

HALOSPERM: SPERM DNA FRAGMENTATION TEST

Description

HALOSPERM is a kit to determine the degree of DNA fragmentation in human sperm, using sperm chromatin dispersion (SCD), a new clinical parameter that is probably responsible for most cases of male infertility of unknown origin.

The **HALOSPERM** kit was developed in collaboration with J. Gosálvez, professor of molecular genetics at the Universidad Autónoma de Madrid, and J. L. Fernández and V. Goyanes, physicians in the Genetics Department at Hospital Universitario Juan Canalejo in A Coruña. The method involves the denaturation and controlled lysis of the sample in an appropriate medium and can be used with both fresh and frozen samples

Format and technique

Sperm with intact DNA produce a dispersion halo as a result of the chromatin released from proteins that can be easily analyzed using fluorescence or bright field microscopy. In contrast, sperm with fragmented DNA will not produce this halo. The technique is as easy as a routine leukocyte count. Alternative techniques for determining the integrity of sperm DNA (SCSA, TUNNEL, ISNT, comet assay) are quite labour-intensive and expensive, which prevents their inclusion in the standard spermogram used in clinical praxis

The analysis of the results of the **HALOSPERM** kit can be performed by manually counting the halos under a bright field microscope.

Current situation

The demand for semen studies and the use of assisted-reproduction techniques (artificial insemination, IVF, ICSI, etc.) have undergone dramatic growth. This can be seen in the notable increase in the number of assisted-reproduction services and clinics in both the public and private spheres. Routine semen analyses work by determining the concentration, morphology and motility of the sperm and are supplemented with certain functional tests, as well as the assessment of biochemical and seminal enzyme parameters (WHO, 1999). Despite routine "screening," it is impossible to determine the cause of infertility in around 30-50% of infertile males, a condition labelled as unexplained or idiopathic infertility.

In September 2007 FINA BIOTECH reached an agreement with the Spanish company **HALOTECH DNA** in collaboration with **SUANFARMA**, by which this company produce and sell exclusively, on a worldwide basis, the kit **HALOSPERM** TM. Nevertheless, in 2010 **SUANFARMA** left **HALOTECH DNA** via a trade sale to **SEXING TECHNOLOGIES**, a North American company that specialises in the gender identification of beef-cattle semen.

The customers and companies interested in the distribution and/or information of the product should contact **HALOTECH DNA**.

Publications

1. Chohan et.al. **Comparison of chromatin assays for DNA fragmentation evaluation in human sperm.** Journal of Andrology, Vol. 27, No. 1, January/February 2006
2. Fernández et.al. **DNA breakage detection-FISH (DBD-FISH) in human spermatozoa: technical variants evidence different structural features.** Mutat Res. 2000 Sep 20; 453 (1):77-82.

3. Enciso et.al. **Infertile men with varicocele show a high relative proportion of sperm cells with intense nuclear damage level, evidenced by the sperm chromatin dispersion test.** Journal of Andrology, Vol. 27, No. 1, January/February 2006
4. Evenson et.al. **Utility of the sperm chromatin structure assay as a diagnostic and prognostic tool in the human fertility clinic.** Human Reproduction vol.14 no.4 pp.1039–1049, 1999
5. Fernández et.al. **Halosperm® is an easy, available, and cost-effective alternative for determining sperm DNA fragmentation.** Fertility and Sterility_ Vol. 84, No. 4, October 2005
6. Fernández et.al. **Simple determination of human sperm DNA fragmentation with an improved sperm chromatin dispersion test.** Fertility and Sterility Vol. 84, No. 4, October 2005.
7. Fernandez et.al. **The Sperm Chromatin Dispersion Test: A Simple Method for the Determination of Sperm DNA Fragmentation.** Journal of Andrology, Vol. 24, No. 1, January/February 2003

