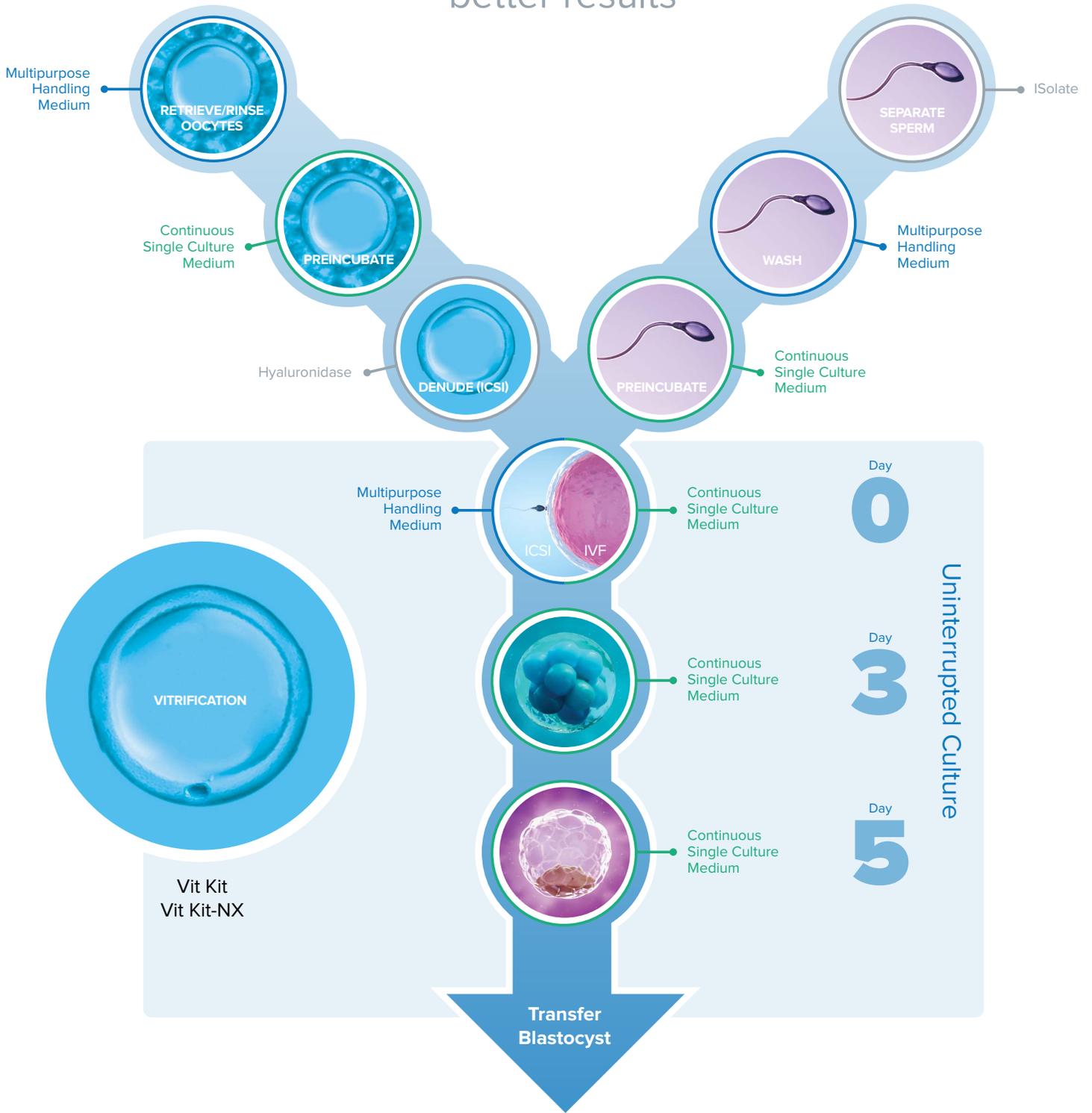


# Vitrification of Oocytes & Embryos

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. With this combined system, FUJIFILM Irvine Scientific continues to increase workflow efficiency and contribute to successful pregnancies in clinics throughout the world.

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## Vitrification of Oocytes and Embryos

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

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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

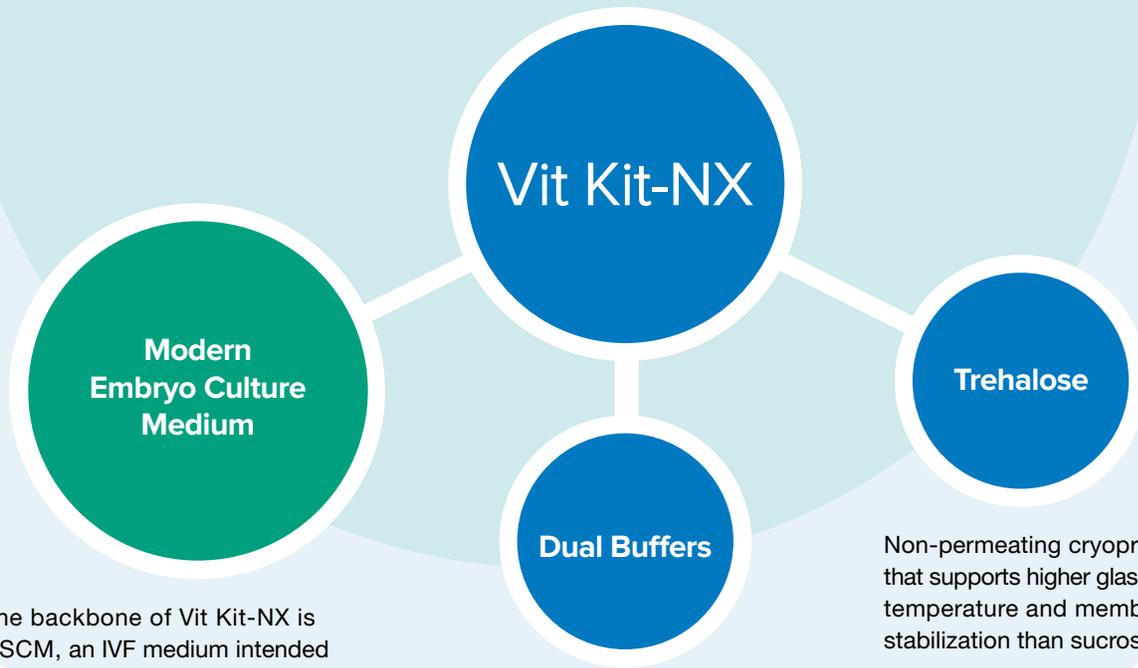
Visit our website at [www.irvinesci.com](http://www.irvinesci.com)

## 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.

# 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 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



# 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.

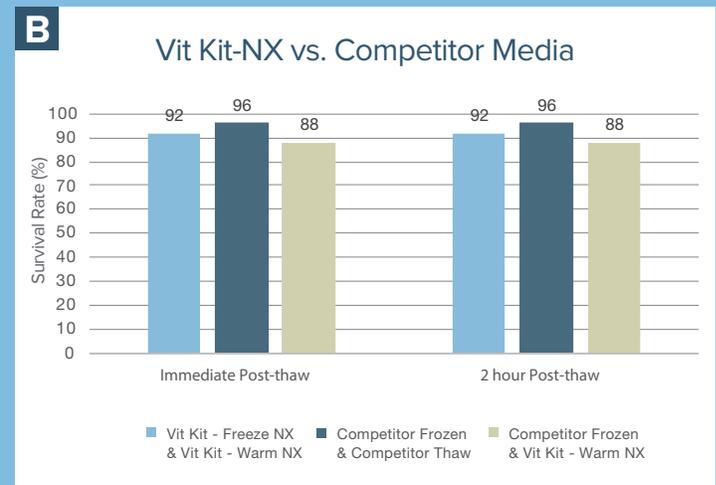
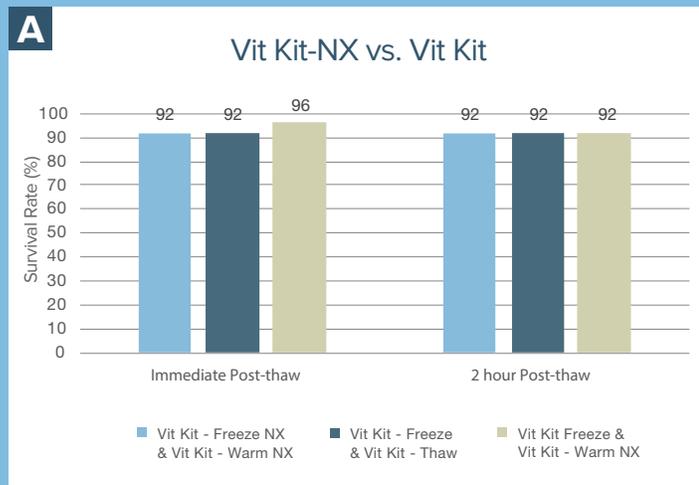
- Reduce costs by using less media with our microdrop protocol
- Minimize waste with a one-year shelf life for unopened products and two-week shelf life for open products
- Ready to use—no mixing required
- Compatible with any vitrification device
- Contains no phenol red

## 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

## 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.

# Versatile System

## The original Vit Kit

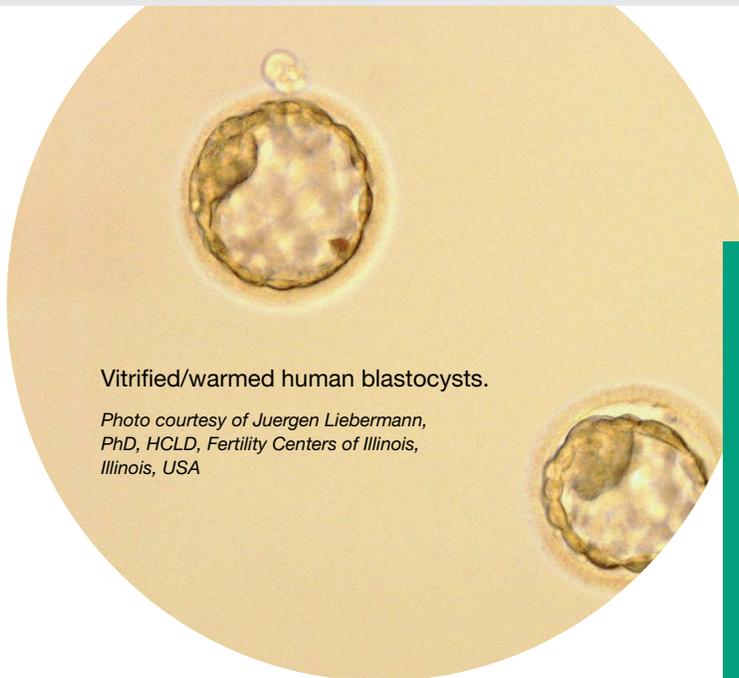
### Simplify your processes

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



### 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	



Vitrified/warmed human blastocysts.

*Photo courtesy of Juergen Liebermann, PhD, HCLD, Fertility Centers of Illinois, Illinois, USA*



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) Director, Ovation Fertility Austin Embryology and Andrology Laboratories; Director, San Antonio IVF Embryology and Andrology Laboratories Scientific Director, Texas Fertility Centers Director, California Fertility Partners Embryology Laboratory*

## 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.



As vitrification continues to play an integral role in the success of our laboratory and ultimately our patients, I can rely on these kits to provide the consistency and results that I, and our patients, expect.

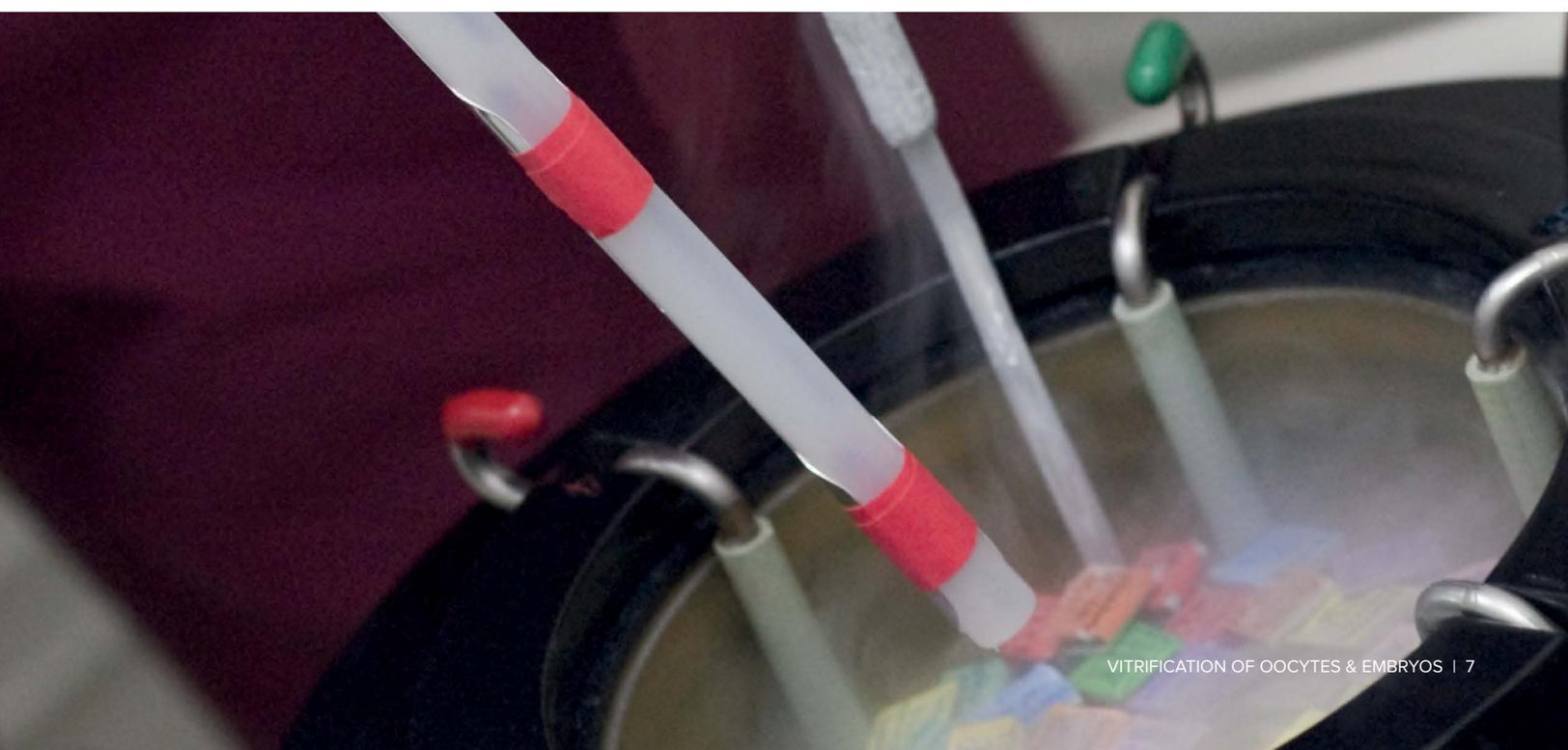
*Matthew VerMilyea PhD, HCLD/CC (ABB),  
Ovation Fertility Center, U.S.A.*

## Maximize survival rates and help ensure successful pregnancies

Embryos	Survival Rate	Pregnancy Rate	Reference
Blastocysts n = 116	87.5%	56.3% clinical 47.6% ongoing	4
Biopsied, re-vitrified blastocysts n = 24	98.3%	61.2% clinical 54% ongoing	
Artificially collapsed blastocysts* n = 266	99.6%	53% clinical 72.2% overall	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%	57.5% clinical 51.7% ongoing	7
Biopsied, re-vitrified blastocysts*** n = 15	100%	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.



# Complete Solution

The complete vitrification solution compatible with any device

## Efficient, secure closed or semi-closed system

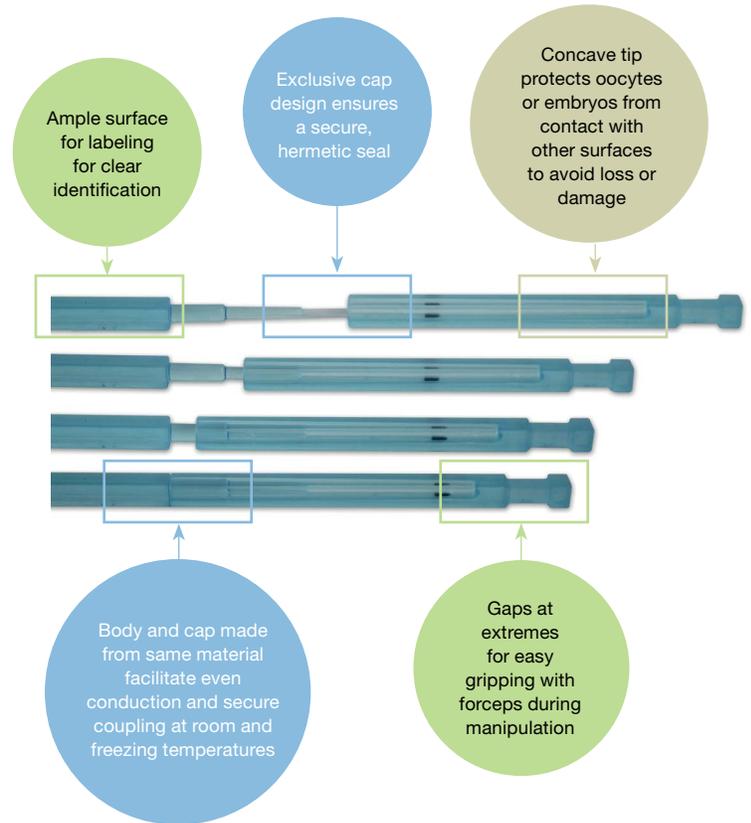
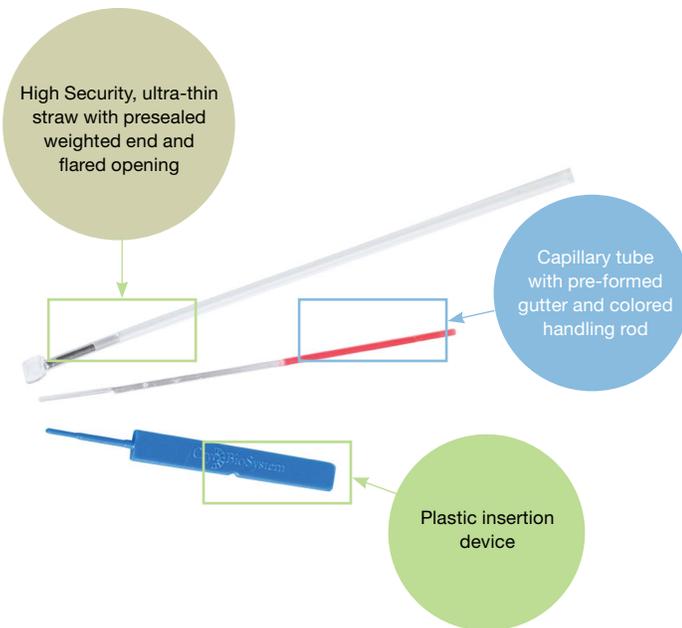
Cryolock vitrification devices, manufactured by Biotech Inc. (an ISO 13485:2016 registered Medical Device Manufacture Company) are for holding, cryopreservation and storage of oocytes or embryos in liquid nitrogen.

- 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

Survival Rate	Clinical Pregnancy Rate	Reference
89% (oocyte) n = 325	50%	2
98% (blastocyst) n = 116	61%	4

Independent clinical data—see back cover for references.



## Secure closed system

HSV Straws, manufactured by Cryo Bio system, offer a secure, closed system for cryopreservation and storage of oocytes, embryos or blastocysts in liquid nitrogen.

- Requires SYMS III sealer and opening device
- Fully compatible with Vit Kit and Vit Kit-NX
- CE-marked, FDA 510(k) Cleared

## High survival and pregnancy rates

	With Assisted Hatching		Reference
	Day 5	Day 6	9
Transfers	441	271	
Blastocysts survived	99.5%	99.6%	
Positive pregnancy*	71.2%	62.7%	
Clinical pregnancy*	61.5%	50.9%	
Ongoing/delivered pregnancies	54.2%	42.1%	

Independent clinical data – see back cover for references.

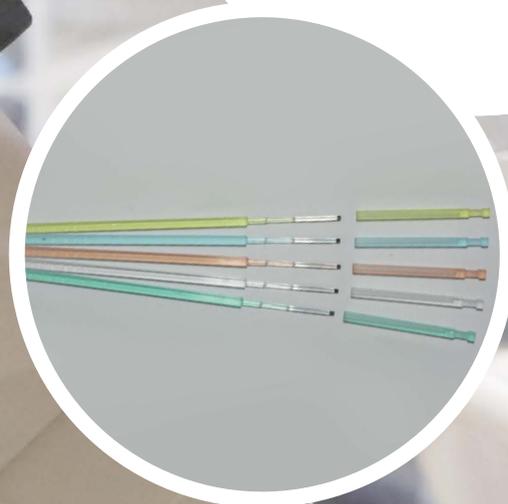


A range of colors  
facilitates traceability



I have used FUJIFILM Irvine Scientific kits for oocytes, embryos and blastocysts since 2011, with very successful survival rates and ongoing pregnancy rates. Our program uses closed vitrification systems, the kits work very efficiently under these conditions. I advise my peers in France and beyond to use these products.

*Matthew VerMilyea PhD, HCLD/CC (ABB),  
Ovation Fertility Center, U.S.A.*



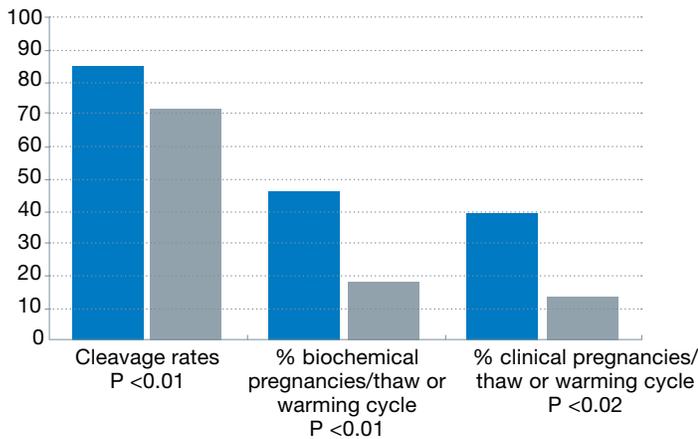
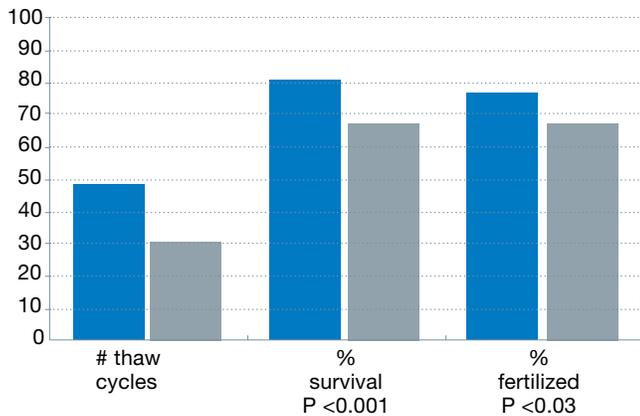
# Vitrification Pioneers

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.

## Improved outcomes compared to slow-freezing

■ Vitrification  
■ Slow freezing



Prospective randomized comparison of human oocytes cryopreservation with slow-rate freezing or vitrification, Smith et al., *Fertility and Sterility*, 2010 Nov;94(6):2088-95

## 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.

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.



## Oocyte being warmed post-vitrification

Re-entry of water is controlled during warming to allow the oocyte to return to its normal size at conclusion of the process.

*Photo courtesy of Joe Conaghan, PhD,  
HCLD, Pacific Fertility Center, San  
Francisco, California, USA*



## Improved pregnancy rates with frozen transfers

	Clinical Pregnancy Rate	Reference
Fresh blastocysts n= 44*	56.8%	10
Frozen blastocysts n=44*	63.6%	
Fresh blastocysts n=36**	63.9%	11
Frozen blastocysts n=37**	67.6%	

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



We perform about 2,000 cycles per year. Most are freeze-all cycles. Sometimes we vitrify as many as 100 blastocysts and oocytes per day. We appreciate how easy it is to use FUJIFILM Irvine Scientific's kits and we have seen excellent success rates with a variety of vitrification devices.

*Dr. Wei-Hua Wang, IVF Laboratory Director,  
Vivere Houston Fertility Laboratory, Texas, U.S.A.*



## Ordering Information

Media	Catalog #	Size	Additional Information	Shelf Life	Storage
<b>Vit Kit - Freeze NX</b> 90188 5.1. p.d. Vitrifikacijos rinkinys kiaušialąstėms ir visų stadijų embrionams užšaldyti (Cooling).		3x1 mL Equilibration Solution 3x1 mL Vitrification Solution 1x1 mL Washing Solution	- Contains Dimethyl sulfoxide (DMSO) and ethylene glycol (EG) - Supplemented with 10 mg/mL human serum albumin and 4 mg/mL of dextran - 50 applications with oocytes - 60 applications with embryos	1 year* 2 weeks after opening	2-8° C
<b>Vit Kit - Warm NX</b> 90183 5.2. p.d. Vitrifikacijos rinkinys kiaušialąstėms ir visų stadijų embrionams atšildyti (Warming).		6x2 mL Thawing Solution 2x1 mL Dilution Solution 4x1 mL Washing Solution	- Supplemented with 10 mg/mL human serum albumin and 4 mg/mL of dextran - 12 applications with oocytes and embryos	1 year* 2 weeks after opening	2-8° C
	83-SO	ES, 2x1 mL VS, 2x1 mL	For use with oocytes (MII), pronuclear (PN) zygotes through day 3 cleavage stage embryos and blastocyst stage embryos.	1 year* 8 weeks after opening	2-8° C
Vit Kit - Thaw	90137-SO	TS, 4x2 mL DS, 1x2 mL WS, 1x2 mL	For use with oocytes (MII), pronuclear (PN) zygotes through day 3 cleavage stage embryos and blastocyst stage embryos.	1 year* 8 weeks after opening	2-8° C

\*From date of manufacture

Item	Catalog #	Size	Additional Information
HSV High Security Vitrification Straw (Red, White, Yellow, Mauve/Pink, Blue, Green)	25246, 25247, 25248, 25249, 25250, 25251	4 straws/pack	Supplied sterile in peel-off blister pack. Requires SYMS III sealer and opening device
SYMS III Sealer	25547	1 unit	
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 vials
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 vials
CryoTip	40709	5 devices/pack	Sterile, in peel-off blister pack

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