Introduction to the New Version of AI Multifunctional Morphological Analyzer

- Released Version x.25.02.03

Marketing Department

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01

Upgrade of Detection Functions

AI Model Iteration

Blood, feces, urine and ascites test—significantly increased multi-parameter training data

Added AI autofocus model for all sample types.

➢ Avoids detection failure due to failed focus.

Improvements include:

• Reduced misidentification of reticulocytes, platelets, and basophils in blood.

• Enhanced recognition of coccidia and Giardia cysts in feces.

• Reduce focusing failures caused by instrument vibration and overly concentrated samples.

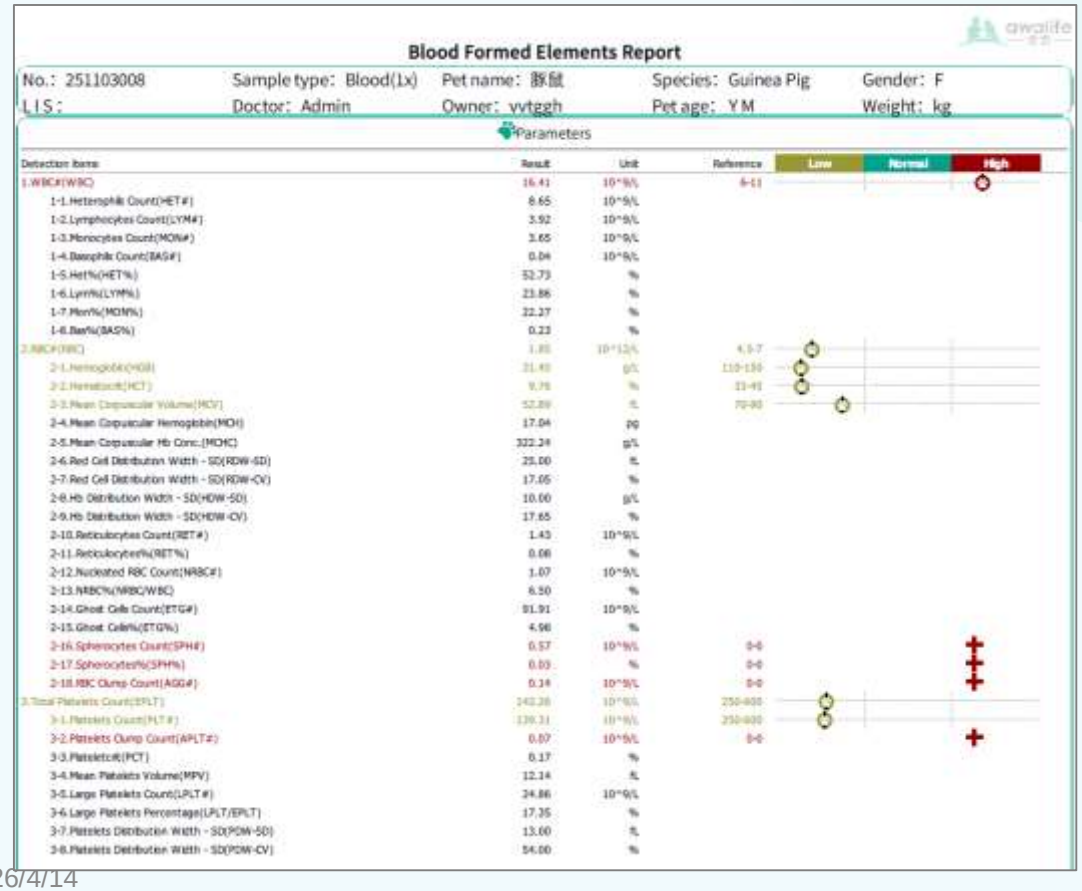
Blood Test: New Species

Added Guinea Pig and Large animal(Alpaca, Camel, Pig, Horse, Cattle, Sheep)

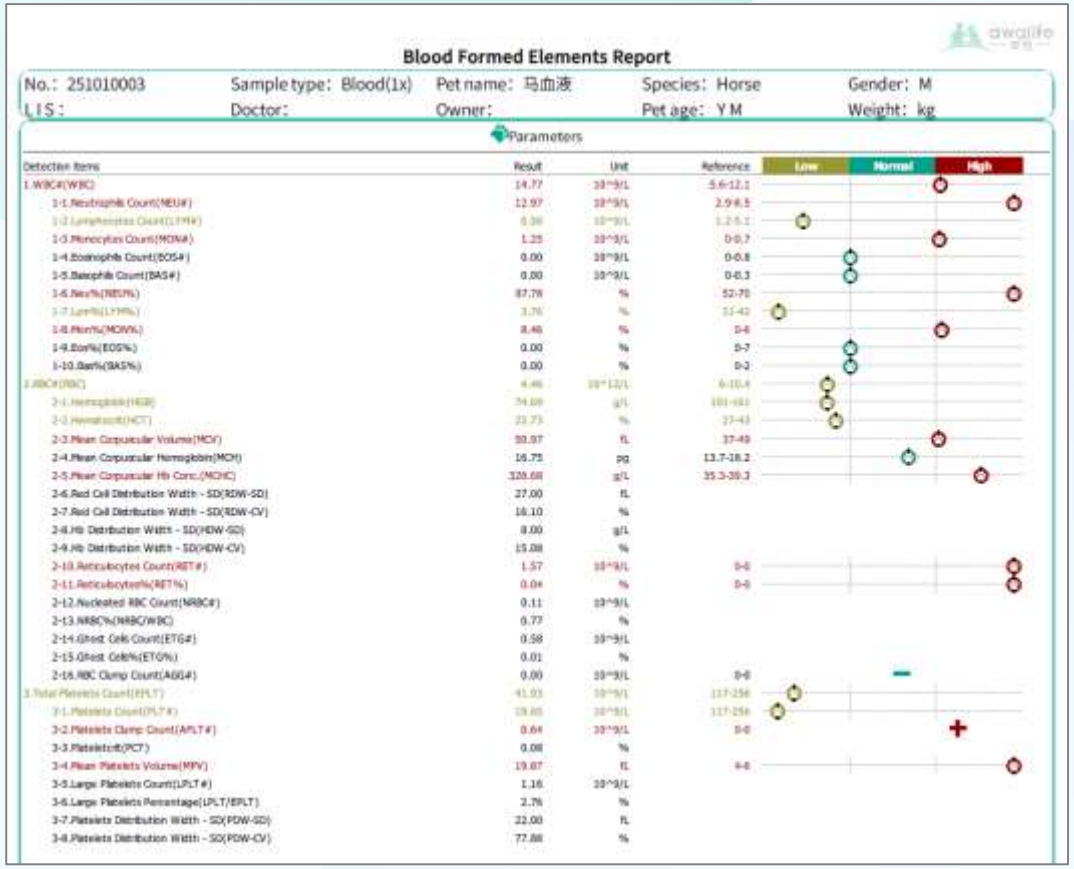
Note: Detection of Guinea pig is included in the standard configuration.
Detection of Large animal is an optional function.

Blood Test Report of these New Species

- Guinea Pig: 37 items; Large animals like Horse: 37 items.
- Some items with references show the reference axis, while others show negative or positive results.
- Items without a reference only display the result's value (Reference ranges can be set by the user).



Guinea Pig Blood Test Report



Horse Blood Test Report

New Items added to Blood Test

Blood test for dogs &cats

WBC: Added Small Lymphocytes, Large Lymphocytes, Atypical White Blood Cells.

RBC: Added Acanthocytes, Heinz Bodies.

Blood test for mammals(dog、cat、horse、pig, etc.)

Added Total Platelet Count (EPLT).

- It is an estimated value calculated from the number of platelets in Aggregated Platelets and normal platelets.

P-LCR(LPLT/PLT) changed to LPLT/EPLT.

NST
NSG
NSH
LYM
MON
EOS
BAS

WBC upgraded from

seven-part to nine-part differentiation

NST
NSG
NSH
SLYM
LLYM
AWBC
MON
EOS
BAS

Blood Test: New Items

Detection Target	Clinical Significance
Small Lymphocytes (SLYM)	• Main lymphocyte type in healthy animal peripheral blood. • Pathological increase usually seen in chronic infections, chronic inflammation.
Large Lymphocytes (LLYM)	• Less in healthy animal peripheral blood. • Increasing value usually indicate activated immune system.
Atypical White Blood Cells (AWBC)	• Reactive lymphocytes with morphological changes, a common manifestation of an active immune system.
Acanthocytes (ACA)	• May be associated with severe liver disease or kidney disease.
Heinz Bodies (HEB)	• Inclusions of denatured hemoglobin within RBCs, a marker of oxidative damage, can be seen in animals with metabolic diseases. • **Healthy cats may have a small number of small Heinz bodies in peripheral blood, but if large numbers appear or they are large in size, it suggests significant oxidative damage and hemolysis risk.**

Update of RBC Detection Program

Improved the accuracy of MCV and HCT for some special blood samples.

- Detection time extended ~3 minutes when this program is triggered.
- Typically occurs in testing blood form severe anemia animal.

	Parameter	Repeatability deviation
Repeat testing of blood samples	RBC	≤ 3.00%
	MCV	
	MCH	
	HGB	
	HCT	
	MCHC	

HCT deviation between AI analyzer and Wintrobe method	AI analyzer	A Brand of Hematology Analyzer
Qualification rate for HCT deviation ≤ 3%	71.43%	42.86%
Qualification rate for HCT deviation ≤ 5%	100%	

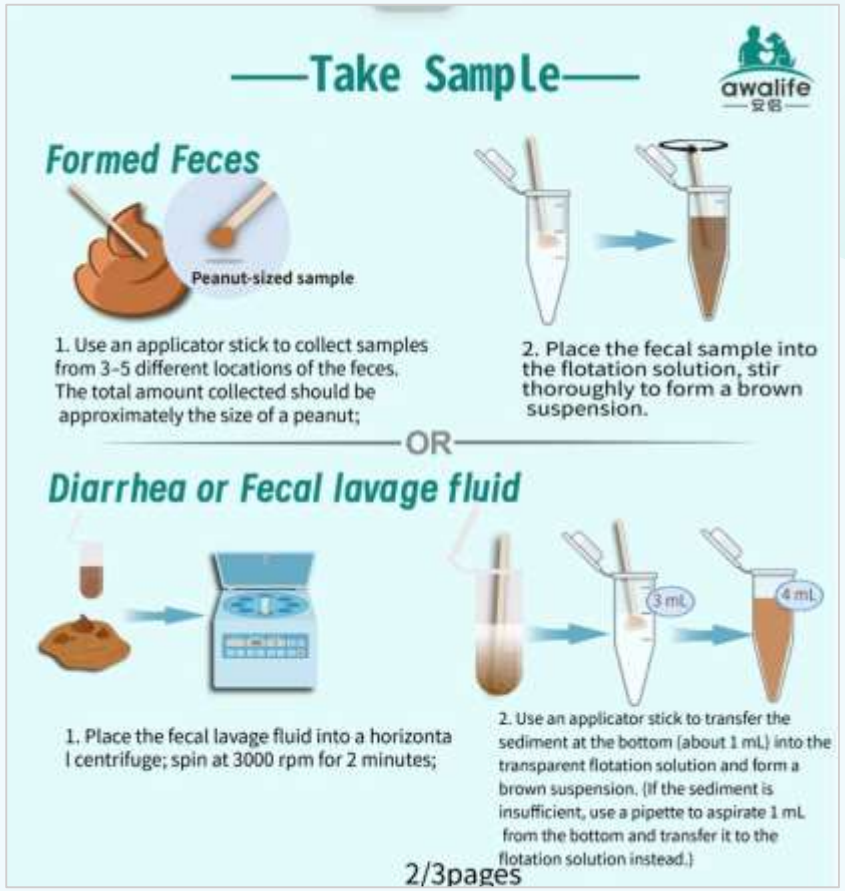
Changes in Detection Time

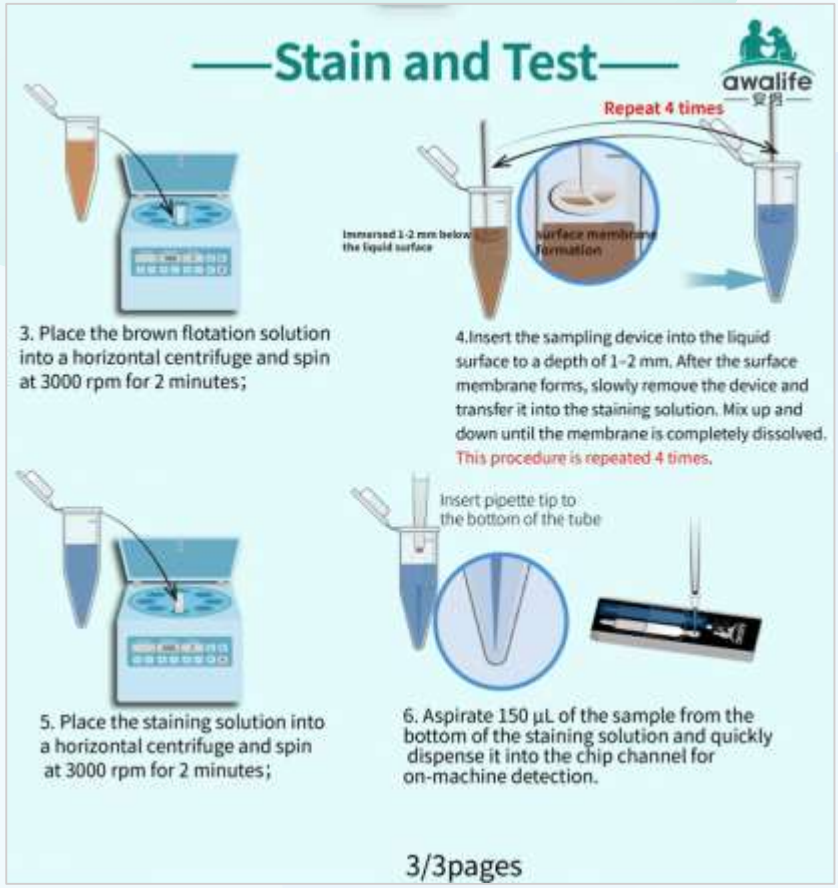
AI Multifunctional Morphological Analyzer		Time change compared to the previous version	Average detection Time
Blood (Upgrade of RBC and HGB Detection Program)	Dog	+20~30s	7~8.5 min
	Cat	+30~90s	8~9.5 min
Urine (Image Photography Program Adjustment)	/	+60s	9~11 min
Direct Fecal Analysis	Standard Mode	/	9~11 min
	Enhanced Mode	/	18~21.5 min
Fecal Egg Floatation	Standard Mode	/	10 min
	Enhanced Mode	/	20 min

New Detection Mode for Feces

The "Fecal Egg Flotation" detection mode was added, which improves egg detection performance.

- **This detection mode is currently unavailable as the test kit has not yet been released.**



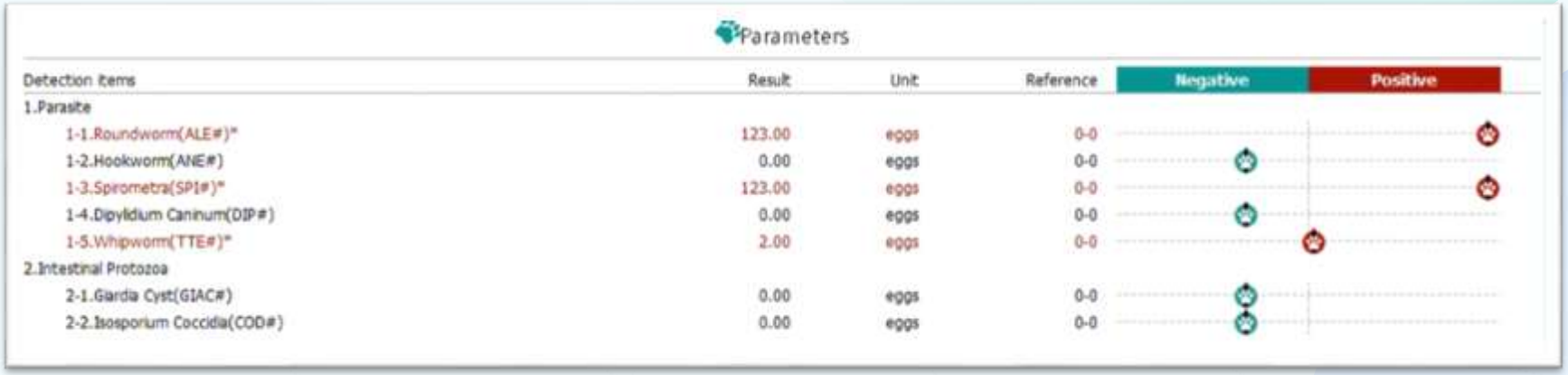


SOP of "Fecal Egg flotation"

Key Points for "Fecal Egg Flotation"

①This mode requires horizontal centrifuge.

②This mode is specifically designed for eggs, some protozoa, pathogens, cells, and organic matter will be lost. Therefore, the report only presents eggs and cysts with a low specific gravity.



Parameters

Detection items	Result	Unit	Reference	Negative	Positive
1.Parasite					
1-1.Roundworm(ALE#)*	123.00	eggs	0-0		
1-2.Hookworm(ANE#)	0.00	eggs	0-0		
1-3.Spirometra(SPI#)*	123.00	eggs	0-0		
1-4.Dipylidium Caninum(DIP#)	0.00	eggs	0-0		
1-5.Whipworm(TTE#)*	2.00	eggs	0-0		
2.Intestinal Protozoa					
2-1.Giardia Cyst(GIAC#)	0.00	eggs	0-0		
2-2.Isosporium Coccidia(COD#)	0.00	eggs	0-0		

③ Highly suspect helminth infection (e.g. roundworms, hookworms, spirometra, whipworms), recommend choosing the "Fecal Egg Flotation“ test mode；

Fecal Egg Flotation Detection Mode

Why is a horizontal centrifuge required for the fecal egg flotation method?

	fixed-angle centrifuges	horizontal centrifuges	standing settling
Positive sample size	10	10	5
Positive rate	80%	**100%**	80%
Time of Enrichment	4MIN	4MIN	4H
Average number of detected eggs	47.5	**464.3**	41.8

- The efficacy of horizontal centrifuges in enriching parasite eggs far exceeds that of fixed-angle centrifuges or standing settling.

Feces Test: New Item

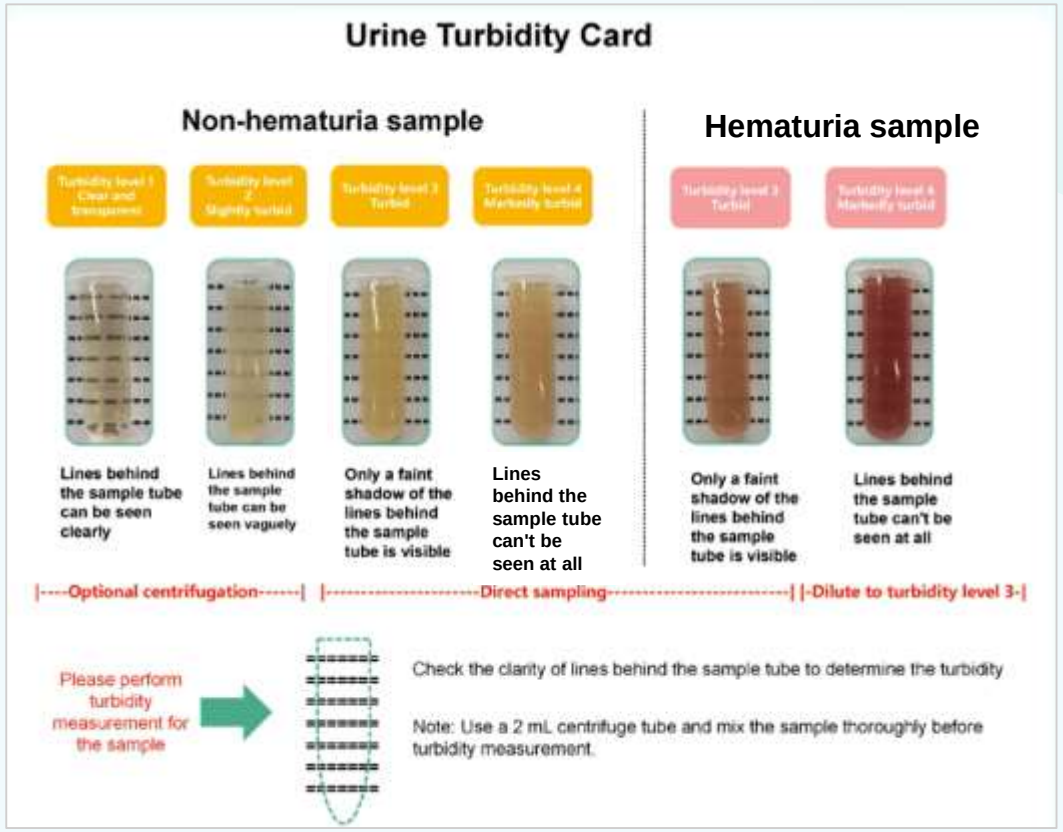
Fecal detection added "Whipworm".

Detection Target	Morphological Features	Clinical Significance
Whipworm (TTE)	• Barrel-shaped or spindle-shaped. • Long diameter ~50-54μm, short diameter ~22-23μm. • Thick shell, a transparent plug at each end. • Shell consists of outer protein membrane, middle chitin layer, and inner lipid layer, containing one egg cell.	• Adult worms invade intestinal mucosa (especially cecum), causing local inflammation, bleeding, nutrient deprivation, leading to indigestion, anemia, weight loss. • CBC may show eosinophilia and anemia indicators.

Detection Function: New SOP for Urine Test

Added a dedicated urine turbidity card

- Distinguishes hematuria and non-hematuria samples, suggests subsequent operations based on turbidity results.

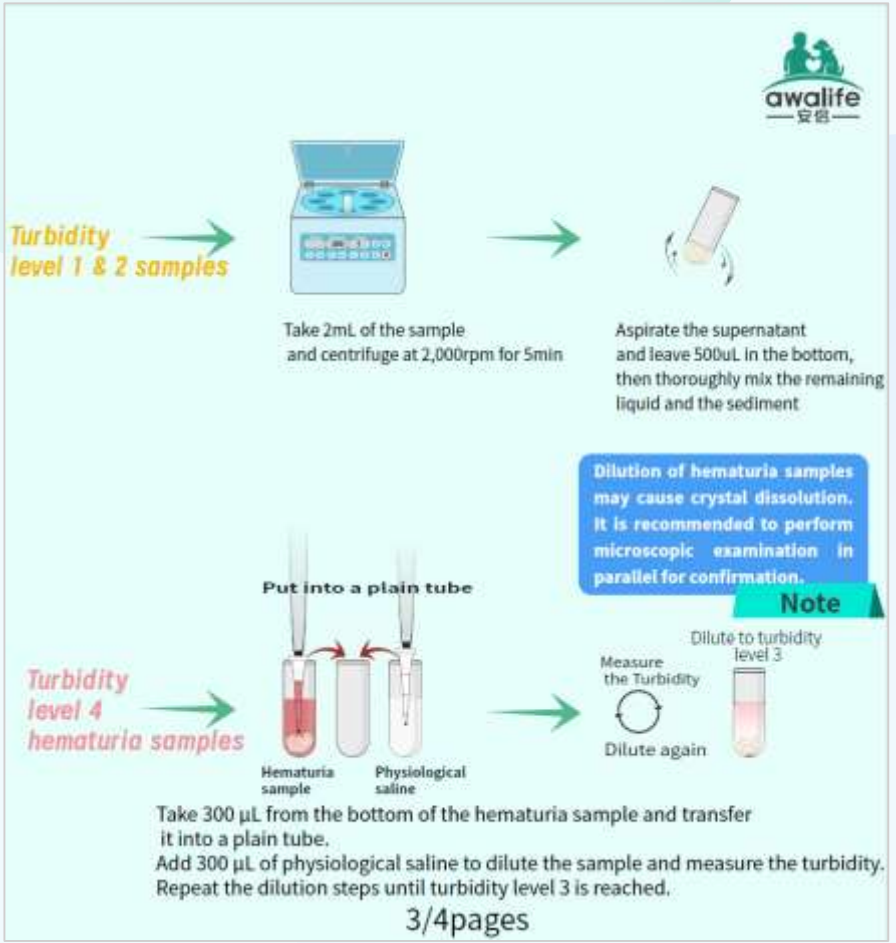


For low turbidity samples (Turbidity 1, 2)

- Optional centrifugation to enrich sediment.

For obviously turbid hematuria samples (Turbidity 4)

- Need dilution to reduce turbidity first.



Urine Test: New Items

Urine detection added "Ammonium Urate Crystals" and "Bilirubin Crystals".

Detection Target	Morphological Features	Clinical Significance
Ammonium Urate Crystals (AU)	• Yellow - brown or brown, opaque, commonly in root - like, dumbbell - like, or spiky ball shapes. • More likely to form in alkaline urine.	• Can be seen in the urine of dogs and cats. • If a large amount is found in dog urine, portosystemic shunt or severe liver disease should be suspected. • If it appears in other animals, it indicates liver dysfunction.
Bilirubin Crystals (BC)	• Yellow - red or orange - red, in bundles of needle - like or small flake - like shapes. • Can be preserved in acidic urine.	• A small amount may be normal in dog urine, but generally not visible in cat, horse, and ruminant urine. • If found in non - canine animals, or in large amounts in dogs, it suggests abnormal bilirubin metabolism or excretion.

Summary of Upgraded Detection Functions

Dogs/Cats Blood:

- WBC added Small Lymphocytes, Large Lymphocytes, Atypical WBCs.
- RBC added Acanthocytes and Heinz Bodies.

Mammals Blood:

- PLT added an aggregated platelet conversion count to provide a more accurate total platelets count(EPLT).

New species for Blood test:

- Guinea pig, Alpaca, Camel, Pig, Horse, Cattle, Sheep.

Feces:

- A dedicated “Fecal Egg Flotation" process was launched to improve eggs detection performance.
- The “Whipworm egg” parameter was added.

Urine:

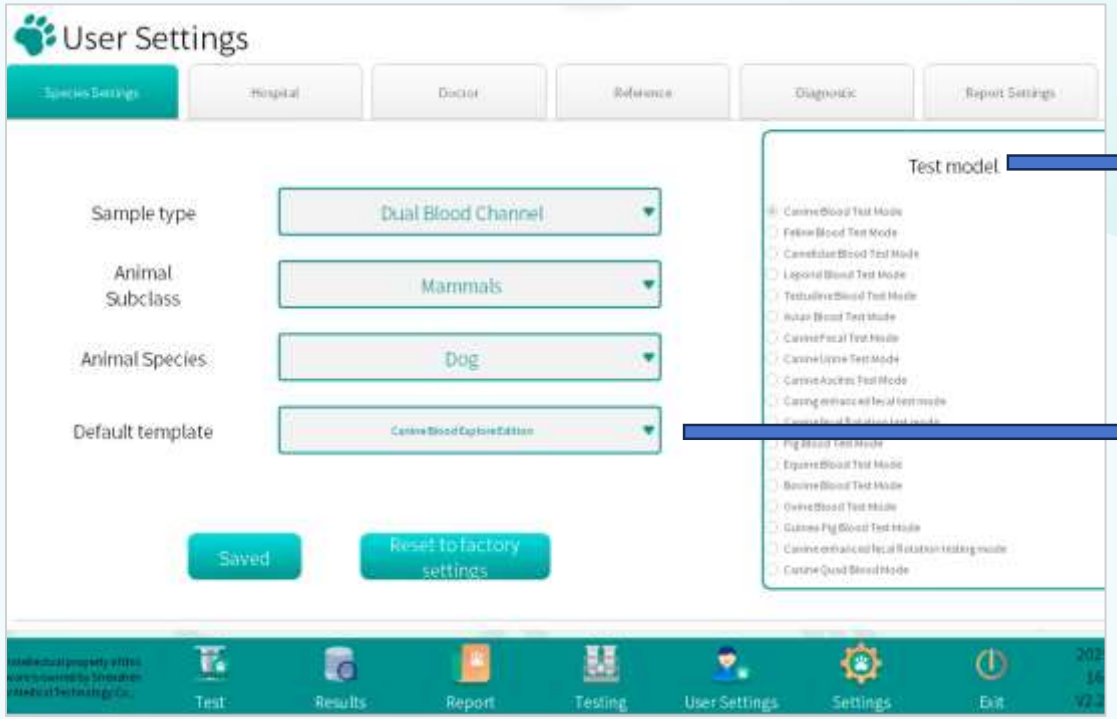
- New SOP refines the sample pre-processing and improves the detection performance for samples with different characteristics.
- The “Ammonium Urate” and “Bilirubin Crystal” parameters were added.

02

Upgrade of Software Features

New Feature: Select the Report Template

- Supports selecting the report template corresponding to the sample types and species.



User Settings -> Species Settings

Showing which mode will be used to test that species

①Three editions(Explore/Pro/Basic) for Dog/Cat;

②Explore edition has the most comprehensive items; Others removed some uncommon items;

③Default is professional edition ;

④Takes effect for new test reports after changing template.

Differences between three Edition

(Report template of dogs &cats)

Explore Edition	Professional Edition	Basic Edition
WBC/number of parameters		
23	20 (removed SLYM%, LLYM%, NSG%)	17 (removed SLYM#, LLYM#, AWBC#)
RBC/number of parameters		
21	21	18 (removed ACA#, HEB#, HEB%)
Feces/number of parameters		
33	26 (removed CEE#, COD0#, COD1#, COD2#, SBAC#, TBAC#, CBAC#)	
Urine/number of parameters		
23	21(removed SPE#, PHL#)	
Ascites/number of parameters		
19	17(removed GRL#, GRL%)	

New Feature: Customize Parameter Units, Reference Ranges, Diagnostic Recommendation

Parameter units support two optional groups:
10^9/L、10^{12}/L、g/L ;
10^3/μL、10^6/μL、g/dL

Edit the reference ranges and diagnostic prompts

Now supports all species; Will be effective after saving and reviewing the report.

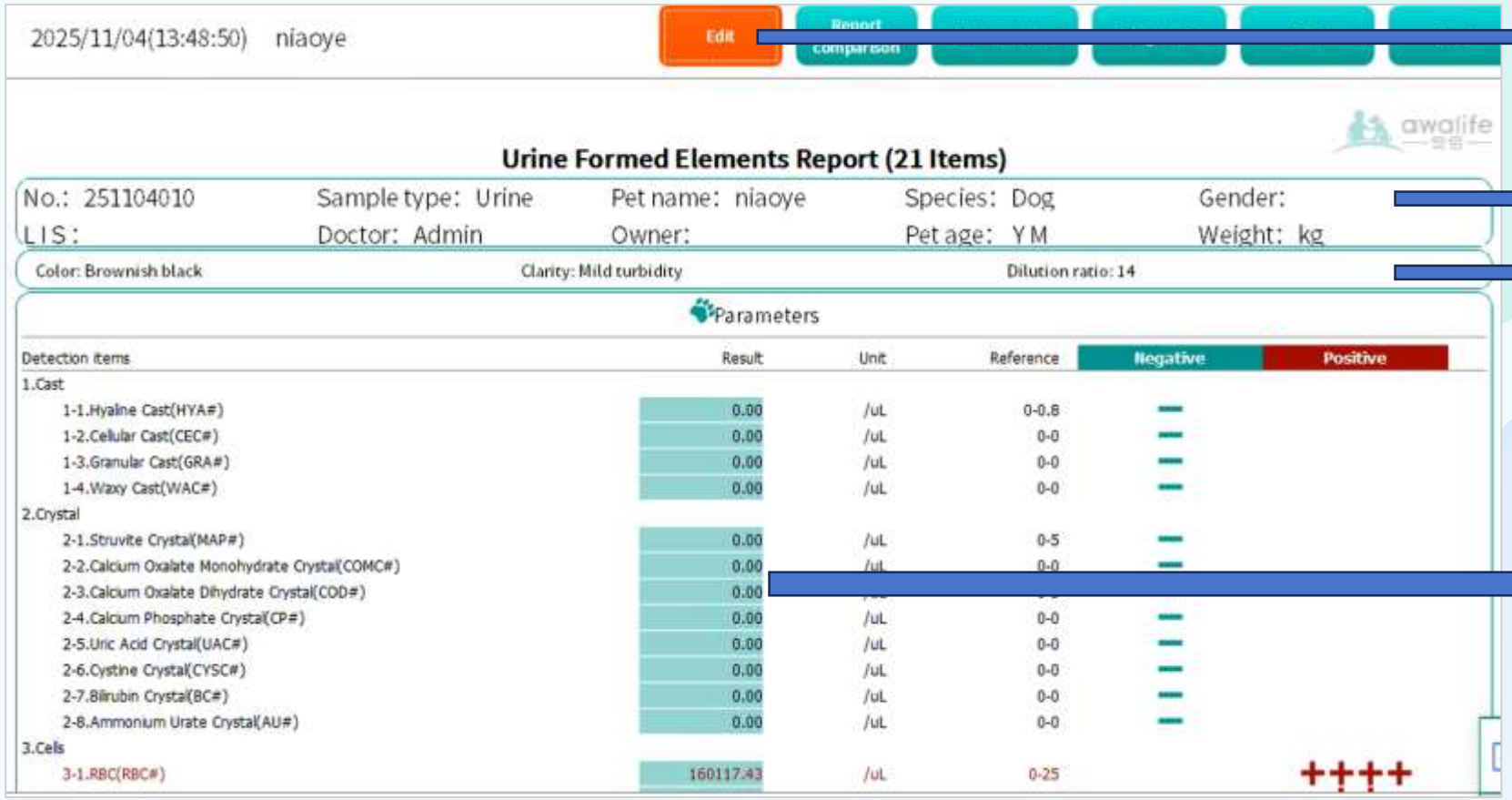
***Click "OFF" to enable editing and enter "admin" to save changes.**

User Settings -> Report Settings

User Settings -> Reference

User Settings -> Diagnostic

Update of Report Editing Function



Enable manual review

Edit header information (excluding species and LIS)
Supports all sample types

Edit sample characteristics

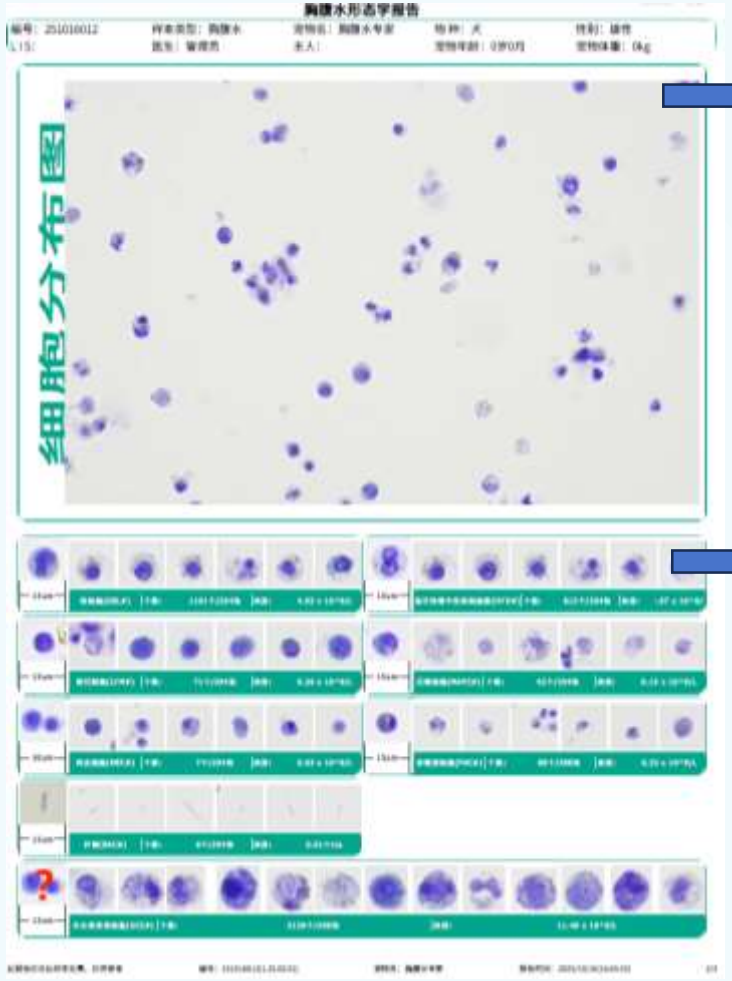
Edit item result

Supports feces and urine

Edits are marked with an asterisk (*).

Diagnostic prompts display "*Parameter manually reviewed."

Update of Report Editing



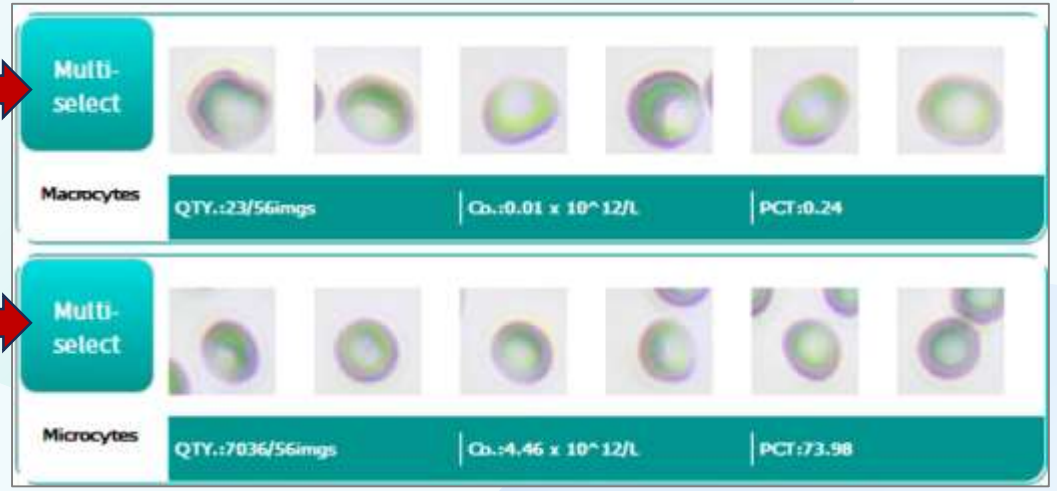
After enabling manual review, double-clicking the large morphological image allows entry into the image library to select a replacement.

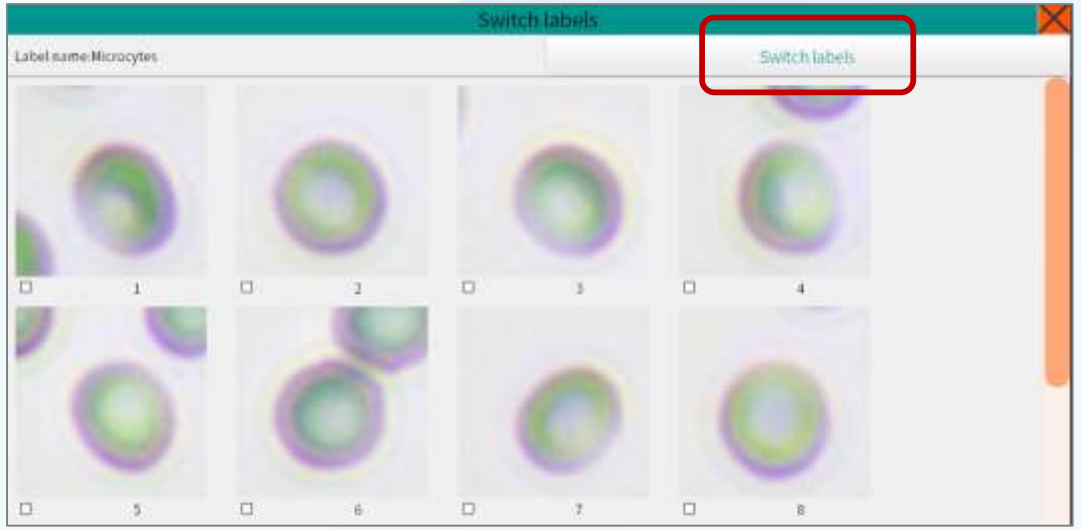
- Double-clicking on small morphological images provides options to **delete the image, delete all images for that item, or change its classification category.**
- **Please note that deletions cannot be undone.**
- The item result and diagnostic prompt will change accordingly after editing the image.
- Edited items are marked with an asterisk (*).

Update of Report Editing

Batch Switch Labels

1. The “Multiple Select” button appears before the morphology images.
2. Click the “Multiple Selection” button to display all images under this parameter.
3. Select multiple images, then click “Switch labels” in the upper-right corner to modify the category.





New Feature: Report Comparison

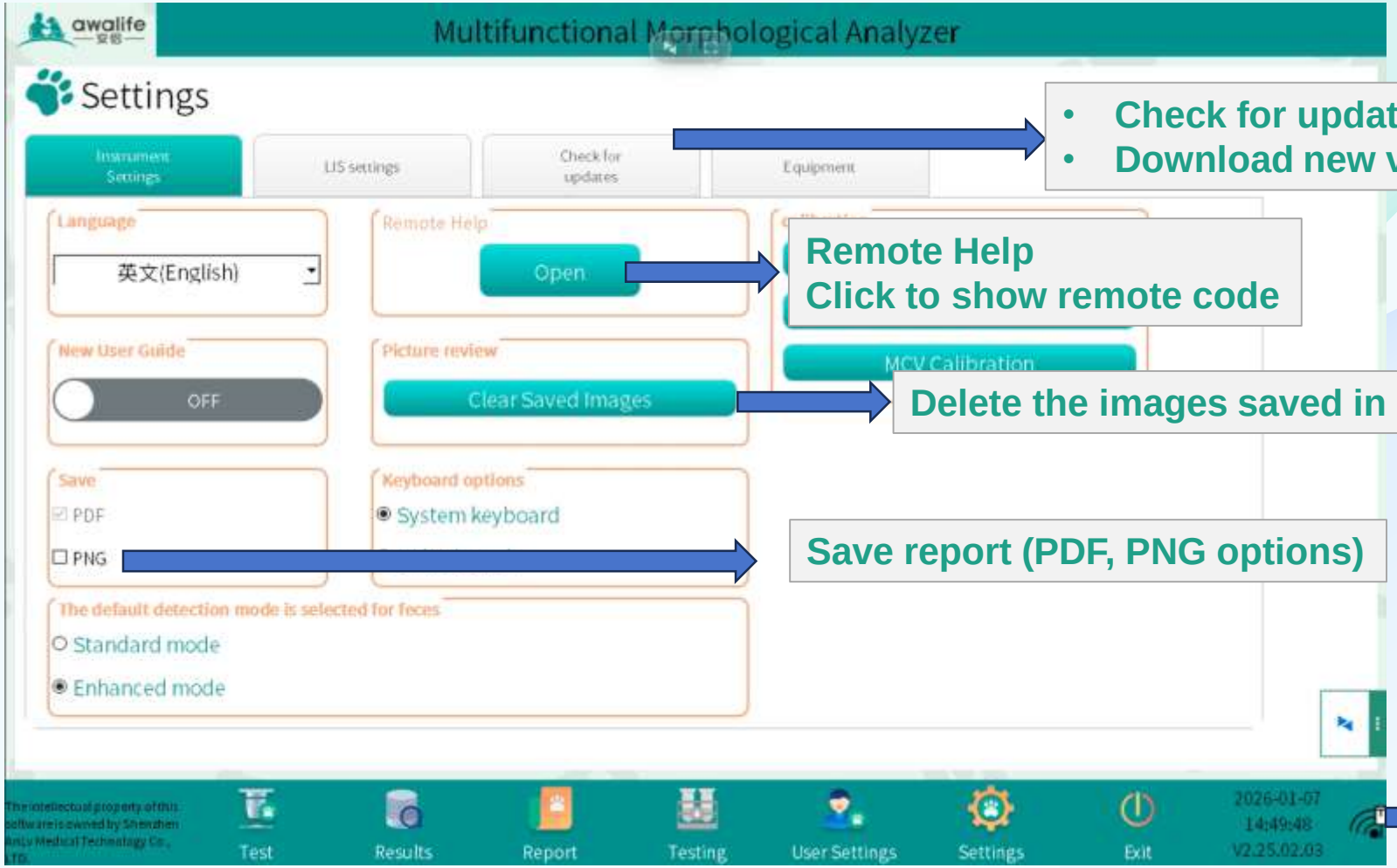
1. Review a report and click Report Comparison
2. It will display all reports of the same sample type, same species, and same pet's name.
3. Select up to 3 reports for comparison.
4. It will display parameter results as shown in the figure.

Report Review -> Report Comparison

03

UI Changes

Update of System Settings



- Check for updates
- Download new version

Remote Help
Click to show remote code

Delete the images saved in Drive E.

Save report (PDF, PNG options)

Network status

Improve User Interface

1. A pop-up window will appear when focal plane calibration is triggered, informing the user that this detection has initiated the scheduled automatic calibration process, which may slightly extend the scan duration.

2. One-click deletion of morphologic images saved in the Drive E (Folder anlv_image)

Settings→Clear saved images

3. Optimize report fonts to improve print quality and resolve issues with unclear font display.
4. Optimize software shutdown logic: When a chip is present, display a pop-up prompt asking whether to eject the chip.

Improve User Interface

1. Instead of pinching, use the slider under the morphological image to zoom in and out.
2. Removed SOP videos.
3. The SOP Guide Diagram auto-switching slows down.
4. The requirement to fill in information such as the pet owner’s phone number has been removed.
   Pet information such as gender, weight, and age defaults to blank rather than 0.
5. Report search is case-insensitive and supports fuzzy search.
6. The menu bar set to always show.

- **After upgrading to new version, the old version reports cannot be edited.**
- **New parameter information can be provided to update the private protocol LIS.**
  HL7 can be provided for connecting to the public protocol LIS.

Thanks

AI Multifunctional Morphological Analyzer

Making Detection Intelligent, Efficient, and Precise

2026/4/14