

Summary of Safety and Clinical Performance

Hyaluronidase

The purpose of this Summary of Safety and Clinical Performance (SSCP) is to offer public access to an updated summary of the main issues concerning the safety and clinical performance of the device. This document does not replace the Instructions of Use (IFU), which is the main document to ensure the safety of the device, and neither is it intended to provide advice on the diagnostic or therapeutic suggestions to the intended users.

0 Abbreviations

ART Assisted Reproductive Technology

EDQM European Directorate for the Quality of Medicines & HealthCare

EMA European Medicine Agency

EMDN European Medical Devices Nomenclature

ESHRE European Society of Human Reproduction and Embryology

FSCA Field Safety Corrective Action

FSN Field Safety Notice

HAS Human Albumin Solution

HbsAg Hepatitis B surface Antigen

HBV Hepatitis B Virus

HCV Hepatitis C Virus

HEPES 4-(2-hydroxyethyl)-1-piperazineethanesulfonic acid

HIV Human Immunodeficiency Virus

HSA Human Serum Albumin

ICSI Intra Cytoplasmatic Sperm Injection

IFU instructions for use

IVF In Vitro Fertilization

MDR Medical Device Regulation

MSDS Material Safety Data Sheet

NB notified body

PMCF post-market clinical follow-up

SRN single registration number for an economic operator

SSCP summary of safety and clinical performance

TSE Transmissible Spongiform Encephalopathy

UDI-DI Unique Device Identification - device identifier

WHO World Health Organization

1 Device identification and general information

1.1 Device trade name(s)

Hyaluronidase

Variants:

Product code Reference
HYBD-1x5 95940
HYBD-10 95931





1.2 Manufacturer's name and address

Kitazato Corporation

Address: 100-10, Yanagishima, Fuji, Shizuoka, 416-0932 Japan

Phone: +81-545-65-7122 Fax: +81-545-65-7128

E-mail: ce_registration@kitazato.co.jp

1.3 Manufacturer's single registration number (SRN)

Kitazato Corporation SRN JP-MF-000018374

1.4 Basic UDI-DI

458223146HYAJQ

1.5 Medical device nomenclature description/text

Applicable EMDN code: U08020502 - materials/solutions for preparation/handling for assisted reproduction.

1.6 Class of device

Hyaluronidase media are considered medical devices Class III according to MDR (Regulation (EU) 2017/745) Annex VIII.

1.7 Year when the first certificate (CE) was issued covering the device

Hyaluronidase (Class III under Medical Device Regulation (MDR) 2017/745, Annex IX Chapter II): MDR 760766 and MDR 760355, First issued: 27/06/2024.

1.8 Authorised representative if applicable; name and the SRN

Biomedical Supply, S.L. (Dibimed) C/Jorge Comín, 3. Valencia. 46015. Spain. Tel +34 96 305 63 95 Fax +34 96 305 63 96 info@dibimed.com

SRN: ES-AR-000014358

1.9 Notified Body (NB)'s name and single identification number

BSI Group The Netherlands B.V. Say Building, John M. Keynesplein 9 1066 EP Amsterdam The Netherlands

NB identification number: 2797

2 Intended use of the device

2.1 Intended purpose

Hyaluronidase is a ready to use medium used in the oocyte denudation process for the removal of the cumulus complex and corona radiata surrounding the oocyte in preparation for Intra Cytoplasmatic Sperm Injection (ICSI) or other Assisted Reproductive Technologies.



2.2 Indication(s) and intended patient groups

The European Society of Human Reproduction and Embryology (ESHRE) recommends using an enzymatic procedure with hyaluronidase, followed by mechanical denudation using a pipette, for the removal of cumulus and corona cells. Kitazato Hyaluronidase is designed for this purpose and contains 80IU/ml hyaluronidase. This medium is typically used in the oocyte denudation process for the digestion of the hyaluronic acid between cumulus cells.

Before fertilization, the oocyte is surrounded by the *corona radiata* and scattered parts of cumulus cells. The hyaluronic acid in the intercellular matrix makes the fluid that surrounds those cells sticky and stringy. *In vivo*, enzymes like hyaluronidase are released by the acrosome reaction of the sperm cells and dissolve the intercellular matrix between the cumulus cells. This way, the throng of cumulus cells is loosened, and more sperm cells can bind to the pellucid zone and undergo the subsequent acrosome reaction.

Hyaluronidase target population are patients undergoing Assisted Reproductive Technology (ART) procedures, which are typically indicated as treatments for patients with infertility problems.

2.3 Contraindications and/or limitations

There are no known contraindications and/or limitations identified for Hyaluronidase.

2.4 Approved version of the IFUs

2.2 IFU Hyaluronidase V4, version 4, 2025-03

3 Device description

3.1 Description of the device

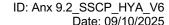


The product described in this summary is Hyaluronidase, which is used in the oocyte denudation process for the removal of the cumulus complex and corona radiata surrounding the oocyte in preparation for ICSI or other Assisted Reproductive Technologies.

The Hyaluronidase medium is composed of physiologic salts, HEPES, glucose, pyruvate, lactate, Human Serum Albumin (HSA, 4.0g/L) and hyaluronidase from bovine origin (80 IU/ml) to facilitate the mechanical denudation of oocytes in preparation for ICSI. It is a ready-to-use viscous medium that can be used prior to intra-cytoplasmatic sperm injection (ICSI) for oocyte denudation.

Direct physical contact occurs between the medium and human oocytes. There is no direct or indirect contact with the human body.

Hyaluronidase is not intended for single use; multiple single procedures can be performed with one bottle of Hyaluronidase. The media can be used up to 7 days after bottle opening (when sterile conditions are maintained, and the products are stored at 2-8°C).





Hyaluronidase is sterilized using aseptic processing techniques (filtration).

3.2 A reference to previous generation(s) or variants if such exist, and a description of the differences

No previous generations of the device have been brought on the market by Kitazato Corporation.

3.3 Description of any accessories which are intended to be used in combination with the device No accessories for Hyaluronidase are identified.

3.4 Description of any other devices and products which are intended to be used in combination with the device

No specific devices and products to be used with Hyaluronidase are identified. The product can be used in combination with general ART media and labware.

4 Risks and warnings

4.1 Residual risks and undesirable effects

The inclusion of HSA in Hyaluronidase, a medicinal substance approved by the EMA, is one of the residual risks identified for the device. This risk concerns the eventual transmission of viral or prion-carried diseases and the batch-to-batch variation. A description of the residual risks and major benefits is shown below:

Residual risks of Human Serum Albumin (HSA)

1. Batch to batch variation

The risk may arise due to the inherent variability in donor blood. Consequently, standardization of the procedures remains difficult.

Therefore, a mouse embryo assay is routinely performed as part of the batch release criteria of HSA (incoming inspection) and as part of Hyaluronidase batch release criteria.

2. Transmission of viral or prion-carried diseases due to the use of a human derived protein source

Along 50 years of clinical use, HSA is manufactured with a pasteurization procedure that has led to excellent viral safety. Only Human Serum Albumin products approved by the European Medicines Agency (EMA) and covered by a valid Plasma Master File are used as the source of albumin, as the EMA has positively evaluated the usefulness, safety and benefit of their inclusion in Kitazato Corporation ART media.

In addition to the rigorous quality controls, all cell culture media should still be treated as potentially infectious. At his moment, full assurance that products derived from human blood will not transmit infectious agents cannot be granted by any test method. The use of Hyaluronidase is restricted to its intended use and is not intended to be in

Major benefits

- 1. Osmotic Regulator. Stabilization of the cell membrane in the medium.
- 2. Detoxification by binding waste products from cell metabolism.
- 3. Carrier and source of essential molecules.
- 4. HSA prevents cell aggregation and adherence to laboratory equipment and promotes the ease of gamete handling and manipulation.
- 5. pH regulator.





direct contact with users or patients. Even so, the instructions for use / MSDS clearly warn that the medium contains human albumin solution, and that protective clothing should be worn.

Based on the analysis above it is concluded that the benefit of adding HSA to the media outweighs the risk and the overall residual risk related to the use of Hyaluronidase with inclusion of HSA has been judged acceptable.

According to the above information, the Instructions for Use (IFU) informs the customer about the product composition and contains the following precautions:

- Standard measures to prevent infections resulting from the implementation of medicinal
 products prepared from human blood or plasma include effective manufacturing steps for the
 inactivation/removal of viruses. When medicinal products prepared from human blood or plasma
 are administered, the possibility of transmitting infective agents cannot be totally excluded. This
 also applies to unknown or emerging viruses and other pathogens.
- All blood products should be treated as potentially infectious. Source material from which this
 product was derived was found negative when tested for antibodies to HIV-1/-2, HBV or HCV,
 and non-reactive for HbsAg. The known test methods cannot guarantee that products derived
 from human blood will not transmit infectious agents.

The other residual risk remaining after the risk assessment – cannot be reduced any further – comes from using hyaluronidase derived from bovine testes, which could introduce contaminants like parasites, bacteria, molds, yeasts, Transmissible Spongiform Encephalopathy (TSE) agents, and viruses. Fortunately, comprehensive strategies are in place to manage these risks:

- <u>Parasites, bacteria, molds, and yeasts</u> are effectively controlled through validated manufacturing processes, including strict incoming material checks (like endotoxin testing), ongoing process monitoring (bioburden tests), sterile filtration, and final product quality assurance (sterility and endotoxin tests).
- The danger of <u>TSE transmission</u> is significantly lowered by sourcing EDQM-certified hyaluronidase.
 This approach aligns with relevant regulations and leverages the fact that bovine testes have no detectable infectivity for TSE, as per WHO and ISO guidelines. Additional safeguards include meticulous selection, collection, storage, and transport of the source material.
- The potential for <u>virus transmission</u> is mainly mitigated by carefully choosing the animal source, considering factors like species, geographical origin, health status, feeding practices, and veterinary oversight. Furthermore, the raw material manufacturing process incorporates steps specifically designed to remove or inactivate viruses. In addition to this, Kitazato evaluates annually on the presence of ruminant zoonoses in source countries, and the possible impact for safe use of bovine derived raw material in medical devices.

Based on the analysis above, it is concluded that the residual risks associated with the incorporation of bovine testes derived hyaluronidase are therefore considered acceptable.

Concerning this residual risk, the Instructions for Use informs the customer about the product composition and contains the following precaution:

• The hyaluronidase used in this product is derived from bovine testis and is certified with a TSE risk evaluation Certificate of Suitability (CEP). The animals from which the hyaluronidase is derived,



are determined "fit for human consumption" and originate from countries with "negligible BSE risk", as determined in Resolution "Recognition of the Bovine Spongiform Encephalopathy Risk Status of Member Countries", adopted by the World Organisation for Animal Health (OIE). According to the World Health Organization (WHO) guidelines on Tissue Infectivity Distribution in Transmissible Spongiform Encephalopathies (2010) and ISO22442-1, testes from bovine source are classified as "Tissues with no detected infectivity".

No other known undesirable side-effects are identified.

4.2 Warnings and precautions

Besides the above, attention should be paid to the following warnings and precautions (as described in the instructions for use):

Warnings	gs Precautions	
 Do not re-sterilize. Do not use after the expiration date. Do not use if packing is damaged or broken. Do not use if product becomes cloudy or shows evidence of microbial contamination. 	 Aseptic technique should be used. Use sterilized equipment and materials only. In case of eye or skin contact with Hyaluronidase, immediately flush eye/skin with water. Observe all federal, state and local environmental regulations when discarding the product. The user shall be responsible for any problems caused by incorrect use of the present IFU. For professional use only. This product is intended to be used by medical specialists trained in fertility treatment. All blood products should be treated as potentially infectious. Source material from which this product was derived was found negative when tested for antibodies to HIV-1/-2, HBV or HCV, and non-reactive for HbsAg. The known test methods cannot guarantee that products derived from human blood will not transmit infectious agents. Standard measures to prevent infections resulting from the implementation of medicinal products prepared from human blood or plasma include effective manufacturing steps for the inactivation/removal of viruses. When medicinal products prepared from human blood or plasma are administered, the possibility of transmitting infective agents cannot be totally excluded. This also applies to unknown or emerging viruses and other pathogens. The hyaluronidase used in this product is derived from bovine testis and is certified with a transmissible Spongiform Encephalopathy (TSE) risk evaluation Certificate of Suitability (CEP). The animals from which the hyaluronidase is derived, are determined "fit for human consumption" and originate from countries with "negligible BSE risk", as determined in Resolution "Recognition of the Bovine Spongiform Encephalopathy Risk Status of Member Countries", adopted by the World Organisation for Animal Health (OIE). According to the World Health Organization (WHO) guidelines on Tissue Infectivity Distribution in Transmissible Spongiform Encephalopathies (2010) and ISO22442-1, 	



	testes from bovine source are classified as "Tissues with no detected infectivity". • Any serious incident that has occurred in relation to the device should be reported to the manufacturer and the competent authority of the Member State in which the user and/or patient is established.
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4.3 Summary of any field safety corrective action (FSCA including FSN) if applicable

No field safety corrective actions with regard to Kitazato Hyaluronidase were needed.

5 Summary of clinical evaluation and post-market clinical follow-up (PMCF)

5.1 Summary of clinical data related to similar/equivalent devices

Kitazato Corporation has performed a clinical evaluation to support the Hyaluronidase approvals and registrations. There is sufficient data available from its clinical use to demonstrate safety and performance. The evaluation included the analysis of clinical data from equivalent/similar devices. In this sense, Kitazato Hyaluronidase is equivalent/similar to the following marketed devices:

- Sydney IVF Hyaluronidase (Cook Medical)
- GM501 Hyaluronidase (Gynemed)
- Hyaluronidase Solution (Irvine Scientific)
- Hyaluronidase (LifeGlobal)
- SynVitro Hyadase, ICSI Cumulase (Origio)
- Hyaluronidase (Sage)
- HYASE-10X (Vitrolife)
- V-HYLASE (Vitromed)
- Hyaluronidase in FertiCult Flushing medium (FertiPro). Basic UDI-DI 5411967HYA13K.

5.2 Summary of clinical data from literature

It is expected that the outcomes of Clinical data of ART procedures from IVF centers in which Hyaluronidase media are used, are consistent with the ART outcomes as published in the Vienna consensus report (i.e. ICSI fertilization rates, cleavage rate) and the annual peer-reviewed benchmark report of the European Society of Human Reproduction and Embryology (ESHRE) (i.e. clinical pregnancy and delivery rates).

According to the Vienna consensus – resulting from an expert meeting by the ESHRE Special Interest Group of Embryology and Alpha Scientists in Reproductive Medicine in 2017 on ART laboratory performance inficators – the competency limits for fertilization rate and clevage rate were:

- ICSI normal fertilization rate: ≥65% (lower range: 55%)
- o Cleavage rate: ≥95% (lower range: 85%)

Since multiple factors can have an influence on the embryology outcomes, a value 10% lower than the competency limit defined by ESHRE is considered acceptable.

Moreover, the ESHRE yearly collects, analyses and reports ART data generated in Europe. The most recent report (Smeenk *et al.*, 2023) includes data from 1487 institutions in 40 countries, with a total of 1,007,813 treatment cycles, 427,980 of which were performed using ICSI (covering the time period from 1 January to 31 December 2019). For cycles performed using ICSI, the competency standards were reported as:

- Olinical pregnancy rate per aspiration: **24.9%** (range: 16.0-46.1%)
- o Clinical pregnancy rate per transfer: **37.2%** (range: 26.9-52.1%)
- o Delivery rate per aspiration: **17.8%** (range: 10.6-28.6%)





Delivery rate per transfer: 27.0% (range: 12.1-39.4%)

Since multiple factors can have an influence on the ART outcomes (ART treatment, patients characteristics, laboratory procedures, etc.), a value within the range of the ESHRE values is acceptable.

As there are no alternative treatment options that can be used in the oocyte denudation process for the removal of the cumulus complex and corona radiata surrounding the oocyte in preparation for ICSI or other Assisted Reproductive Technologies, all data included in the ESHRE report are generated using Hyaluronidase, equivalent media or a similar device available on the market. Reported outcomes in the benchmark paper can therefore be considered as benchmark data for ART procedures. Nevertheless, when comparing clinical data, one should be aware that:

- ✓ During ART processes, sperm come into contact with several (other) ART media and undergo a lot of manipulations that all can have an influence on the reported outcomes.
- ✓ Depending on the patient characteristics, different outcomes can be obtained.

A literature search is performed annually to investigate whether embryology and/or clinical ART outcomes from the use of the device under evaluation or its equivalent are consistent with the embryology and/or clinical ART outcomes described in the abovementioned benchmark papers from the ESHRE.

According to the multiple manuscripts available in the literature, the use of products on the market equivalent to Kitazato Hyaluronidase result in fertilization, cleavage, clinical pregnancy and delivery rates comparable to the standards defined by ESHRE (Smeenk et al., 2023) (ESHRE Special Interest Group of Embyology 2017).

Moreover, none of the retrieved articles reported toxicity of the media for oocytes or any risk for cytotoxicity, allergenicity, irritancy, mutagenicity, carcinogenicity, oncogenicity or teratogenicity for patients and users, demonstrating the safety of the device. Thus, from the literature data it could be concluded that Hyaluronidase media are not detrimental for fertilization and embryo development, and do not interfere with the general ART procedure. Selected articles describing the performance and/or safety of Hyaluronidase family are listed in Section 11. References.

5.3 Summary of real-world clinical data from IVF clinics

In addition to the above, real-world ART outcomes from multiple IVF clinics in Europe and other regions were evaluated as part of the Clinical Evaluation Report. The results were consistent with, or above, national averages and the ART outcomes published in the ESHRE benchmark report (Smeenk et al., 2023).

All these clinical data confirm the safety and excellent performance of the Hyaluronidase media and demonstrate that the device does not interfere with ART procedures when used according to the Instructions for Use.

5.4 Vigilance analysis and customer/market feedback

The clinical evaluation also included data from the state-of-the-art and verification and validation testing, device registries, vigilance activities and client feedback and complaints of Hyaluronidase. No emerging risks, systematic missuse, previously unknown side effects or contra-indications were identified. Additionally, there there were no incidents and/or field safety corrective actions taken related to the clinical and safe use of the device.

5.5 An overall summary of the clinical performance and safety

According to the information from the clinical evaluation study, it can be concluded that Hyaluronidase functions as stated by the manufacturer and no complications, adverse events or incidents have been





reported. Moreover, there is no evidence that the device poses any risk of toxicity to gametes or resulting embryos, nor of cytotoxicity, allergenicity, irritancy, mutagenity, carcinogenity, oncogenicity or teratogenity to patients or users.

Hyaluronidase is used for the denudation of oocytes, the removal of the corona radiata and granulosa cells surrounding the oocyte to allow for evaluation of oocyte quality and maturity as well as their *in vitro* fertilization via ICSI. Literature searches for Hyaluronidase as well as the equivalent and similar devices on the market with a shared intended use further demonstrate that the device is safe and performs as intended, since the obtained clinical outcomes are consistent with competency limits reported by ESHRE (ESHRE Special Interest Group of Embryology, 2017; Smeenk et al., 2023); and no complications were detected during the assessment of the literature.

Kitazato Corporation has taken all necessary steps to ensure that residual risks associated with the use of Hyaluronidase are reduced as far as possible through application of existing state of the art techniques in the design and manufacture of these medical devices to ensure safe usage. The considerable residual risks identified are associated with the fact that this medium contains a human blood derivative (HSA) and the raw material of Hyaluronidase (bovine origin). Based on the risk-benefit analysis conducted. it is concluded that the benefit of adding HSA and hyaluronidase (bovine origin) to the medium outweighs the risk; therefore, these residual risks are acceptable.

There is sufficient evidence to establish the safety and performance of Hyaluronidase when used in accordance with the IFU. The data are adequate to assess the benefits and risks associated with the subject device, concluding that the benefit-risk profile is acceptable. Therefore, this clinical evaluation demonstrates that the available clinical data are sufficient to establish conformity with all applicable General Safety and Performance Requirements (Annex I) of the Regulation (EU) 2017/745 of the European Parliament and of the Council of 5 April 2017 on medical devices (MDR) and to confirm the safety and performance of Hyaluronidase. The Hyaluronidase Instructions for Use (IFU) clearly demonstrates safe usage of the device and mandatory physician training ensures all users are fully conversant with all aspects of device use. Hyaluronidase has been confirmed to be within the current state-of-the-art practice.

5.6 Ongoing or planned post-market clinical follow-up

On a year basis, Kitazato Corporation will perform Post-Market Clinical Follow-up for Hyaluronidase, including literature searches, screening of device registers, analysis of complaints, vigilance and, additionally, clinical data retrieved from In Vitro Fertilization (IVF) centers using Hyaluronidase.

This Summary of Safety and Clinical Performance will be updated with data from the post-market clinical follow-up as required, to guarantee that any clinical and/ or safety information described in this summary stays right and complete.

6 Possible diagnostic or therapeutic alternatives

ICSI procedures require enzymatic oocyte denudation. Multiple articles available in the literature demonstrate comparable results among the different Hyaluronidase media on the market, reporting ART outcomes comparable with the ART outcomes published by the ESHRE. Besides Hyaluronidase or media with similar intended use, there are no other alternative treatments that can be used for enzymatic oocyte denudation.

7 Suggested profile and training for users

Hyaluronidase is used in specialized laboratories performing fertilization techniques including IVF, ICSI and sperm preparation/analysis. The intended users are medical specialists trained in fertility treatments (lab technicians, embryologists, or medical doctors).



8 Reference to any applicable common specification(s), harmonized standard(s) or applicable quidance document(s)

The following guidance documents were used:

- MDCG 2019-9: Summary of safety and clinical performance A guide for manufacturers and notified bodies. Rev. 1 (2022) (full applicable)
- ISO 13408-1:2023 / EN ISO 13408-1:2024: Aseptic processing of health care products Part 1: general requirements (full applicable)
- (EN) ISO 13408-2:2018: Aseptic processing of health care products Part 2: Filtration (fully applicable)
- ISO 13408-6:2021: Aseptic processing of health care products Part 6: Isolator systems (fully applicable).
- ISO 13485:2016 / EN ISO13485:2016/Amd 11:2021: Medical devices Quality management systems — Requirements for regulatory purposes (fully applicable).
- EN 556-2:2024:Sterilization of medical devices Requirements for medical devices to be designated 'STERILE' –Requirements for aseptically processed medical devices (fully applicable).
- (EN) ISO 20417:2021: Information to be supplied by the manufacturer (fully applicable)
- ISO 10993-1:2018 / EN ISO 10993-1:2020 +A11:2021: Biological evaluation of medical devices --Part 1: Evaluation and testing (fully applicable).
- ISO 10993-18:2020/Amd 1/2022 / EN ISO 10993-18:2020/A1:2023: Biological evaluation of medical devices – Part 18: Chemical characterization of medical device materials within a risk management process (fully applicable).
- (EN) ISO 14644-1:2015: Cleanrooms and associated controlled environments Part 1: Classification of air cleanliness by particle concentration (fully applicable).
- (EN) ISO 14644-3:2019: Cleanrooms and associated controlled environments Part 3: Test methods (fully applicable).
- ISO 14971:2019 / EN ISO 14971:2019 / Amd 11:2021: Medical devices Application of risk management to medical devices (fully applicable).
- (EN) ISO 15223-1:2021: Medical devices Symbols to be used with medical device labels, labelling and information to be supplied Part 1: General requirements (fully applicable).
- EN ISO 11737-1:2018/Amd 1:2021: Sterilization of health care products Microbiological methods Part 1: Determination of a population of microorganisms on products (fully applicable).
- (EN) ISO 17665-2024: Sterilization of health care products Moist heat Part 1: Requirements for the development, validation and routine control of a sterilization process for medical devices (fully applicable).
- ISO 23640:2011 / EN ISO 23640:2015: In vitro diagnostic medical devices: Evaluation of stability
 of in vitro diagnostic reagents (Applicable with exclusion of the following sections: No standard is
 available for the evaluation of stability of Medical Devices, therefore this standard is used as
 guideline for the set-up of the stability testing in line with the EU list of harmonized standards drafted
 in support of Council Directive 93/42/EEC and MDR 2017/745).
- IEC 62366-1:2015 / Amd 1:2020: Medical devices Part 1: Application of usability engineering to medical devices (fully applicable).
- NBOG BPG 2014-3: Guidance for manufacturers and Notified Bodies on reporting of Design Changes and Changes of the Quality System (fully applicable).
- EMA/CHMP/578661/2010 Rev.1: EMA recommendation on the procedural aspects and dossier requirements for the consultation to the EMA by a notified body on an ancillary medicinal substance or an ancillary human blood derivate incorporated in a medical device or active implantable medical device (fully applicable).
- MDR 2017/745 European Medical Device Regulation 2017/745 of 5 April 2017 (fully applicable).



- (EN) ISO 22442-1: 2020: Medical devices utilizing animal tissues and their derivatives: Part 1: Application of risk management (fully applicable).
- (EN) ISO 22442-2: 2020: Medical devices utilizing animal tissues and their derivatives: Part 2: controls on sourcing, collection and handling (fully applicable).
- (EN) ISO 22442-3: 2007 Medical devices utilizing animal tissues and their derivatives: Part 3: validation of the elimination and/or inactivation of viruses and TSE agents
- Commission Regulation No 722/2012 Commission Regulation No 722/2012 of August 2012 concerning particular requirements as regards the requirements laid down in Council Directives 90/385/EEC and 93/42/EEC with respect to active implantable medical devices and medical devices manufactured utilizing tissues of animal origin (fully applicable).

9 Revision history

SSCP revision number	Date issued	Change description	Revision validated by the Notified Body
0	20/09/2022	Initial version	Date: not yet Validation language: English
V.1	03/07/2023	Updated after BSI Review	Date: not yet Validation language: English
V.2	22/08/2023	Updated after BSI Review	Date: not yet Validation language: English
V.3	17/10/2023	Updated after BSI Review	Date: 23/01/2024 Validation language: English This version has been approved by the Notified Body
V.4	07/02/2024	Annual update. Structural and editorial updates throughout the document, improved clarity, consistency with IFU, updated manufacturer and regulatory information, inclusion of additional standards, and updated clinical data.	Date: not yet Validation language: English
V.5	07/02/2025	Annual update. Content refinement for clarity and compliance: restructured sections on composition, intended use, residual risks, equivalent devices, clinical data (updated to latest ESHRE 2019 dataset), and harmonized standards and references.	Date: not yet Validation language: English
V.6	09/10/2025	Updates in response to BSI SSCP review: added product variant details and IFU version reference. Refined clinical data section. Updated regulatory references Included full revision history details.	Date: 10 th October 2025 Validation language: English

10 Summary of the safety and clinical performance for patients

As the device is for professional use only, a summary of the safety and clinical performance of the device intended for patients is not applicable.



11 References

- 1. Aghaways, I. H. A., K. M. Falah, and A. A. Ali. 2016. 'The difference in the outcomes between surgically retrieved and ejaculated spermatozoa for Intracytoplasmic Sperm Injection Cycles in Sulaimanyah province', Acta Medica International, 3: 30-38.
- Barberet, J., J. Chammas, C. Bruno, E. Valot, C. Vuillemin, L. Jonval, C. Choux, P. Sagot, A. Soudry, and P. Fauque. 2018. 'Randomized controlled trial comparing embryo culture in two incubator systems: G185 K-System versus EmbryoScope', Fertil Steril, 109: 302-09 e1.
- 3. Boucret, L., P. E. Bouet, J. Riou, G. Legendre, L. Delbos, H. E. Hachem, P. Descamps, P. Reynier, and P. May-Panloup. 2020. 'Endometriosis Lowers the Cumulative Live Birth Rates in IVF by Decreasing the Number of Embryos but Not Their Quality', J Clin Med, 9.
- Ciepiela, P., T. Baczkowski, A. Drozd, A. Kazienko, E. Stachowska, and R. Kurzawa. 2015. 'Arachidonic and linoleic acid derivatives impact oocyte ICSI fertilization--a prospective analysis of follicular fluid and a matched oocyte in a 'one follicle--one retrieved oocyte--one resulting embryo' investigational setting', PLoS One, 10: e0119087.
- 5. ElBishrey, G., AK. Makled, Gomaa IA., and H. Elnashar. 2017. 'Evaluation of the relationship between air bubbles depth and pregnancy rate in ICSI cycles', The Egyptian Journal of Hospital Medicine, 67: 721-25.
- 6. ESHRE Special Interest Group of Embryology, ESHRE. 2017. 'The Vienna consensus: report of an expert meeting on the development of art laboratory performance indicators', Hum Reprod Open, 2017: hox011.
- 7. Herbemont, C., S. Sarandi, J. Boujenah, I. Cedrin-Durnerin, N. Sermondade, A. Vivot, C. Poncelet, M. Grynberg, and C. Sifer. 2017. 'Should we consider day-2 and day-3 embryo morphology before day-5 transfer when blastocysts reach a similar good quality?', Reprod Biomed Online, 35: 521-28.
- 8. Jamil, M., H. Debbarh, A. Kabit, M. Ennaji, L. Koumba, I. Kaarouch, M. Zarqaoui, W. R. Senhaji, E. M. Hissane, B. Saadani, P. Vanderzwalmen, N. Louanjli, and R. Cadi. 2023. 'Comparison between density gradient centrifugation method, an extended version of the horizontal swim up method and the combination of both for sperm selection', Obstet Gynecol Sci, 66: 221-29
- Kaewman, P., S. Nudmamud-Thanoi, P. Amatyakul, and S. Thanoi. 2021. 'High mRNA expression of GABA receptors in human sperm with oligoasthenoteratozoospermia and teratozoospermia and its association with sperm parameters and intracytoplasmic sperm injection outcomes', Clin Exp Reprod Med, 48: 50-60.
- Konstantinos, S., T. Petroula, M. Evangelos, G. Polina, G. Argyro, G. Sokratis, R. Anna, N. Andrianos, P. Agni, K. Michael, P. Konstantinos, M. George, and S. Mara. 2020. 'Assessing the practice of LuPOR for poor responders: a prospective study evaluating follicular fluid cfDNA levels during natural IVF cycles', J Assist Reprod Genet, 37: 1183-94.
- 11. Lu, X., Y. Liu, J. Xu, X. Cao, D. Zhang, M. Liu, S. Liu, X. Dong, and H. Shi. 2022. 'Mitochondrial dysfunction in cumulus cells is related to decreased reproductive capacity in advanced-age women', Fertil Steril.
- 12. Massin, N., Abdennebi, I., Porcu-Buisson, G., Chevalier, N., Descat, E., Piétin-Vialle, C., Goro, S., Brussieux, M., Pinto, M., Pasquier, M., and Bry-Gauillard, H. 2023. 'The BISTIM study: a randomized controlled trial comparing dual ovarian stimulation (duostim) with two conventional ovarian stimulations in poor ovarian responders undergoing IVF'. Human Reprod 38(5): 927-937.
- 13. Nowak, I., K. Wilczynska, P. Radwan, A. Wisniewski, R. Krasinski, M. Radwan, J. R. Wilczynski, A. Malinowski, and P. Kusnierczyk. 2019. 'Association of Soluble HLA-G Plasma Level and HLA-G Genetic Polymorphism With Pregnancy Outcome of Patients Undergoing in vitro Fertilization Embryo Transfer', Front Immunol, 10: 2982.
- Oraiopoulou, C., A. Vorniotaki, E. Taki, A. Papatheodorou, N. Christoforidis, and A. Chatziparasidou. 2021. 'The impact of fresh and frozen testicular tissue quality on embryological and clinical outcomes', Andrologia, 53: e14040.



- 15. Pena, F., R. Davalos, A. Rechkemmer, A. Ascenzo, and M. Gonzales. 2018. 'Embryo development until blastocyst stage with and without renewal of single medium on day 3', JBRA Assist Reprod, 22: 49-51.
- Pocate-Cheriet, K., I. Heilikman, R. Porcher, V. Barraud-Lange, N. Sermondade, C. Herbemont, J. P. Wolf, and C. Sifer. 2017. 'Predicting the clinical outcome of ICSI by sperm head vacuole examination', Syst Biol Reprod Med, 63: 29-36.
- 17. Ribas-Maynou, J., S. Novo, M. Torres, A. Salas-Huetos, S. Rovira, M. Antich, and M. Yeste. 2022. 'Sperm DNA integrity does play a crucial role for embryo development after ICSI, notably when good-quality oocytes from young donors are used', Biol Res, 55: 41
- 18. Ribas-Maynou, J., Novo, S., Salas-Huetos, A., Rovira, S., Antich, M., and Yeste, M. 2023. 'Condensation and protamination of sperm chromatin affect ICSI outcomes when gametes from healthy individuals are used', Human Reprod, 38(3): 371–386.
- Sigala, J., C. Sifer, D. Dewailly, G. Robin, A. Bruyneel, N. Ramdane, V. Lefebvre-Khalil, V. Mitchell, and C. Decanter. 2015. 'Is polycystic ovarian morphology related to a poor oocyte quality after controlled ovarian hyperstimulation for intracytoplasmic sperm injection? Results from a prospective, comparative study', Fertil Steril, 103: 112-8.
- 20. Smeenk, J., Wyns, C., De Geyter, C., Kupka, M., Bergh, C., Cuevas Saiz, I., De Neubourg, D., Rezabek, K., Tandler-Schneider, A., Rugescu, I., & Goossens, V. (2023). ART in Europe, 2019: results generated from European registries by ESHRE. *Human Reproduction (Oxford, England)*, 38(12), 2321–2338. https://doi.org/10.1093/humrep/dead197
- 21. Tamara, TF., IA. Gomaa, NR. Mohamed, and HMS. El-Ganzoury. 2018. 'The assiciation between follicular fluid leptin, insulin resistance and ICSI outcome in women with unexplained infertility', 16: 142-48.
- Taugourdeau, A., V. Desquiret-Dumas, J. F. Hamel, S. Chupin, L. Boucret, V. Ferre-L'Hotellier, P. E. Bouet, P. Descamps, V. Procaccio, P. Reynier, and P. May-Panloup. 2019. 'The mitochondrial DNA content of cumulus cells may help predict embryo implantation', J Assist Reprod Genet, 36: 223-28.
- 23. Uk, A., C. Decanter, C. Grysole, L. Keller, H. Behal, M. Silva, D. Dewailly, G. Robin, and A. L. Barbotin. 2022. 'Polycystic ovary syndrome phenotype does not have impact on oocyte morphology', Reprod Biol Endocrinol, 20: 7.