

AZOOSPERMIA AND SPERMPREDICT

Approximately 10-15% of men struggling with infertility are diagnosed with azoospermia, which means they have no sperm in their semen. Obstructive azoospermia (OA), caused by blockages in the reproductive tract, is responsible for 40% of cases, while the remaining 60% are due to issues with sperm production, known as non-obstructive azoospermia (NOA). NOA encompasses several subtypes including hypo-spermatogenesis (HS) and maturation arrest (MA), where sperm are present but reduced in number or not fully mature, and Sertoli cell-only syndrome (SCO), where no sperm cells are produced.

Depending on the cause, azoospermic men may still have the ability to father a child. For OA, sperm can be retrieved via surgery followed by IVF, and sperm retrieval may also be an option for certain types of NOA. Currently, the only definitive diagnostic method for distinguishing between OA and NOA and subtypes is through a testicular biopsy, which is invasive and has potential complications.

What is SpermPredict?

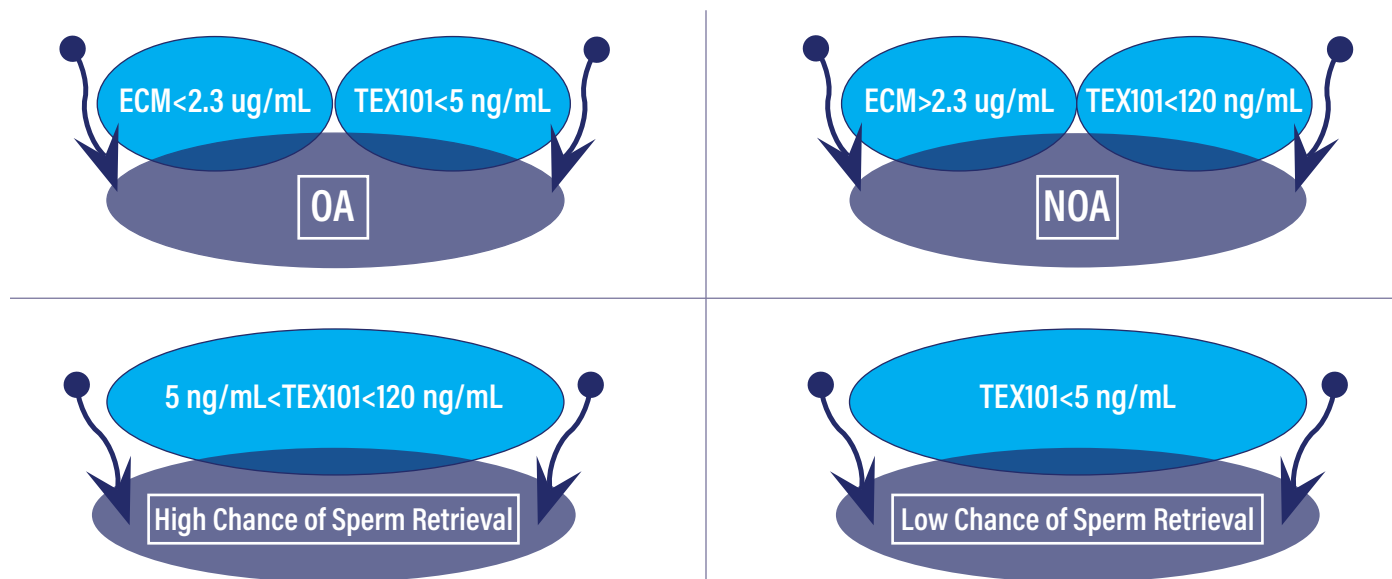
Sperm predict was developed as a non-invasive differential diagnostic tool for azoospermia and to predict the success of sperm retrieval. The test measures the levels of two protein biomarkers in semen, ECM1 and TEX101, which have been shown to differentiate between obstructive and non-obstructive azoospermia and predict the success of retrieving sperm through surgical means.

Low levels of ECM1 ($<2.3\mu\text{g/mL}$) and TEX101 ($<5\text{ng/mL}$) suggest OA, while high levels of ECM1 ($>2.3\mu\text{g/mL}$) suggest NOA.

TEX101 levels $\geq 120\text{ng/mL}$ indicate normal spermatogenesis, while levels of 5ng/mL were associated with HS or MA, and levels $<5\text{ng/mL}$ (theoretically 0) represented SCO.

Who will benefit from SpermPredict?

Men with azoospermia who are seeing to conceive through IVF may benefit from using Sperm Predict as a non-invasive diagnostic tool.



References:

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3. Drabovich, A. P., Dimitromanolakis, A., Saraon, P., Soosaipillai, A., Batruch, I., Mullen, B., Jarvi, K., and Diamandis, E. P. (2013) Differential diagnosis of azoospermia with proteomic biomarkers ECM1 and TEX101 quantified in seminal plasma. *Sci. Transl. Med.* 5, 212ra160