

# skyla Single Assay Cartridge



## ALT/AST

For Veterinary In Vitro Diagnostic Use Only

PN : 900-205

Rev : A

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### 1. Intended Use

The skyla ALT/AST single assay cartridge used with skyla VB1 Clinical Chemistry Analyzer, is intended to be used for the quantitative determination of Alanine Aminotransferase (ALT) and Aspartate Aminotransferase (AST) in animal plasma or serum.

### 2. Principles

The skyla ALT/AST single assay cartridge contains dried reagents. The user only needs to put the cartridges on the signal assay carrier, and inject the diluted specimens into the sample ports of the cartridges, and places the carrier into the analyzer. The test will be done automatically within 10 minutes. For the detail description of disc, please refer to “skyla VB1 Clinical Chemistry Analyzer Operator’s Manual”.

#### *Clinical Significance:*

*Alanine Aminotransferase (ALT):* ALT is used to detect pet viral hepatitis, cirrhosis, and the degree of liver injury and related diseases.

*Aspartate Aminotransferase (AST):* AST is a marker to examine hepatobiliary diseases and the degree of myocardium injury.

#### *Method:*

##### ALT

ALT activity is enzymatically determined. ALT catalyses the alanine with  $\alpha$ -Ketoglutarate, and converts them into Glutamate and Pyruvate. In the presence of NADH, Lactate Dehydrogenase converts Pyruvate into Lactate. In the course of the reaction NADH is oxidized to NAD. The decrease of NADH absorbance is measured at a wavelength of 340 nm and is proportional to ALT activity.





### AST

AST activity is enzymatically determined. When the test sample reacts with the substrate-enzyme reagent, AST converts L-Aspartic Acid and  $\alpha$ -Ketoglutarate into Monosodium Glutamate and Amide Acetate. Amide Acetate is subsequently converted into Malate by Malate Dehydrogenase while NADH undergoes oxidation to NAD. The decrease of NADH absorbance is measured at a wavelength of 340 nm and is proportional to AST activity.



## 3. Reagents

### *Major Composition:*

Composition	Quantity/Panel
Lactate Dehydrogenase	0.3 U
L-Alanine	0.3 mg
L-Aspartic Acid Sodium Salt Monohydrate	1 mg
Malate Dehydrogenase	0.04 U
NADH	0.05 mg
$\alpha$ -Ketoglutaric Acid Sodium Salt	0.25 mg

### *Reagent Storage:*

- The cartridge should be stored at 2~8°C.
- The expiry date of the reagent is printed on the outside of the sealed pouch of cartridge. Do not use if the cartridge has expired.

## 4. Specimen Collection and Preparation

### *Specimen Collection:*

- Specimens suitable for skyla ALT/AST single assay cartridge include lithium heparinized plasma, serum and quality control materials. The plasma or serum sample requirement is 50  $\mu\text{L}$ .
- If applicable, local regulatory or standard operating procedures of your organization should be followed for the collection, preservation and handling of specimens.

**Note:**

- 1. The centrifugation of whole blood sample should be done within 60 minutes (at room temperature) in order to prevent cellulose precipitation in the blood.**
- 2. Do not use specimens containing other coagulants. That would cause an incorrect test results.**

*Specimen Preparation:*

- Before applying a sample to the cartridge, the specimen should be diluted with diluent. Please use the blue 50µL pipette to transfer the 50µL specimen (plasma or serum) into the dilution tube.
- After injecting the specimen, close the cap tightly and invert it 10 times to thoroughly mix the solution.

**Note:**

- 1. Once the diluent spill out from the dilution tube during handling or the insufficient liquid was observed, please don't use that dilution tube and change the new one.**
- 2. Perform testing within 10 minutes after applying the sample to the cartridge (at room temperature).**

For further information in specimen collection and preparation, please refer to “skyla VB1 Clinical Chemistry Analyzer Operator’s Manual”.

## **5. Test Procedures**

*Test Conditions:*

Test should be carry out in an environment with temperatures of 10°C~32°C. Each test will take about 10 minutes. During the test, chamber in the analyzer keeps the temperature at 37°C for stable assay.

*Test Steps:*

1. Open the aluminum pouch and take the single assay cartridge out from the pouch.
2. Put the cartridge into a slot on the single assay carrier. (The single assay carrier can hold a maximum of three single assay cartridges.)
3. Put the dummy cartridges into other unused slots on the single assay carrier.

4. Use the blue 50  $\mu\text{L}$  pipette to transfer the diluted specimen from the dilution tube to the single assay cartridge **twice**, totally 100  $\mu\text{L}$  of the diluted specimen should be loaded into the sample port on the cartridge through 2 loads.
5. Use a lint-free tissue to clean any sample spilled on the outside of the single assay cartridge.
6. Place the single assay carrier on the analyzer drawer.
7. Press the “start” button on the screen to initiate testing.

**Note:**

1. **To avoid errors in the system when reading data, never use a used single assay cartridge as a dummy cartridge.**
2. **To operate the cartridge or instrument, please wear lab gloves and other protective gear to avoid contamination by specimen.**
3. **The used cartridges, tips, tissues should be discarded as biomedical waste, and treated according to the local legal requirements.**
4. **Testing should be performed within 20 minutes after the pouch is opened.**
5. **Avoid placing unopened reagent discs in places higher than 25°C (77°F) for more than 48 hours.**
6. **If the cartridge or its package is damaged or is over the expiry date, do not use it.**

For details on the operating steps and instrument settings, please refer to “skyla VB1 Clinical Chemistry Analyzer Operator’s Manual”.

## **6. Calibration**

The barcode on every manufactured cartridge contains all information required for calibration of the test items. The analyzer will automatically read the barcode information during testing.

## **7. Quality Control**

- Please refer to the instruction manual for the preparation and use of quality control materials. For discrepancy results, a confirmatory test is suggested to be carried out with the automated laboratory analyzer, or contact our technical support.
- External quality control materials can be used for the accuracy check of VB1 system. The

recommended frequency of QC testing is as follow, otherwise please follow local legal requirements or the standard operating procedures of your organization.

- At least every 30 days.
- Before a new batch of reagents is used for testing.
- When the analyzer is moved or the operating environment significantly changes.

## 8. Reference interval

The table below shows the reference interval for each test item. It is recommended that every laboratory or test site should establish its own reference interval from its particular patient population.

Test Item		Reference Interval		Reference Interval (SI Unit)	
ALT	Canine	<100	U/L	<100	U/L
	Feline	<130	U/L	<130	U/L
AST	Canine	<50	U/L	<50	U/L
	Feline	<48	U/L	<48	U/L

## 9. Limitation

Physiological interferences in blood include hemolysis, icterus, and lipemia. For every test item, 2 levels of serum pool, supplemented with known concentrations of the endogenous substances, were used for the testing. Significant interference is defined as a >20% shift in the test result.

Test Item	Substance concentration with interferences of less than 20%			
	Hemoglobin	Bilirubin (unconjugated)	Bilirubin (conjugated)	Intralipid
ALT	800 mg/dL	40.9 mg/dL	51.3 mg/dL	0.3%
AST	200 mg/dL	50 mg/dL	12.6 mg/dL	0.2%

## 10. Performance Characteristics

Dynamic range:

The dynamic range for each test item is as follows.

Test Item	Dynamic Range		Dynamic Range (SI Unit)	
ALT	20 - 1100	U/L	20 - 1100	U/L
AST	20 - 1000	U/L	20 - 1000	U/L

## Method Comparison:

SIMENS ADVIA 1800 was used as comparative method in the study. The tests were performed with identical clinical samples for the comparison.

Marker		R <sup>2</sup>	Slope	Intercept	Sample No.	Sample Range
ALT	Canine	0.9985	0.9999	0.0005	33	25-531 U/L
	Feline	0.9932	1.0001	-0.00004	33	32-216 U/L
AST	Canine	0.9967	1.0366	0.0405	15	12-275 U/L
	Feline	0.9926	1.0543	0.0232	12	56-173 U/L

Symbol Index			
	Catalogue number		Consult instruction for use
	Batch code		Use by
	Manufacturer		CE mark
	Temperature limitation		Caution
	Do not reuse		Sufficient for

Supplier : LITE-ON Technology Corporation H.S.P.B.  
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