

# Storage of sperm samples at room temperature for DNA fragmentation testing

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## Background

Semen samples are often collected at multiple geographic sites for DNA testing

Current practice is to snap-freeze and transport samples on dry-ice to a suitable centre

The novel product DNAGard<sup>®</sup> Tissue combines synthetic chemistry with the extremophilic properties of Tardigrades, which show long term survival in extremely dry environments to allow storage and transport of semen at room temperature before DNA testing



Sperm DNA fragmentation was evaluated by the Sperm Chromatin Structure Assay (SCSA)

## Aim

To evaluate the suitability of DNAGard for the extended storage of sperm at room temperature before evaluating DNA fragmentation

## Method

Fresh sperm samples were incubated for 24 hours at room temperature in Human Tubal Fluid (HTF) and DNAGard to determine the impact of DNAGard on sperm motility

Three semen samples forming part of the national sperm DNA fragmentation EQAP were incubated for 5 days at room temperature in DNAGard and HTF respectively

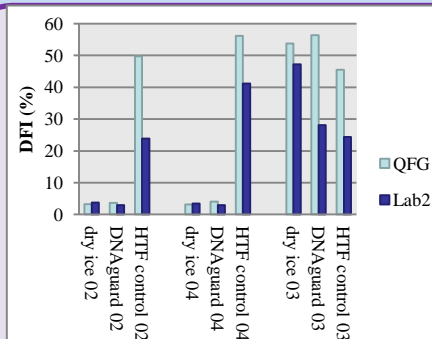
Samples were shipped at ~ 4°C, to a different lab in Australia, accompanying the frozen EQAP samples shipped separately on dry ice. DNA fragmentation was determined over 3 months and expressed as DNA Fragmentation Index (DFI)

## Results

No sperm motility was seen immediately after adding DNAGard to fresh sperm samples  
A significant sperm DNA stabilizing effect was found in DNAGard compared to HTF for both samples with low or high DNA fragmentation

Comparison of sperm DFI of semen samples diluted in TNE buffer and transport on dry ice (standard protocol) and in DNAGard showed no clinically significant difference in results.

## Results



## Conclusion

DNAGard is toxic to sperm (impairs motility)

Sperm DNA is stabilized in the presence of DNAGard for up to 5 days at room temperature

DFI correlates well between sperm shipped on dry ice and sperm stored in DNAGard

DNAGard could serve as suitable alternative for storage and sperm transport before DNA testing