Hypo-osmotic swelling test for human sperm

SPERM VITALITY DIAGNOSTIC

HOS medium is sterilized by sterile filtration

Sterile


For in vitro diagnostic use only

INTENDED USE

The hypo-osmotic swelling test is based on the semi-permeability of the intact cell membrane, which causes spermatozoa to “swell” under hypo-osmotic conditions, when an influx of water results in an expansion of cell volume (Drevius & Eriksson, 1966). The test was introduced by Jeyendran et al. (1984).

The HOS test should not be used as a sperm function test but may be used as an optional, additional vitality test. It is simple to perform and easy to score and gives additional information on the integrity and compliance of the cell membrane of the sperm tail.

The HOS test may help in assessing the diagnosis and the management of male infertility.

MATERIAL INCLUDED WITH THE KIT

9x 20ml hypo-osmotic swelling test medium

MATERIAL NOT INCLUDED WITH THE KIT

- Microscope object glasses
- Cover glasses
- Phase-contrast microscope
- Pipettes

PRE-USE CHECKS

- Do not use the product if it becomes discoloured, cloudy, or shows any evidence of microbial contamination
- Do not use the product if seal of the container is opened or defect when the product is delivered

METHOD

1. Warm 1mL of HOS solution in a closed Eppendorf tube at 37°C for about 5 minutes
2. Add 0.1mL of liquefied semen and mix gently with the pipette
3. Keep at 37°C for at least 30 minutes (but not longer than 120 minutes)

Examine the sperm cells with phase-contrast microscope. Swelling of sperm is identified as changes in shape of the tail, as shown in the figure below.

RESULT

Live cells are distinguished by evidence of swelling of the sperm tail; score all forms of swollen tails as live spermatozoa (WHO, 2010). Calculate the mean score of swollen sperm in total of 100 sperm counted.

Note: In some samples the tails of the spermatozoa may be deformed before performing the test. It is therefore advisable to count tail abnormalities before and after adding the media and to subtract the starting percentage.

INTERPRETATION

It is clinically important to know whether immotile spermatozoa are alive or dead. Vitality results should be assessed in conjunction with motility results from the same semen sample. The presence of a large proportion of vital but immotile cells may be indicative of structural defects in the flagellum; a high percentage of immotile and non-viable cells (necrozoospermia) may indicate epididymal pathology.

A semen sample is considered normal if 58% or more of the sperm cells are alive (WHO, 2010).

REAGENT STORAGE AND SHELF LIFE

Store at 2-8°C. Does not contain antibiotics. Use a sterile syringe to remove reagents from the bottles. Work under strict hygienic conditions, preferably under laminar flow. Sterility is not guaranteed once the bottle has been opened or rubber seal has been punctured. Use within 7 days after opening. Shelf life is 12 months from date of manufacture.

WARNING AND PRECAUTIONS

All human, organic material should be considered potentially infectious. Handle all specimens as if capable of transmitting HIV or hepatitis. Always wear protective clothing when handling specimens.

BIBLIOGRAPHY