

**PRODUCT
CATALOGUE**

VITRIFICATION
THE CRYOTOP® METHOD



THE CRYOTOP® METHOD

THE CRYOTOP® METHOD

Kitazato, world leader in vitrification, has developed The Cryotop® Method and secured its global implementation achieving best-in-class results in cryopreservation of human specimens from oocytes to blastocysts.



Our objective is to provide you a method with proven evidence of success and to help you obtain the best outcomes that only Kitazato Vitrification offers.

The Cryotop® Method is applied in more than 2,500,000 clinical cases annually in over 115 countries and 3,000 assisted reproduction centers. Hundreds of scientific publications certify its excellence.

Kitazato's
vitrification method
is **simple, safe,
versatile and easy
to apply for
everyone.**



THE CRYOTOP® METHOD

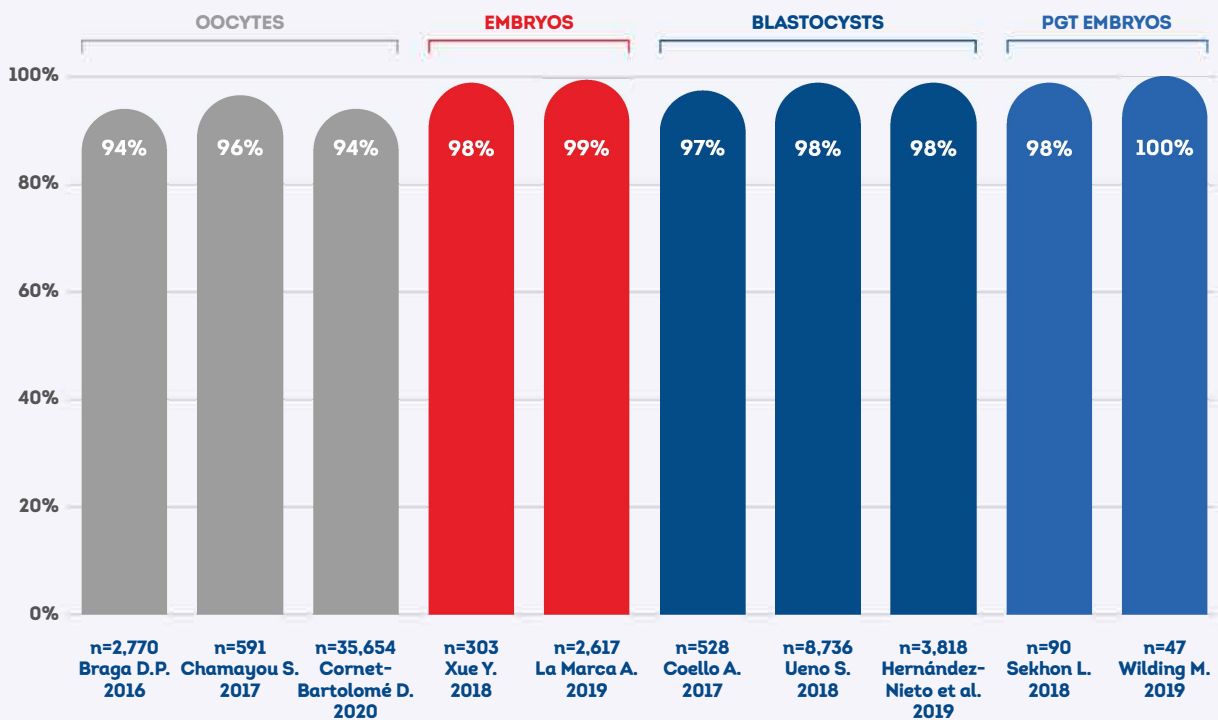
The Cryotop® Method allows you to achieve the best clinical outcomes. Its unparalleled survival rates for oocytes and embryos, at every stage of development, have contributed to bringing hundreds of thousands of healthy babies into the world since its creation.

The Cryotop® Method offers the best proven results on the market for vitrification of oocytes and embryos

Discover Kitazato's Cryotop® Method here

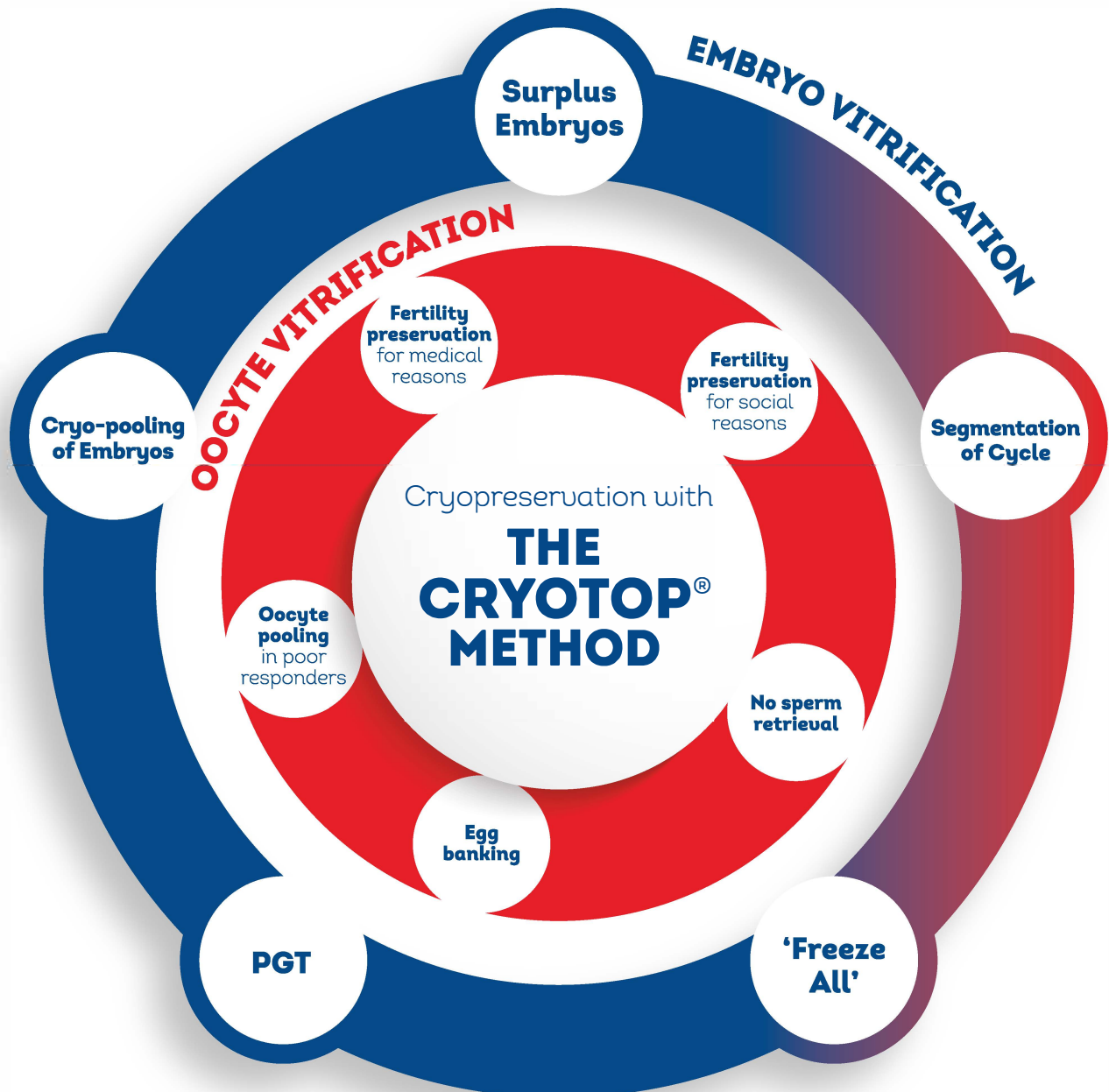


Cryotop® Survival Rates in Human Specimens



THE CRYOTOP® METHOD VERSATILITY

Its unique versatility makes Kitazato's Cryotop® Method the only one that can be used for numerous highly efficient cryopreservation procedures.



More information
and materials about
Cryopreservation with
The Cryotop® Method



THE CRYOTOP® METHOD

CRYOTOP®

Cryotop® is recognized as the “Gold Standard” vitrification device consisting of a fine strip of transparent film attached to a plastic handle resistant to liquid nitrogen

Its design allows the loading of specimens for vitrification with a minimum volume (0.1 µl), providing the best cooling and warming rates on the market (-23,000 °C/minute and 42,000 °C/minute respectively) which, in turn, lead to the best survival rates.

Cryotop® optimizes space in the nitrogen tanks and, without compromising the viability of the samples, is the best option to load up to 4 specimens without affecting the survival or reproductive potential of any of them.



Maximum storage capacity

Optimizing space in the nitrogen tanks and choosing the most appropriate vitrification device, without compromising the viability of the samples, is one of the major challenges for clinics.

Cryotop® maximizes storage capacity per goblet allowing to load up to 4 specimens per device without affecting the survival or reproductive potential of any of them.

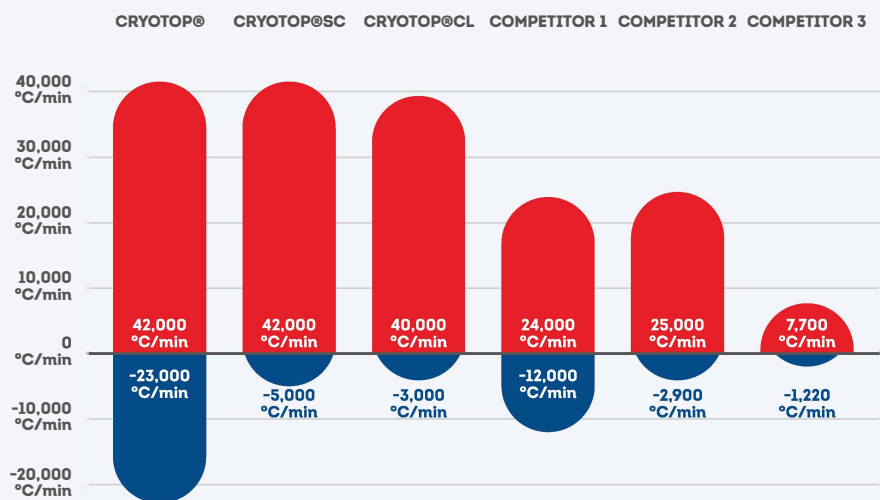
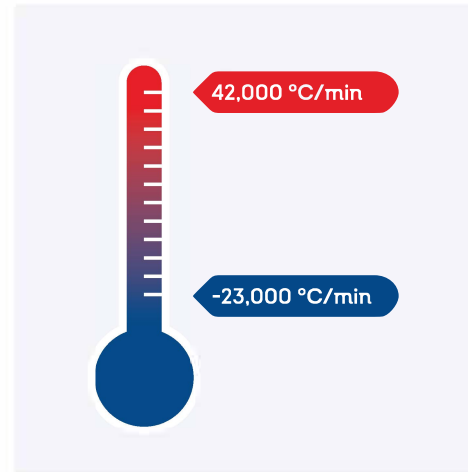
Allowing multiple vitrifications per device, in addition to the small size of the Cryotop®, has made it the most versatile and widely used vitrification device in the world.



Highest Cooling and Warming Rates on the Market

Cooling and warming rates are essential parameters for the success of vitrification and thawing processes. These parameters, especially the warming ones, have a huge impact in specimen survival rates.

This is achieved thanks to the **design of the Cryotop® device**, with its characteristic **thin strip**, the use of **small volumes of Kitazato Vitrification Media** surrounding the specimen, and the design of the vitrification and thawing **protocols that allow excellent temperature exchanges** between the specimen and the LN2/Warming Media.



CRYOTOP® CL

Cryotop® CL allows the device to be sealed within an outer straw. The sealed protocol ensures success during vitrification guaranteeing, at the same time, that the specimens and liquid nitrogen do not come into direct contact.

Kitazato Closed System guarantees the best Cooling and Warming Rates among other closed vitrification carriers.



THE CRYOTOP® METHOD

VITRIFICATION AND THAWING MEDIA

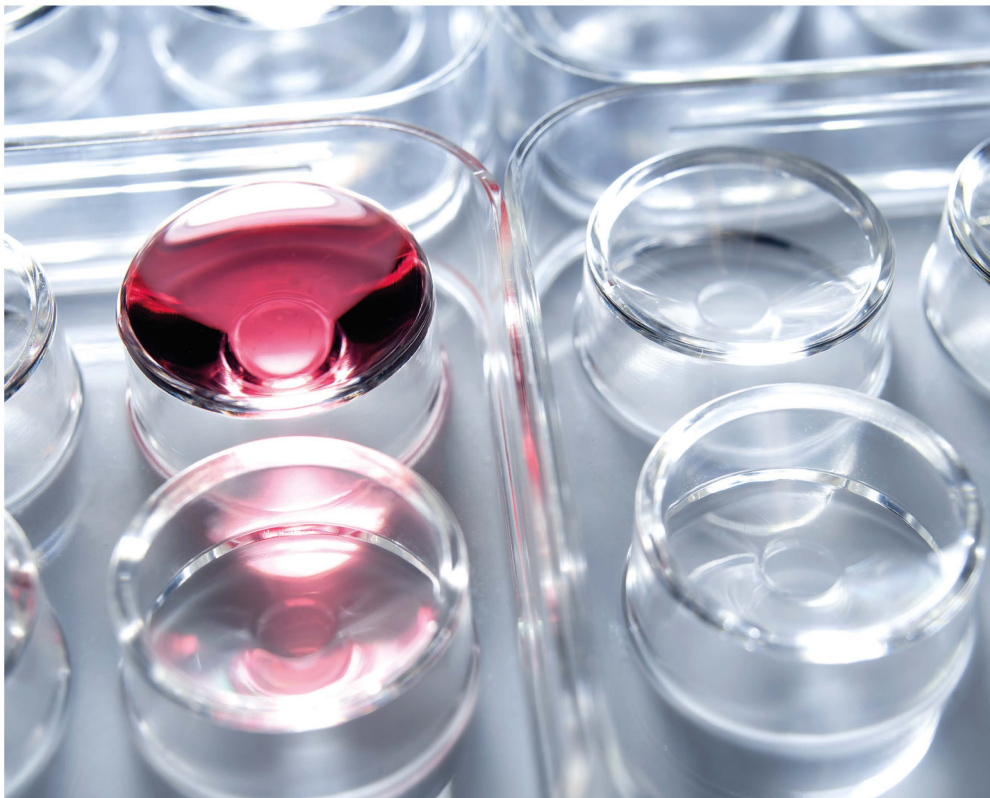
Kitazato vitrification media are the most versatile option for cryopreservation in your laboratory

Increase your efficiency by using the same media for vitrification and warming of oocytes and embryos, in all their stages of development, from zygote stage to blastocyst.

The Cryotop® Method offers the same products for both oocyte and embryo vitrification. This helps to standardize procedures, optimize laboratory routine and improve clinical results.

Kitazato media composition works effectively at room temperature, allowing convenient exchange between water and CPAs and preserving an intact cell membrane.

The only step that needs to be performed at 37°C is the first one of warming procedure.



VITRIFICATION MEDIA

- 1 x 1.5 ml Basic Solution vial (BS)
- 1 x 1.5 ml Equilibration Solution vial (ES)
- 2 x 1.5 ml Vitrification Solution vial (VS)



THAWING MEDIA

- 2 x 4 ml Thawing Solution vial (TS)
- 1 x 4 ml Diluent Solution vial (DS)
- 1 x 4 ml Washing Solution vial (WS)

Kitazato media's composition is entirely synthetic

Among their components, the following are notable:

- **Hydroxypropyl cellulose (HPC)** prevents the risk of contamination, increases the survival rate in hatched blastocysts and reduces mechanical stress during warming.
- **Trehalose** functions as an osmotic agent in place of sucrose. It provides greater safety in the process, improving the protection of the cellular membranes.
- **DMSO** in combination with ethylene glycol in the media assures less toxicity and the best outcomes after warming.
- The incorporation of **gentamicin** prolongs the shelf life of the media, guaranteeing greater safety in handling the solutions.

THE CRYOTOP® METHOD

REPRO PLATE

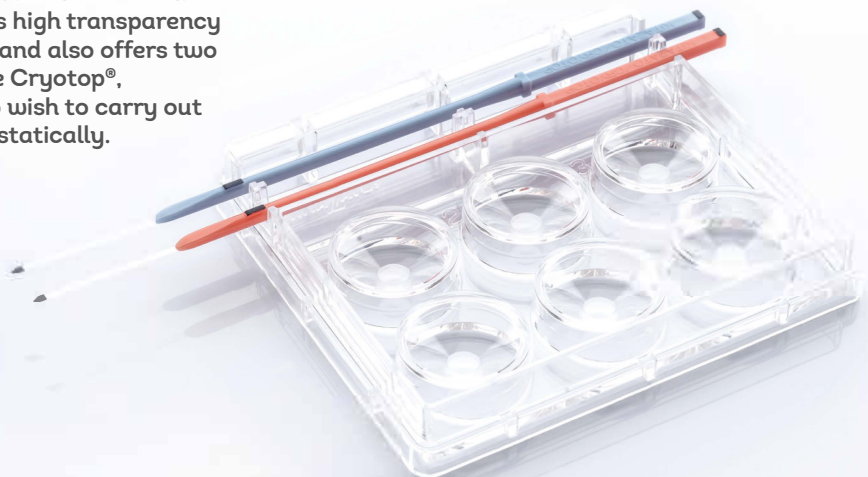
Repro Plate is a polystyrene dish specifically designed to perform **The Cryotop® Method** efficiently

- One or two rows of 3 conic-shaped wells
- Designed to accommodate the media volumes according to Kitazato vitrification and thawing protocols
- Allows to perform both vitrification and thawing procedures
- High transparency and great visibility
- Slots to secure Cryotop firmly in place



The conic-shaped well of the Repro Plate **allows gradual and stepwise addition of the solutions** during oocyte vitrification, which is the preferred and recommended method for MII oocytes. It has a flat base, which **allows the use of traceability labels.**

The Repro Plate is a conic-shaped well dish, exclusively designed to follow **The Cryotop® Method** with comfort. The Repro Plate has high transparency and great visibility and also offers two slots to support the Cryotop®, allowing those who wish to carry out loading specimens statically.



COOLING RACK

Designed to contain the liquid nitrogen needed during vitrification.
Inner Steel Box also available to allow sterilization before use.

**Two sizes available
to fit the needs of each laboratory**



**ALUMINUM
BLOCK CL**



**STRAW
CUTTER**



**HEAT
SEALER**



PRODUCT REFERENCES

Cryotop® Open System

Order Number	Code	Description	Quantity
81111	Cryotop® - G	Green	10/pack
81112	Cryotop® - R	Red	10/pack
81113	Cryotop® - W	White	10/pack
81114	Cryotop® - B	Blue	10/pack
81115	Cryotop® - Y	Yellow	10/pack

Cryotop® Closed System

Order Number	Code	Description	Quantity
81131	Cryotop® CL - G	Green	10/pack
81132	Cryotop® CL - R	Red	10/pack
81133	Cryotop® CL - W	White	10/pack
81134	Cryotop® CL - B	Blue	10/pack
81135	Cryotop® CL - Y	Yellow	10/pack

Repro Plate and Oocyte Cryo Plate

Order Number	Code	Description	Quantity
83010	Repro Plate-K1 (3well)	-	10pcs/box
83011	Repro Plate-K1 (3 well)	Individually Packed	-
83016	Repro Plate-K2 (6well)	-	10pcs/box
83017	Repro Plate-K2 (6well)	Individually Packed	-
83018	Repro Plate-K3 (3well)	-	10pcs/box
83019	Repro Plate-K3 (3well)	Individually Packed	-
83020	Repro Plate-K6 (6well)	-	10pcs/box
83021	Repro Plate-K6 (6well)	Individually Packed	-
83061	Oocyte Cryo Plate (3well)	Individually Packed	10pcs/box

Quality control

- SAL (Sterility Assurance Level): 10^{-6}
- Endotoxin ≤ 0.5 EU/device
- MEA (Mouse Embryo Assay)
- Shelf life: 3 years

PRODUCT REFERENCES

Vitrification Media

Order Number	Code	Description	Quantity
91101	VT601	Vitrification Media	4 x 1.5ml
91121	VT602	Thawing Media	4 x 4ml

Quality control

- pH tested
- Osmolality tested
- SAL (Sterility Assurance Level): 10^{-6}
- Endotoxin $\leq 0,25$ EU/device
- MEA (Mouse Embryo Assay)
- Shelf life: 12 months

Composition

- HEPES buffer
- Dimethyl sulfoxide (DMSO)
- Ethylene glycol
- Trehalose
- Hydroxypropyl cellulose (HPC)
- Gentamicin

Accessories

Order Number	Code	Description	Quantity
84010	Cooling Rack (S)	Short	1
84014	Cooling Rack (L)	Long	1
84130	Cooling Rack Lid (S)	Short	1
84131	Cooling Rack Lid (L)	Long	1
94120	Stainless Steel Container (S)	Short	1
94121	Stainless Steel Container (L)	Long	1
84122	Aluminum Block CL	-	1
84117	Straw Cutter	-	1
84119	Heat Sealer (Plug C)	-	1
84121	Heat Sealer (Plug A)	-	1

CLINICAL
REFERENCES

Blastocyst Vitrification

Cobo A., Outcomes of vitrified early cleavage-stage and blastocyst-stage embryos in a cryopreservation program: evaluation of 3,150 warming cycles. *Fertility & Sterility*, 2012.

Cobo A., Outcome of cryotransfer of embryos developed from vitrified oocytes: double vitrification has no impact on delivery rates. *Fertility & Sterility*, 2013.

Yang H., Comparison of differences in development potentials between frozen-thawed D5 and D6 blastocysts and their relationship with pregnancy outcomes. *Journal Assisted Reproduction Genetics*, 2016.

Coello A., Analysis of the morphological dynamics of blastocysts after vitrification/warming: defining new predictive variables of implantation. *Fertility & Sterility*, 2017.

Liu H., Elevated incidence of monozygotic twinning is associated with extended embryo culture, but not with zona pellucida manipulation or freeze-thaw procedure. *Fertility & Sterility*, 2018.

Gu Fang., Perinatal outcomes of singletons following vitrification versus slow-freezing of embryos: a multicenter cohort study using propensity score analysis. *Human Reproduction*, 2019.

La Marca A., A novel transnational fresh oocyte donation (TOD) program based on transport of frozen sperm and embryos. *Human Reproduction*, 2019.

Liu H., Effect of endometrial thickness on ectopic pregnancy in frozen embryo transfer cycles an analysis including 17,244 pregnancy cycles. *Fertility & Sterility*, 2019.

Zhang J., The impact of embryo quality on singleton birthweight in vitrified-thawed single blastocyst transfer cycles. *Human reproduction*, 2020.

Cobo A., Viral screening of spent culture media and liquid nitrogen samples of oocytes and embryos from hepatitis B, hepatitis C, and human immunodeficiency virus chronically infected women undergoing in vitro fertilization cycles. *Fertility & Sterility*, 2012.

Li W., Influence of storage time on vitrified human cleavage-stage embryos frozen in open system. *Gynecological endocrinology*, 2017.

Sekhon L., Blastocyst vitrification, cryostorage and warming does not affect live birth rate, infant birth weight or timing of delivery. *Reproductive Biomedicine Online*, 2018.

Ueno S., Cryostorage duration does not affect pregnancy and neonatal outcomes: a retrospective single-centre cohort study of vitrified-warmed blastocysts. *Reproductive Biomedicine Online*, 2018.

Costa-Borges N., Cryopreservation of oocytes and embryos in times of COVID-19: Can the cure be worse than the disease? Risk assessment in the IVF laboratory. *Fertility and Sterility*, 2020.

Coello A., Prediction of embryo survival and live birth rates after cryotransfers of vitrified blastocysts, *RBMO*, 2021.

Coticchio G., Perturbations of morphogenesis at the compaction stage affect blastocyst implantation and live birth rates, *Human Reproduction*, 2021.

Oocyte Vitrification

Cobo A., Viral screening of spent culture media and liquid nitrogen samples of oocytes and embryos from hepatitis B, hepatitis C, and human immunodeficiency virus chronically infected women undergoing in vitro fertilization cycles. *Fertility & Sterility*, 2012.

Cobo A., Oocyte vitrification as an efficient option for elective fertility preservation. *Fertility & Sterility*, 2016.

Cobo A., Effect of oocyte vitrification on embryo quality: time-lapse analysis and morphokinetic evaluation. *Fertility & Sterility*, 2017.

Diaz-Garcia C., Oocyte vitrification versus ovarian cortex transplantation in fertility preservation for adult women undergoing gonadotoxic treatments: a prospective cohort study. *Fertility & Sterility*, 2018.

Grynberg M., BRCA1/2 gene mutations do not affect the capacity of oocytes from breast cancer candidates for fertility preservation to mature in vitro. *Human Reproduction*, 2018.

Cobo A., Elective and Onco-fertility preservation: factors related to IVF outcomes. *Human Reproduction*, 2018.

Creux H., Thirteen years' experience in fertility preservation for cancer patients after in vitro fertilization and in vitro maturation treatments. *Journal Assisted Reproduction Genetics*, 2018.

Coello A., Effect of oocyte morphology on post-warming survival and embryo development in vitrified autologous oocytes. *Reproductive Biomedicine Online*, 2019.

Cobo A., Use of cryo-banked oocytes in an oocyte donation program: a prospective, randomized, controlled, clinical trial. *Human Reproduction*, 2010.

Solé M., How does vitrification affect oocyte viability in oocyte donation cycles? A prospective study to compare outcomes achieved with fresh versus vitrified sibling oocytes. *Human Reproduction*, 2013.

Bárcena P., Should we worry about the clock? Relationship between time to ICSI and reproductive outcomes in cycles with fresh and vitrified oocytes. *Human Reproduction*, 2016.

Domingues TS., Egg donation of vitrified oocytes bank produces similar pregnancy rates by blastocyst transfer when compared to fresh cycle. *Journal Assisted Reproduction Genetics*, 2017.

Parmegiani L., Transnational oocyte donation program: fresh versus vitrified oocytes. *Human Reproduction*, 2019 (Reply Letter).

Cornet-Bartolomé D., Efficiency and efficacy of vitrification in 35,654 sibling oocytes from donation cycles, *Human Reproduction*, 2020.

Costa-Borges N., Cryopreservation of oocytes and embryos in times of COVID-19: Can the cure be worse than the disease? Risk assessment in the IVF laboratory. *Fertility and Sterility*, 2020.

Rienzi L., Definition of a clinical strategy to enhance the efficacy, efficiency and safety of egg donation cycles with imported vitrified oocytes. *Human Reproduction*, 2020.

Freeze-All

Almeida Ferreira Braga DP., Freeze-all, oocyte vitrification, or fresh embryo transfer? Lessons from an egg-sharing donation program. *Fertility & Sterility*, 2016.

Berkkanoglu M., Optimal embryo transfer strategy in poor response may include freeze-all. *Journal Assisted Reproduction Genetics*, 2017.

Xue Y., Freeze-all embryo strategy in poor ovarian responders undergoing ovarian stimulation for in vitro fertilization. *Gynecological Endocrinology*, 2018.

Cardenas Arma D.F., Frozen-thawed blastocyst transfer in natural cycle increase implantation rates compared artificial cycle. *Gynecological Endocrinology*, 2019.

Vitrification and PGT

Ubaldi F.M., Reduction of multiple pregnancies in the advanced maternal age population after implementation of an elective single embryo transfer policy coupled with enhanced embryo selection: pre- and post-intervention study. *Human Reproduction*, 2015.

Rodríguez-Purata J., Reproductive outcome is optimized by genomic embryo screening, vitrification, and subsequent transfer into a prepared synchronous endometrium. *Journal Assisted Reproduction Genetics*, 2016.

Chamayou S., The Accumulation of Vitrified Oocytes Is a Strategy to Increase the Number of Euploid Available Blastocysts for Transfer After Preimplantation Genetic Testing. *Journal Assisted Reproduction Genetics*, 2017.

Cimadomo D., Associations of blastocyst features, trophectoderm biopsy and other laboratory practice with post-warming behavior and implantation. *Human Reproduction*, 2018.

Coll L., Transition from blastomere to trophectoderm biopsy: comparing two preimplantation genetic testing for aneuploidies strategies. *Zygote*, 2018.

Hernandez-Nieto C., What is the reproductive potential of day 7 euploid embryos?. *Human Reproduction*, 2019.

Magli MC., Deoxyribonucleic acid detection in blastocoelic fluid: a new predictor of embryo ploidy and viable pregnancy. *Fertility & Sterility*, 2019.

Wilding M., Thaw, biopsy and refreeze strategy for PGT-A on previously cryopreserved embryos, *Facts Views Vis Obgyn*, 2019.

TRAINING
PROGRAM

OUR GREATEST ACHIEVEMENT IS FOR YOU **TO OBTAIN THE BEST CLINICAL RESULTS**

Kitazato has spent over a decade investing in training and workshops around the world. Thousands of embryologists have learned the Tips & Tricks of the Kitazato Vitrification, whether at conferences, on visits to clinics, or at our reference support centers and training facilities.

We know that **The Cryotop® Method** offers the best survival results on the market, and we are committed to helping you achieve this. To do so, our trainings are always led by experienced professionals, belonging to some of the most renowned clinics in the world, supported by our team of specialized embryologists.

During our trainings, we reinforce the learning process by starting with a theoretical session followed by a hands-on one in which trainers share valuable knowledge and experiences from their daily routines that will help you master **The Cryotop® Method**. We guarantee that no question will go unanswered.

**8**

Hands-on workshops regularly led in 8 countries

**+5,000**

Embryologists trained worldwide

**+15**

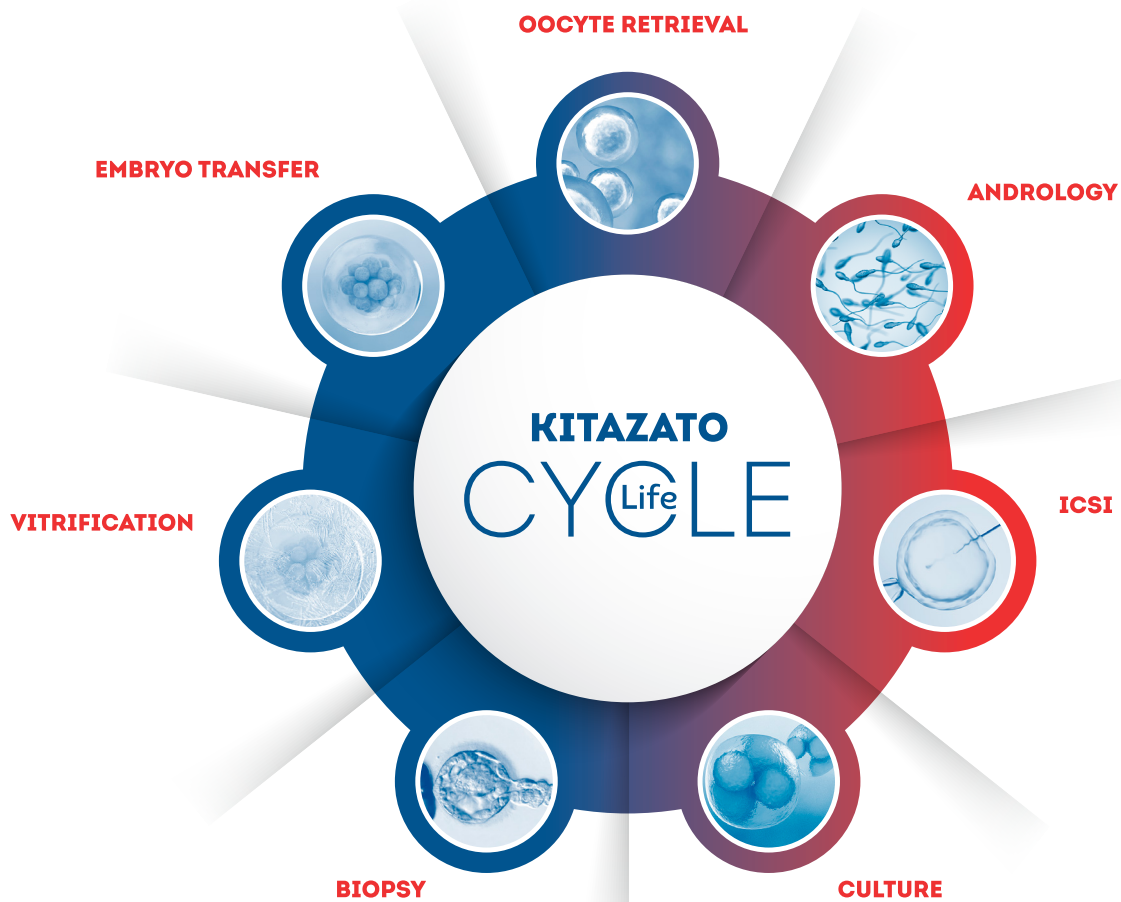
Years investing in training & workshops

MISSION AND VALUES

THE IVF CYCLE TO MAKE LIFE HAPPEN

Kitazato offers a broad selection of quality products that maximize success at every step of the IVF LifeCycle

Learn more about the products involved in each IVF procedure



KITAZATO®



KITAZATO CORPORATION
100-10 Yanagishima, Fuji
Shizuoka 416-0932 Japan
Tel +81 545-65-7122
Fax +81 545-65-7128
contact@kitazato.co.jp

