

SCA[®] droplets

Identification and classification of droplets on tails

Aim

A method to identify droplets that are in boar semen tails is being developed. Some results with distal droplets have been already obtained and nowadays the method to classify also proximal droplets with different kinds of lenses is about to be ready.

But the quality of the semen can be assessed using different parameters: motility, vitality, acrosoma integrity, etc. recent research shows that a high percentage of abnormal heads involves a high percentage of distal droplets in a sample, so morphology may be assessed based on the detection of protoplasmic distal and proximal droplets.

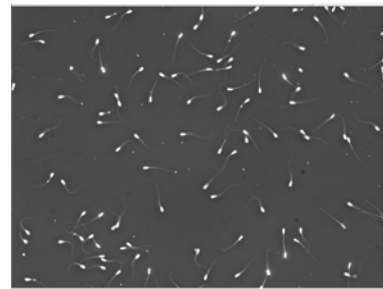


Figure 1. 10x Image with negative phase contrast.

Used methods

Some works have been carried out aimed to detect droplets on the spermatozoon's tails. Specifically, a method (Fernández, et al. 2005) has been developed in order to detect distal droplets and to estimate its distance from the head. After rotation of the spermatozoon, vertical and horizontal projections of its pixels are made. The absolute maximum corresponds to the centroide of the head, while lower peaks correspond to the centroide of distal droplets.



Figure 2. Example of distal droplet (left) and proximal droplet (right).

The distance between those peaks correspond to the distance from the droplet to the head. Using this method, a hit rate detecting distal droplets of 97.5% is obtained for cells with droplet.

Publications

Fernández, Ramón Ángel, Enrique Alegre, Lidia Sánchez, Fernando Tejerina, R. González, y Juan Carlos Domínguez. «Automatic detection and measuring of distal droplets in boar spermatozoa using computer vision techniques.» *Reproduction in Domestic Animals*. Murcia, 2005. 390.