



www.spermprocessor.com



Sperm Processor Pvt. Ltd.

6, Welcome Nagar, Garkheda,
Aurangabad (MS) - 431005, India.

Ph.: +91 240 6603800

Fax: +91 240 2341694

Email: info@spermprocessor.com



Zinc

bio-marker of prostate activity

REF SP/SFT/Z-013



IVD

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a



product



Turnaround time for test: 10min



Store at: 2°C - 8°C after receiving

Zinc

Bio-marker of prostate activity

CONCEPT

Poor quality semen may result from testicular production of abnormal sperm or from post testicular damage of sperm in the epididymis or the abnormal ejaculate from accessory gland.

Prostate secretions contribute 1/3rd (approximately) volume of seminal plasma. The most important ingredients are citrate; acid phosphates, zinc & various proteases.

Zinc constitutes many metalloenzymes. Free zinc is claimed to have Bacteriostatic properties in seminal plasma & plays potential role in regulation of citrate metabolism. Citrate acts as an important contributor of osmotic balance & may also be important as a ionchelator.

Seminal plasma zinc level is known for its effects on spermatogenesis (Viscosity, Concentration, Motility, Viability).

The zinc concentration in seminal plasma is around ten times more than serum zinc concentration.

Zinc is one of the Bio-markers of prostate function.

1 Specimen Preparation

- Semen sample is collected with :
 - **Abstinence period of 2-7days.**
 - **Ideal collection** through **masturbation** in sterile container.
 - **Non-spermicidal polyurethane semen collection pouch (Sperm Collect™)** can be used when required.
- Semen sample is allowed to liquefy and then well mixed for performing test.
- Ideally test is to be performed within 30 to 60 min of collection.
- **Sperm-free Seminal Plasma Preparation :**
 - **Note down** semen volume (up to one decimal).
 - **Centrifugation** (with Androspin™) of semen sample (liquefied, well mixed) at **3000 rpm** for **10 - 20 min.**
 - **Aspirate supernatant** to obtain seminal plasma & **leave** the **pellet.**
 - Can be stored at **-20°C** for **12 months.**

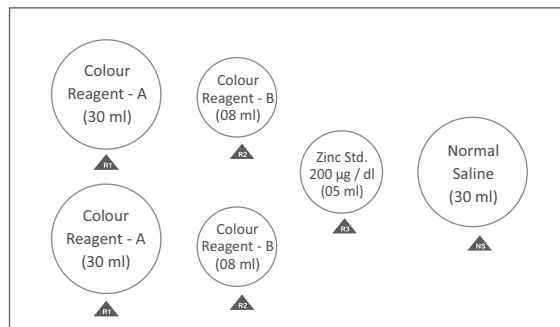
Special Instructions :

- **Hyperviscous** semen sample should be processed to bring towards normal viscosity. (**Viscosity-CH™** or **Viscosity-BR™** kit can be used)
- **Frozen semen** plasma must be thawed at 37°C (with Sperm Warmer™) before performing test.

2 Kit Contents

- Reagent 1 (R1) - Colour Reagent - A : 2 x 30 mL
- Reagent 2 (R2) - Colour Reagent - B : 2 x 8 mL
- Reagent 3 (R3) - Zinc Standard (200µg/dL) : 1 x 5 mL
- Normal Saline (NS) : 1 x 30 mL

Kit Content Layout Diagram :



Storage Conditions :

- The kit should be stored in dark at 2°C - 8°C after receiving.
- Bring all the reagents to room temperature before use.
- Once opened, store reagents in the fridge protected from light.
- Expiry date is printed on the out side of the box.

REQUIRED BUT NOT PROVIDED IN KIT

- Controlled Temperature 37°C Dry bath (Sperm Warmer™ / Water bath)
- Centrifuge Machine (Androspin™)
- Bio-chemistry Analyser (Androchem Analyser™)
- Pipettes Set
- Stopwatch
- Microtip Box
- Test Tube Stand

REQUIRED BUT NOT PROVIDED IN KIT

- Hand gloves
- Semen Collection Container
- Non-spermicidal Semen Collection Pouch (Sperm Collect™)
- Microtips
- Pasteur Pipettes
- Test Tubes
- Micro Tubes

Assay Parameters For Programming :

- | | |
|----------------------------|----------------|
| 01. Test Name | : Zinc |
| 02. Mode | : END POINT |
| 03. Primary wavelength | : 550 - 580 nm |
| 04. Temperature | : 37°C |
| 05. Aspiration Volume | : 500 µL |
| 06. Lag time | : 05 sec |
| 07. Blank | : Yes |
| 08. Q.C. | : No |
| 09. Standard | : 01 |
| 10. Concentration | : 200 µg/dL |
| 11. Normal | : Yes |
| 12. Reagent linearity | : 11 µmol/mL |
| 13. Read sec | : -- |
| 14. K factor | : 0.003 |
| 15. Unit | : µmol/mL |
| 16. Reaction Time | : 05 min |
| 17. Regnt. Blank Abs. max. | : 0.5 |

NOTE :

AndroChem[™]
Analyser



(Mfg. by Sperm Processor Pvt. Ltd., Aurangabad, India)

- Is preprogrammed with above mentioned settings.
- No additional programming is required.

- Step 1 :**
- **Note down semen volume** (upto one decimal).
 - **Bring** all the reagents to room temperature before use.

- Step 2 :** **Label** micro tube as '**Test**' (T).
(With appropriate Lab ID)



- Step 3 :** **Seminal plasma dilution step**
(1 : 20 Dilution)

- Pipette out following solutions in '**Test**' (T1) :

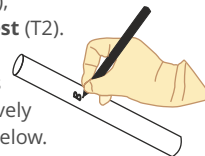


A. Normal Saline - 475 μ L

B. Seminal Plasma - 025 μ L

- **Mix well & use** diluted seminal plasma in the **Step - 4.**

- Step 4 :**
- **Take three** new test tubes & **label** them as **Blank** (B), **Standard** (Std.) (S) & **Test** (T2).



- **Add** following solutions into test tubes respectively as per the table given below.
- Diluted seminal plasma is used from **Step 3.**

	Tubes		
	Blank	Std.	Test 2
R1 - Colour Solution - A	400 μ L	400 μ L	400 μ L
R2 - Colour Solution - B	100 μ L	100 μ L	100 μ L
Normal Saline	100 μ L	---	---
R3 - Zinc Standard (200 μ g/dL)	---	100 μ L	---
Diluted Seminal Plasma (From Step 3)	---	---	100 μ L

- Step 5 :**
- Mix well the solutions of **Step 4**
 - Incubate for **5 min** at **25°C.**

- Step 6 :** Tubes are now ready for examination.

Examinations of Test Tubes :

Read the absorbance by using Bio-chemistry analyser (at 550 - 580 nm) within 60 min in following order :

Blank	(B)	(Abs. B)
Std.	(S)	(Abs. S)
Test	(T2)	(Abs. T2)

Calculations**Zinc In Semen Per Ejaculate****1. Zinc in semen (Y) (µmol/mL)****A. If Biochemistry Analyser is used :**

- Zinc in semen (X) µg / dL :

$$= \frac{(\text{Abs. T2}) - (\text{Abs. B})}{(\text{Abs. S}) - (\text{Abs. B})} \times 200 \mu\text{g} / \text{dL}$$

$$= \mathbf{X \mu\text{g} / \text{dL}}$$

- Zinc in semen (Y) µmol / mL :
- $$= \mathbf{X (\mu\text{g} / \text{dL})} \times 0.003$$
- $$= \mathbf{Y \mu\text{mol} / \text{mL}}$$

Note : Correction factor 0.003 is calculated on the basis of sample dilution & incubation time.

- Final Result :

$$\text{Zinc in semen sample} = \mathbf{Y \mu\text{mol} / \text{mL}}$$

B. If AndroChem Analyser is used :

*AndroChem*TM
Analyser



(Mfg. by Sperm Processor Pvt. Ltd.,
Aurangabad, India)

- Is preprogrammed with above mentioned settings.
- No additional programming is required.
- The results are displayed as **Y µmol / mL**.

2. Zinc in semen (Z) µmol / ejaculate

$$= \mathbf{Y (\mu\text{mol} / \text{mL})} \times \text{semen volume (mL)}$$

$$= \mathbf{\text{Zinc in } \mu\text{mol} / \text{ejaculate}}$$

Quantitative Estimation of Zinc in Seminal Plasma

(Biomarker - Prostate)

Volume : ____ mL**Result** : ____ μmol / mL: ____ μmol / ejaculate**Normal Reference Range :** **$\geq 2.4 \mu\text{mol}$ / ejaculate**

(As per fifth edition of WHO laboratory manual for examination and processing of human semen).

Limitations :

- This test provides presumptive quantitative information of zinc in seminal plasma.
- This parameter should be analyzed by a specialist.
- The result should be evaluated taking into account all clinical & laboratory findings related to the same sample.

- All patient samples & reagents should be treated as potentially infectious & the user must wear protective gloves, eye protection & laboratory coats when performing the test.
- The kit should be discarded in a proper biohazard container after testing.
- Do not eat, drink or smoke in the area where specimens & kit reagents are handled.
- Do not use beyond the expiration date which appears on the package label.
- It is recommended to use of gloves & face mask.

- Do not release the products used into the environment. Follow centre guidelines for the storage & disposal of toxic substances.
- Biological samples must be handled as potentially infectious.

Description of Symbols



consult instructions of use



product reference



lot number



use by



manufacturer



health surveillance device
for in-vitro diagnostic



contains sufficient for 'n' tests



temperature limitation



keep dry



CE mark (Conformité Européene)

Accreditations & Registered Certificates

- **ISO 13485 : 2003** Certified
- **CE** Certified
- **GMDN** Registered
- **US FDA** Registered

For more information & procedure videos



www.spermprocessor.com/sft-zinc.html



www.youtube.com/watch?v=0HchvDie91M

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