

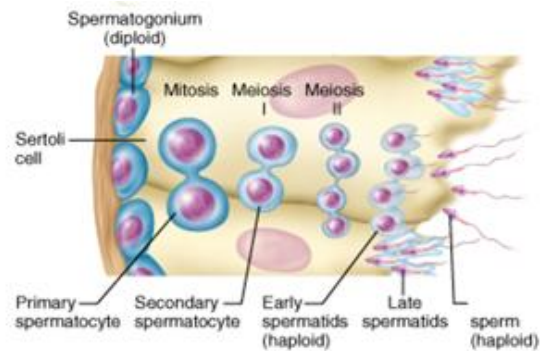
# FERTILITYASSAY™ MALE

## SUMMARY

**FERTILITYASSAY MALE** is a comprehensive analysis of the human male spermatogenesis pathway to guide diagnosis of cause of infertility where there is minimal or no production of spermatozoa.

It measures the a set of genetic markers shown to be implicated in, and diagnostic of, the activity of the spermatogenesis pathway from spermatogonia through production of primary and then secondary spermatocytes to production of spermatids i.e. from mitosis to spermiogenesis (Figure 1), so identifying the precise stage(s) of failure and supporting identification of corrective treatment where such treatment exists.

Figure 1: FERTILITYASSAY MALE Analysis Summary



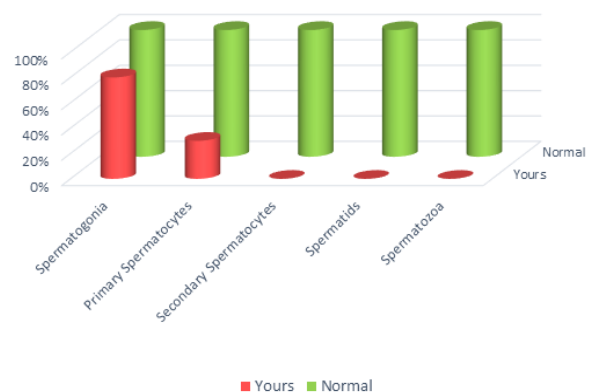
## THE ASSAY

The test comprises a laboratory analysis of biopsy RNA content by next generation RNA sequencing, followed by bioinformatics analysis of the sequence data and interpretation:

1. Extraction of mRNA from a testis biopsy taken from the patient;
2. Next generation sequencing to measure the RNA expression levels of 24 genes involved in production of spermatozoa, in the spermatogenesis pathway.
3. Analysis and interpretation of the gene expression levels to determine the stage of failure.

Where a clinic has failed to identify the presence of spermatozoa or precursors in the biopsy, we can use it for our analysis, to determine whether hormone or other treatment may be beneficial. Alternatively, we can test a new biopsy where no prior analysis has been performed.

Figure 2: Example comparison of patient sample with normal spermatozoa production.



## RESULTS AND REPORTING

The results of the analysis and interpretation are reported as:

1. The patient sample content of each precursor of spermatozoa production as a percentage of the content of a healthy sample (Figure 2);
2. A diagrammatic representation of the stage of failure.

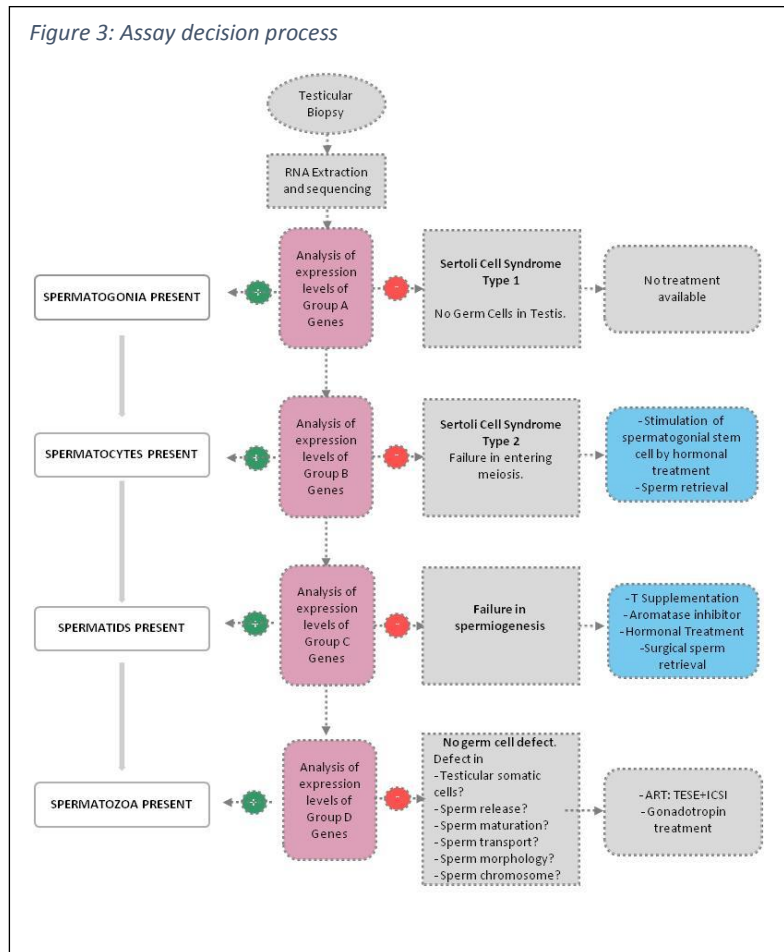
Where relevant, it offers guidance on next stage of investigation of recommendation of treatment.

## ASSAY PATHWAY AND DECISION PROCESS

The assay is based on the analysis of the expression levels of 24 genes that have been shown to be relevant to the spermatogenesis process in human males (see REFERENCES).

These are interpreted using HEALI’s proprietary decision process:

- I. gene expression data are assigned to one of four sets based on published information about the relevance of the genes in male fertility and their action, individually, in spermatogenesis;
- II. the data in each set is assigned weightings, based on HEALI data and knowhow;
- III. a comparison of the profiles and relative strength of the four data sets enables identification of genetic abnormalities and failures in the spermatogenesis pathway.



## VALIDATION AND DEVELOPMENT

**FERTILITY ASSAY MALE** is based on published and peer reviewed data. It is validated on a set of 24 genetic markers that have been shown to be implicated in the spermatogenesis pathway.

HEALI welcomes collaboration with Fertility Clinics where this leads to additional validation data.

## ABOUT HEALI

HEALI is a personalised medicine company whose aim is to improve medical decision making for treatment of a range of life changing illnesses and conditions.

Its assay platform, comprising analysis of genetic markers with clinical or physical data and interpretation of the data set using its proprietary decision making algorithm, is applicable, in principle, to any condition where an individual’s genetic information can be used to categorise likely outcome or most effective treatment.

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