

HBA[®] Slide & PICSI[®] Dish

Because paying more attention to sperm pays off in the end

Significantly reduces the risk of early miscarriage in ICSI patients



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Selecting the right sperm is critical!



Did you know?

- Male factor is the cause of 40% of all infertility cases
- Problems with male infertility (male factor) is an overlooked factor
- The male contribution to the new embryo is 50 %
- In most cases the sperm for ICSI will only be picked depending on its morphology (its good looks)

Men with low sperm counts who frequently require the ICSI procedure often carry semen populations with damaged DNA. These unfit sperm with compromised development and damaged DNA can still look completely normal and healthy but if picked for fertilization this can lead to poor embryo quality and possible pregnancy loss.

Selecting sperm for ICSI on more than good looks is essential!



Hyaluronan Binding sperm selection can lower rates of early miscarriage.
 When a mature sperm reaches the HA rich cumulus complex surrounding the human egg, it binds and initiates the final fertilization. Only fully matured sperm have developed HA-receptors and can bind. Immature sperm cannot bind to HA and are also found to have higher rates of DNA damage and a higher occurrence of carrying abnormal numbers of chromosomes.

Selecting a sperm for ICSI based on its ability to bind to Hyaluronic Acid (HA), removes the chance of picking an unfit DNA damaged sperm, and will reduce the risk of pregnancy loss.

Hyaluronan Binding sperm diagnostics and selection with the HBA[®] assay and the PICSI[®] dish

First step
 HBA[®] Assay: Qualitative sperm assessment



Second step
 PICSI[®] Dish: Pick your sperm for ICSI



The HBA[®] (Hyaluronan Binding Assay[®]) provides an easy, reliable screening of the proportion of mature high quality sperm in the sample - those that bind. Male patients with a low binding score ($\leq 65\%$) will then benefit from sperm selection in the PICSI[®] dish where only the mature (good) sperm will bind to a drop of HA, ensuring easy selection.

The HBA[®] and PICSI[®] dish were tested in a large multicenter study to investigate their effectiveness in the ICSI procedure. This study found that using the HBA[®] assay and the PICSI[®] dish in combination lead to a significant reduction in Pregnancy Loss.

This study clearly demonstrates that selecting a mature sperm for ICSI is decisive - especially in male factor patients.

1) **Worrilow et al.** (2012) Use of hyaluronan in the selection of sperm for intracytoplasmic sperm injection (ICSI); significant improvement in clinical outcomes-multicenter, double blinded and randomized trial. *Hum. Reprod.*, Nov 30.

ICSI?

Intracytoplasmic Sperm Injection (ICSI) is a common ART treatment especially applied where male factor is involved. Here a sperm sample is assessed under the microscope and a single healthy looking sperm is then selected and injected directly into the oocyte for fertilization.



Hyaluronan (Hyaluronic Acid - HA)?

- Hyaluronan is a naturally occurring substance throughout the entire body. It is also the major component of the cumulus complex covering the human egg cell (oocyte).
- A sperm's ability to bind to HA correlates to: maturity, strict morphology (structurally normal), high DNA integrity (intact genes).

Cumulus Complex?

- The human egg cell (oocyte) is covered in a gel-like substance (cumulus complex) made primarily of cells glued together by hyaluronic acid.
- The cumulus complex protects and supports the egg cell as it grows.



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Because paying more attention to sperm pays off in the end

- **Two novel HA-sperm binding products**
 - The Hyaluronan Binding Assay[®] (HBA[®] slide) provides an easy, reliable screening of sperm quality, maturity and DNA integrity.
 - For sperm with poor binding capability, the PICSI[®] dish is used to identify and select the bound mature sperm for ICSI.
- **The HBA[®] slide & the PICSI[®] dish significantly reduces the risk of early miscarriage in ICSI patients**
- **15%-20% of all ICSI patients will have a low HBA[®] score ($\leq 65\%$) and will benefit from HA-sperm selection in the PICSI[®] dish.**

The HBA[®] Assay and the PICSI[®] dish have been developed in the USA and are currently being used by professionals in more than 50 countries worldwide.

Next step

Discuss with your clinic if the HBA[®] Assay and the PICSI[®] dish would be a useful option for you.

HBA[®] slide & PICSI[®] dish are manufactured by Biocoat, Inc. and distributed by ORIGIO a/s.

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