GYNEMEDIA

Information and Suggestions from GYNEMED
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PREFACE

This month, GYNEMED would like to introduce our new product, ZyMot. This device is a gentle alternative for sperm preparation before ICSI, IUI and IVF treatment.

We also wanted to bring in highlight on our Bromelain in Dulbecco's PBS, this media helps to liquefy highly viscous ejaculates, following WHO guidelines.

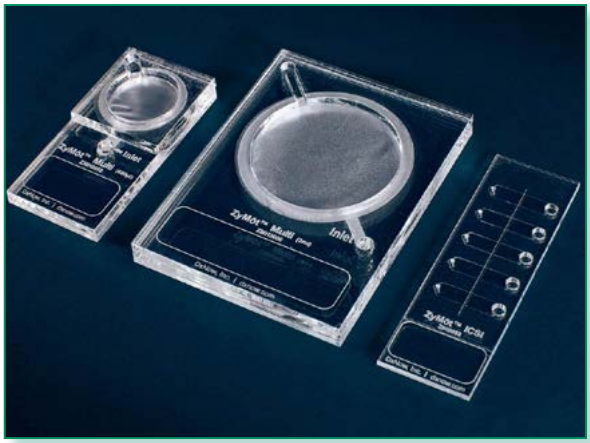
Our last article will present the deferent application you can do with our Oosight Imaging system, for which proposals and how it works.

Do not forget to follow us thru LinkedIn.

GYNEMED team.

Now available at Gynemed: ZyMôt easy and gentle treatment for Sperm preparation

Many of you definitely have heard of this new method for sperm processing and maybe some of you have also tried it already. The ZyMôt chambers from DxNow maybe known to you under the name FERTILE and FERTILE Plus. With the new name ZyMôt they available from us now (or we can help you to get into contact with your distributor).



Three versions of ZyMôt available

The ZyMôt chambers are an alternative to the usual sperm preparation which includes the centrifugation. They are easy to use, easy to establish in the lab and save a lot of time. But most importantly the procedure is very gentle for the sperm cells and enables enrichment of progressively motile sperm with significantly reduced DNA fragmentation[1]. The ZyMôt is available in three versions (see picture). The ZyMôt Multi (850µl) is the most commonly used chamber (left). This chamber can be used for sperm preparation for ICSI, IUI and IVF. Handling is very easy, since the native ejaculate is injected into the chamber without prior preparation. In the chamber there is a special membrane with micropores through which the motile sperm migrate. This membrane prevents damaged sperm from passing through. A suitable handling medium is applied above the membrane (e.g. GM501 SpermAir) in which the sperm cells that have overcome the membrane accumulate. After 30 minutes of incubation, this supernatant is removed and the retrieved spermatozoa can be used directly for the desired application (ICSI, IUI or IVF). According to the manufacturer, the time spent actively preparing sperm is reduced to less than five minutes.

In 2019, Dr. Palermo and his Laboratory were able to confirm in a study, that the use of microfluidic-chambers (here ZyMôt 850 µl) result in perfect genetic integrity in the retrieved spermatozoa and a higher possibility to achieve euploid embryos, if the sperm are used for ICSI.[2] The ZyMôt chamber was used for the sperm preparation in a small group of patients. These couples already experienced failed ICSI cycles. The following cycles lead to clinical pregnancies in all couples. However, the very small sample size needs to be taken into consideration.

Another group reported a significant increase in the pregnancy after using the FERTILE Plus chamber (ZyMôt 850µl) for the sperm preparation for IUI. [3]

If you have any further questions or are interest in a quotation, please let us know.

1) Broussard et al., Fertility and Sterility, 2019
2) Parrella et al., Journal of Assisted Reproduction and Genetics, 2019
3) Gode et al., Fertility and Sterility, 2019

Bromelain in Dulbecco's PBS – Supporting ejaculate liquefaction

Ejaculates coagulate shortly after they are obtained, a process triggered by various proteins (Semenogelin I, Semenogelin and Fibronectin) from the seminal vesicles.

The subsequent liquefaction of the ejaculate is triggered by the enzyme PSA (prostate specific antigen). This is necessary for successful in vivo fertilization. Delayed liquefaction and / or existing hyper-viscosity are factors that affect sperm motility and thus fertility. As part of assisted reproductive treatments, liquefaction is also a prerequisite for the exact analysis of the sperm quality and subsequent processing.

Various publications describe that highly viscous ejaculates contribute to subfertility in 12-29% of male patients. It is therefore a relevant parameter when looking for the causes of fertility problems and planning of treatments. Normally, the liquefaction of the ejaculate should be achieved within approx. 15 minutes at room temperature. If liquefaction does not occur within 60 minutes, additional mechanical or enzymatic treatment is required. Treatment with various enzymes such as α-chymotrypsin, α-amylase or bromelain can be used to liquefy the ejaculate. Bromelain is a cysteine protease isolated from pineapple. It is used in phytomedicine to inhibit platelet aggregation and as a dietary supplement. In reproductive medicine it was mainly used to extract sperm from cervical mucus samples and as part of the diagnostic detection of sperm antibodies on the spermatozoa themselves or the female genital tract (Tejedor et al. 2000).

The use of bromelain to liquefy highly viscous ejaculates is described in various manuals (WHO laboratory manual 5th edition / „A practical guide to selecting gametes and embryos" Ed. M. Montag) and is also recommended in these cases.

Gynemed Bromelain in Dulbecco´s PBS

The CE-certified „Bromelain in Dulbecco's PBS" offered by Gynemed corresponds exactly to the recipe that is described and recommended in the WHO manual. A batch analysis certificate including a mouse embryo test and sperm survival test is available for each lot.

Please contact us if you are interested! We are happy to answer your questions, send you the instruction for use or provide you with further information!

Enzymatic digestion of (m)TESE samples – GM501 Collagenase

Enzymatic digestion of (m)TESE samples – GM501 Collagenase
GM501 Collagenase is a CE certified (Class IIb), ready-to-use medium for the digestion of human testicular tissue obtained by TESE or mTESE.

GM501 Collagenase makes it easy to isolate and locate all sperm present in the sample. The product can be combined with mechanical extraction methods. GM501 Collagenase can be used both in diagnostics and as part of treatment (ICSI).

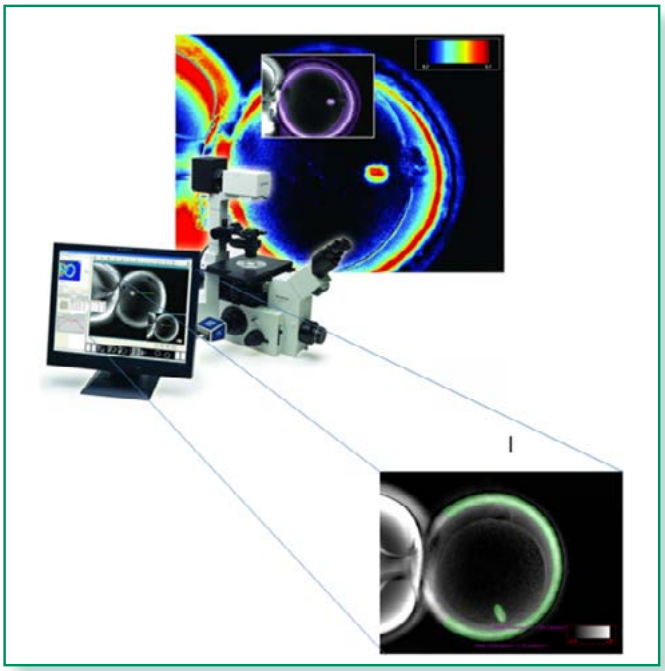
If you are interested or have any questions about the product GM501 Collagenase, please do not hesitate to contact us!

Gynemed GM501 Collagenase

Do you know the Oosight®Imaging System (Hamilton Thorne®) ?

This month we wanted to present some possibilities of the Oosight ® Imaging System among many others ...

How it works... ?



Hamilton Thorne® Oosight ® Imaging System

The polarized light microscopy of the Oosight®Imaging System (Hamilton Thorne®) allows, thanks to unprecedented sensitivity, the analysis of the molecular order of heterogeneous structures (such as the meiotic spindle, the cytoplasm or the zona pellucida) without using dyes and providing quantitative data on the birefringence of each image point. Remember that the birefringence, is calculated thanks to the lapse of time that the light takes to pass through the structure. The birefringence is proportional to the density of the structure it passes through.

The use of this polarized light in IVF is multiple. Did you know that there is a non-invasive alternative to PGT-A and SR, allowing to optimize the selection of euploid blastocysts thanks to the morphological analysis of the oocyte meiotic spindle (OMS)? A prospective study published in 2019 (1) evaluated the OMS as a predictive marker of blastocyst euploidy. The study also focused on the standardization of this blastocyst selection based on spindle morphology visualized by polarized light microscopy.

It also helps to optimize egg thawing cycles. Indeed, during the vitrification process, the microtubules of the meiotic spindle are subjected to a significant fluctuation in temperature leading to their depolymerization. Likewise, during the devitrification or warming process, the meiotic spindle reappears on average after an hour but for the most part, as some studies have shown, with an orientation offset from the polar body or not restructured, impacting thus fertilization and embryonic development (2-3).

Birefringence also allows analysis of the sperm head at the time of ICSI by visualizing the structure of the acrosome and nucleus. Studies have shown a correlation between selection of birefringent sperm on implantation rate (4-5). Another very interesting analysis, a little older, is the birefringence of the zona pellucida. In some countries, the bioethics law authorizes prolonged culture only for a defined number of embryos, in practice, on D1, it is necessary to select the zygotes which will remain in culture until D5-D6 and those to be frozen on D1. In addition to the classification of the zygotes, the birefringence of the zona pellucida is a marker of choice in this selection. (6).

1. Tilia L, Chapman M, Kilani S, Cooke S, Venetis C. Oocyte meiotic spindle morphology is a predictive marker of blastocyst ploidy-a prospective cohort study. Fertil Steril. 2020 Jan;113(1):105-113.e1. doi: 10.1016/j.fertnstert.2019.08.070. Epub 2019 Nov 15. PMID: 31739977.
2. Nataliia Buderatska, Juliia Gontar, Ihor Ilyin, Serhii Lavrinenko, Maryna Petrushko, Taisiia Yurchuk, Does human oocyte cryopreservation affect equally on embryo chromosome aneuploidy?,
3. Chen SU, Lien YR, Chao KH, Ho HN, Yang YS, Lee TY. Effects of cryopreservation on meiotic spindles of oocytes and its dynamics after thawing: clinical implications in oocyte freezing--a review article. Mol Cell Endocrinol. 2003 Apr 28;202(1-2):101-7. doi: 10.1016/s0303-7207(03)00070-4. PMID: 12770738.
4. Vermey BG, Chapman MG, Cooke S, Kilani S. The relationship between sperm head retardance using polarized light microscopy and clinical outcomes. Reprod Biomed Online. 2015 Jan;30(1):67-73. doi: 10.1016/j.rbmo.2014.09.011. Epub 2014 Oct 2. PMID: 25458851.
5. Gianaroli L, Magli MC, Ferraretti AP, Crippa A, Lappi M, Capitani S, Baccetti B. Birefringence characteristics in sperm heads allow for the selection of reacted spermatozoa for intracytoplasmic sperm injection. Fertil Steril. 2010 Feb;93(3):807-13. doi: 10.1016/j.fertnstert.2008.10.024. Epub 2008 Dec 6. PMID: 19064263.
6. Pelletier C, Keefe DL, Trimarchi JR. Noninvasive polarized light microscopy quantitatively distinguishes the multilaminar structure of the zona pellucida of living human eggs and embryos. Fertil Steril. 2004 Mar;81 Suppl 1:850-6. doi: 10.1016/j.fertnstert.2003.09.033. PMID: 15019819.

LEGAL NOTE

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