



Smart Technology For Life.

CASA
Computer
Assisted Semen Analysis





SPERMOLYZER

Computer Assisted Semen Analysis utilizes latest technology of machine vision and image processing techniques for the clinical assessment of sperm motility , morphology, vitality and DNA fragmentation.

Based on the sperm test standards of the WHO 5th criteria (2010), the system can analyze the characteristics of the sperm comprehensively and generates accurate parameters to show sperms' quality. The whole procedure is fast and provides several and important information that are vital to current scientific basis for the male reproductive ability.



what's new?

MiraLab introduces the all new and innovative Spermolyzer[®] microscope. Creative head with built-in digital camera & temperature controller.

SPERMOLYZER[®]



Innovative microscope

Spermolyzer is the world's most advanced, reliable and cost effective CASA. Fast, accurate and objective results for sperm analysis can be obtained for any Pathology and Andrology laboratories.



- * All in one solution.
- * Reliable, accurate, homogeneous and objective results.
- * Powerful yet flexible.
- * Fast, easy and intuitive user interface.

Main Modules:

- * Count and Motility
- * Morphology
- * Vitality
- * DNA Fragmentation

- * Follows WHO 5th edition strict criteria.
- * Automatic comment generating according to the results.
- * Creative constant-temperature operation desk
- * handy on-screen virtual grid function
- * Robust database with incremental backup and restore.
- * Generating of historical report.
- * Stats for researchers and institutions.
- * Option for making a soft copy of the patient reports along with motility tracks and images.
- * Very easy and only one-time calibration.
- * Customized reports with custom colors
- * Multi user system with different level of privileges.
- * Multilingual interface (English, French, Italian, Russian, Chinese...etc)



NO COST PER TEST FOR MOTILITY MODULE

Spermolyzer Metal Slide is a reusable single chamber to analyze Sperm Concentration and Quantitative assessment of Sperm Motility.

Main Modules:

Motility

- * Motility for different velocities and kinematic parameters (VCL, VSL, VAP, MAD, ALH, BCF, LIN, WOB, STR).
- * Ability to delete non sperm detected objects.
- * Compatible with reusable and disposable slides.
- * Smart analysis for detecting irregular movement of sperms.
- * Multi selection/deselection of objects for accurate results.
- * Automatic threshold detection to easily catch all sperms in a given track.
- * Option to print two track images in report



Morphology

- * Auto detection of head and neck defects
- * Morphological and morphometric parameters.
- * Auto calculation of the important TZI, SDI and MAI indices.
- * Ability to add, delete and edit sperm vertices easily and interactively.
- * Showing all sperm properties (shape and size).
- * Option to print up to 4 images in report along with images of defect/normal sperms.



Vitality

- * Easy and cost effective staining.
- * Using bright field microscope.
- * Fast analysis with the ability to add, delete and edit any object detected.
- * Option to print two images in report.



DNA Fragmentation:

- * Using the SCD (Sperm Chromatin Dispersion) method.
- * Fast analysis with the ability to add, delete and edit any object detected.
- * Classification of sperms according to halo size.
- * Calculation of the important DFI parameter.
- * Option to print two images in report.



Other Features of Spermolyzer software:

- Automatic interpretation and generating of appropriate comments according to the patient results.
- Generating of custom reports like Urine, Stool, CBC and Bone marrow with any captured images using the system digital camera and microscope.
- Burn soft-copy of patients reports along with free track of live spermatozoa.



MiraLab Andrology Line:

Andrology lab workflow will be far easy and practical with the help of the specifically developed instruments and accessories for all sperm function tests with regards to their functional and ergonomic needs. The instruments are developed with the in-vivo temperature environment of natural processes in mind where ever needed giving systematic approach and quality results.



Warmer for semen specimen:

Semen specimen warmer is a temperature control system which is ergonomically designed to give ease of work and specimen handling. The system has heater & sensor programmed to attain & maintain 37°C. It has very high accuracy with $\pm 0.20^\circ\text{C}$.



Warmer for DNA Fragmentation Test.:

DNA fragmentation test warmer is a dual temperature control system, designed to expose the agarose tubes at 70°C or at 37°C in separate blocks of instrument. The two blocks for two different temperatures can be used simultaneously.

You can thereby cut off the hassle included in conventional method and do the work in ease in just one instrument. Also, Its ergonomics allows user to handle each tube without disturbing others.

Mira lab
100%
Andrology
Solutions

Sperm Dynamic Test
Sperm Morphology Test
DNA Fragmentation Test
Sperm Vitality Test

Spermolyzer
(smart CASA System)

Sperm Function
test Kits

Sperm Fructose Kit
Sperm HOS Reagent Kit
Viscosity Reagent Kit
Sperm pH Strips
Sperm Zink kit

Antisperm Antibody Kit
Nuclear Protein Assessment Kit
Leukocytes Confirmation Kit
 α - Glycosidase Kit

Andrology Solution Kits

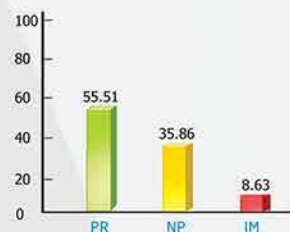
Spermolyzer (Computer Assisted Semen Analysis)

The system follows WHO (2010) strict criteria for motility patterns & morphometric assessment of human semen.

Name	Patient Name	Case no.	201711022	
Age	35	Date	02/11/2017	
Lab ID	117	Ref. by		

Physical Properties

Abstinence	4	2 - 5 days
Collection	Masturbation at lab	
Volume	4	≥ 1.5 ml
pH	7	≥ 7.2
Color	Grey Opalescent	
Odor	Normal	
Viscosity	Moderate	
Liquefaction time	25	15 - 60 min.
Liquefaction State	Complete	



Test Result

Test	Result	Reference values
Concentration	96.44	≥ 15 million/ml
Total sperm count	385.76	≥ 39 million/ejaculate
Progressive motility (PR)	55.51	≥ 32 %
Totale motility (PR+NP)	91.37	≥ 40 %
Morphology index	57.14	≥ 4 %
Vitality	72.22	≥ 58 %

Agglutination grade

Agglutination	Nil
Agglutination grade	-
Non-specific Aggregation	Nil

Other Cells

White blood cells	< 5 /H.P.F
Red blood cells	< 5 /H.P.F
Spermatogenic cells	/HPF
Epithelial cells	/HPF

Normal seminal profile

The semen passed the WHO. strict criteria for count, motility and morphology.

Comment

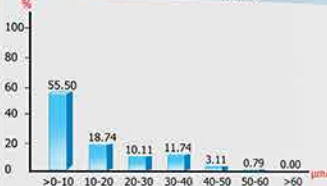
Miralab's Spermolyzer - (Computer Assisted Semen Analysis) - (User : Power)

Charts Report

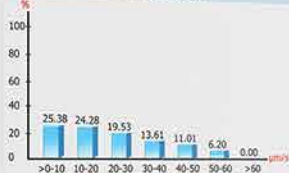
Name Patient Name

Lab ID 117

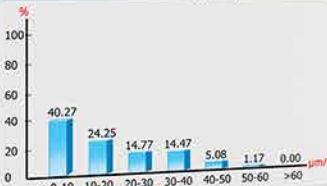
Progressive velocity (VSL)



Track speed (VCL)



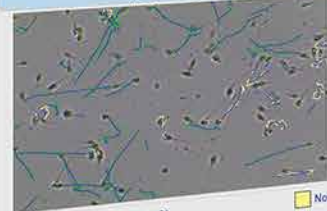
Path velocity (VAP)



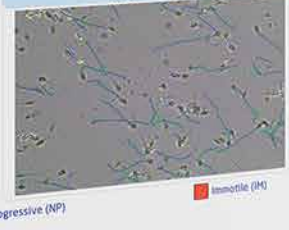
Sperm distribution



Track image (I)



Track image (II)



Progressive motility (PR)

Non progressive (NP)

Immotile (IM)

Motility report

Name Patient Name

Lab ID 117

Dynamic parameters (I)			
Classification	Conc. (million/ml)	Total number (million)	Percentage (%)
Tested sperms	96.44	385.76	100
Total motility (PR+NP)	88.12	352.48	91.37
Progressive motility (PR)	53.53	214.12	55.51
Non progressive (NP)	34.58	138.32	35.86
Immotile (IM)	8.32	33.28	8.63

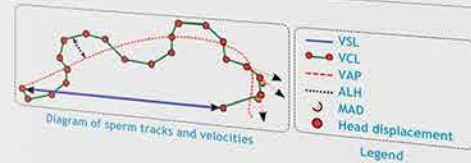
Progressive motility (PR) Spermatozoa moving actively either linearly or in a large circle regardless of speed

Non progressive (NP) All other patterns of motility with absence of progression, i.e. swimming in small circle, the flagellar force hardly displacing the head, or when only a flagellar beat can be observed.

Immotile (IM) No movement

Dynamic parameters (II)			
VCL (µm/s)	23.85	VSL (µm/s)	13.88
MAD (°)	26.42	ALH (µm)	3.82
LIN (%)	58.25	WOB (%)	76.2
		VAP (µm/s)	18.18
		BCF (Hz)	2.42
		STR (%)	76.42

VCL Curvilinear velocity	VSL Straight line velocity	VAP Average path velocity
MAD Mean angular degree	ALH Amplitude of lateral head displacement	BCF Beat-cross frequency
LIN Linearity (VSL/VCL)	WOB Wobble (VAP/VCL)	STR Straightness (VSL/VAP)



Morphology Report

Name Patient Name

Lab ID 117

Normal sperms (Morphology Index) 57.14 %

Terato sperms 42.86 %

A. Head abnormalities

Big head	28.57 %
Small head	0 %
Tapered head	14 %
Pyriform head	0 %
Round head	0 %
Amorphous	29 %
Vacuolated	0 %
Double head	0 %
Small acrosome	0 %
No acrosome	0 %
Exfoliated head	0 %

B. Neck & Midpiece abnormalities

Thin neck	0 %
Thick neck	0 %
Bent neck	0 %
Asymm. insertion	0 %

C. Excess residual cytoplasm (ERC)

E.R.C. 0 %

D. Principal piece (Tail) abnormalities

Short tail	0 %
Bent tail	0 %
Multi tail	0 %
Break down tail	0 %
Coiled tail	0 %
Irregular tail	0 %

MAI (Multiple Anomalies Index) : 1.67

The mean number of anomalies per abnormal spermatozoon

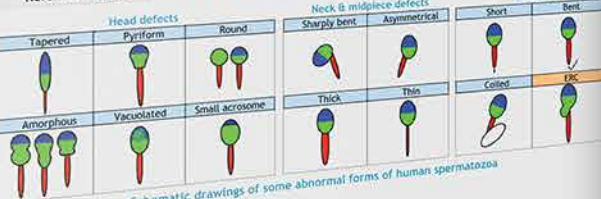
TZI (Teratozoospermic Index) : 1.0

Total number of defects divided by the number of abnormal sperms

SDI (Sperm Deformity Index) : 0.71

Total number of defects divided by the number of sperms counted

Class	Head length	Head width	Length/width	Head area	Head perimeter	Acrosome (%)
Mean of normal sperms	5.29	3.18	1.74	12.85	13.31	46.35
Mean of terato sperms	5.99	3.2	2	15	14.7	44
Reference values	4 - 5.5	2.5 - 3.5	1.5 - 1.75	7.85 - 15.1	10.8 - 14.9	40 - 70



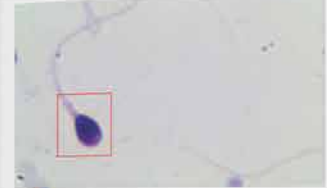
Morphology Images

Name Patient Name

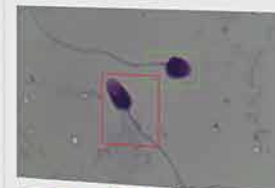
Lab ID 117



Normal Sperm



Big head



Normal Sperm



Tapered head Amorphous

Normal

Terato

Name Patient Name

Vitality report

Lab ID 117



	#	%
Live sperms	13	72.22
Dead sperms	5	27.78
Total sperms	18	100



Vitality Image (I)



Live

Vitality Image (II)



Dead

DNA Fragmentation Report

Case no. 201711022
Date 02/11/2017
Ref. by



Name Patient Name
Age 35
Lab ID 117

	#	%
Non fragmented	63	87.5
Fragmented	9	12.5
Total sperms	72	100

	#	%
Degraded	2	2.78
Without halo	1	1.39
Small halo	6	8.33
Medium halo	13	18.06
Big halo	50	69.44

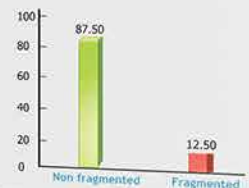
DNA Fragmentation Index

DFI 12.5 %

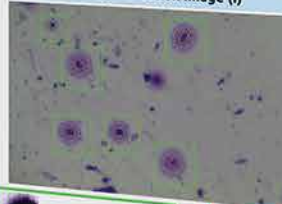
< 15 Excellent fertility potential
15 - 30 Good fertility potential
> 30 Poor fertility potential

Comment

The sample has an Excellent fertility potential according to WHO strict criteria

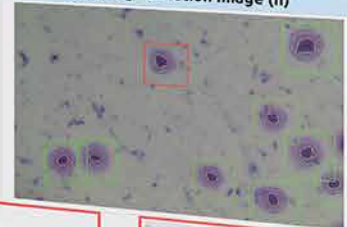


DNA Fragmentation Image (I)



Non fragmented

DNA Fragmentation Image (II)



Fragmented

Degraded

We developed **MiraStain[®]** and **MeraKit[®]** series. They are ready to use reagents which facilitate all **Spermolyzer's** Sperm Function Tests



A photograph of a modern, multi-story building with a glass facade. The building features large windows and a prominent sign that reads "MIRALAB Lab Equipment". The sign is illuminated and reflects on the glass. The building is set against a clear sky. The foreground is a dark blue, abstract geometric shape that frames the building.

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Lab Equipment

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