

HUMAN ENZYMES

(For use as ERMs, calibrators, and control serums)

Features

- ① All eight enzymes are human type (from recombinant cells and human sources).
- ② Types of isozymes and the characteristics of the enzymes closely resemble those in human sera.

(1) List of Enzymes

Product Number	Abbreviation	Enzyme	EC Number	Form
T-70	HC-AST II (GOT)	Aspartate aminotransferase	EC 2.6.1.1	lyophilized
T-71	HC-ALT II (GPT)	Alanine aminotransferase	EC 2.6.1.2	lyophilized
T-72	HC-GTP	γ -Glutamyltransferase	EC 2.3.2.2	lyophilized
T-73	HC-ALP	Alkaline phosphatase	EC 3.1.3.1	liquid
T-74	HC-CK II	Creatine kinase	EC 2.7.3.2	lyophilized
T-75	HC-LD	Lactate dehydrogenase	EC 1.1.1.27	lyophilized
T-133	HC-AMY II	α -Amylase (Pancreatic, Salivary)	EC 3.2.1.1	lyophilized
T-110	HP-AMY II	α -Amylase (Pancreatic)	EC 3.2.1.1	lyophilized
T-77	HC-LP	Lipase (Pancreatic)	EC 3.1.1.3	lyophilized

(2) Origin and Isozyme

Enzyme	Abbreviation	Origin	Manufacturing Method	Isozyme Type
AST	HC-AST II	human liver	recombinant E.coli	cytosolic
ALT	HC-ALT II	human liver	recombinant E.coli	cytosolic
γ -GTP	HC-GTP	human liver	recombinant animal cell	II (liver)
ALP	HC-ALP	human liver	recombinant animal cell	liver
CK	HC-CK II	human muscle	recombinant E.coli	MM
LD	HC-LD	human RBC	—	I · II · III
P,S-AMY	HC-AMY II	human pancreas	recombinant yeast	P
		human saliva	—	S
P-AMY	HP-AMY II	human pancreas	recombinant yeast	P
Lipase	HC-LP	human pancreas	recombinant animal cell	P

* RBC: red blood cell M: muscle P: pancreatic S: salivary

(Diagnostic Reagent Grade)

INQUIRY NEEDED
ASAHI KASEI ENZYMES

CALIBRATORS IN CLINICAL ENZYMOLOGY

(Prepared with purified human originated enzymes)

Features

- ① Eight human-type enzymes derived from recombinant cells as well as human sources.
- ② The preparation is in a frozen liquid form consisting of eight kinds of human enzymes and bovine serum albumin (BSA).
- ③ The properties of these enzymes closely resemble human sera. Furthermore, the reaction behavior of these enzymes is closely similar to that of human sera in reference assay methods.
- ④ The activity of each enzyme in the frozen-form of the preparation was stable for at least 2 years at -30°C (HC-ALP: $2-8^{\circ}\text{C}$), and those in a thawed preparation were stable for at least 5 days under 5°C .

(1) Enzymes contained in Preparation

Enzyme	Abbreviation	Origin	Manufacturing Method	Isozyme Type
AST	HC-AST II	human liver	recombinant E.coli	cytosolic
ALT	HC-ALT II	human liver	recombinant E.coli	cytosolic
γ -GTP	HC-GTP	human liver	recombinant animal cell	II (liver)
ALP	HC-ALP	human liver	recombinant animal cell	liver
CK	HC-CK II	human muscle	recombinant E.coli	MM
LD	HC-LD	human RBC	—	I · II · III
P,S-AMY	HC-AMY II	human pancreas	recombinant yeast	P
		human saliva	—	S
Lipase	HC-LP	human pancreas	recombinant animal cell	P

(2) Composition of Preparation

[frozen liquid form]

No.	Composition
1.	Human enzymes (eight kinds)
2.	BSA (bovine serum albumin)
3.	Buffer (pH7.5)
4.	Stabilizer
5.	Antiseptic

(3) Enzyme Properties

(a) Km Value

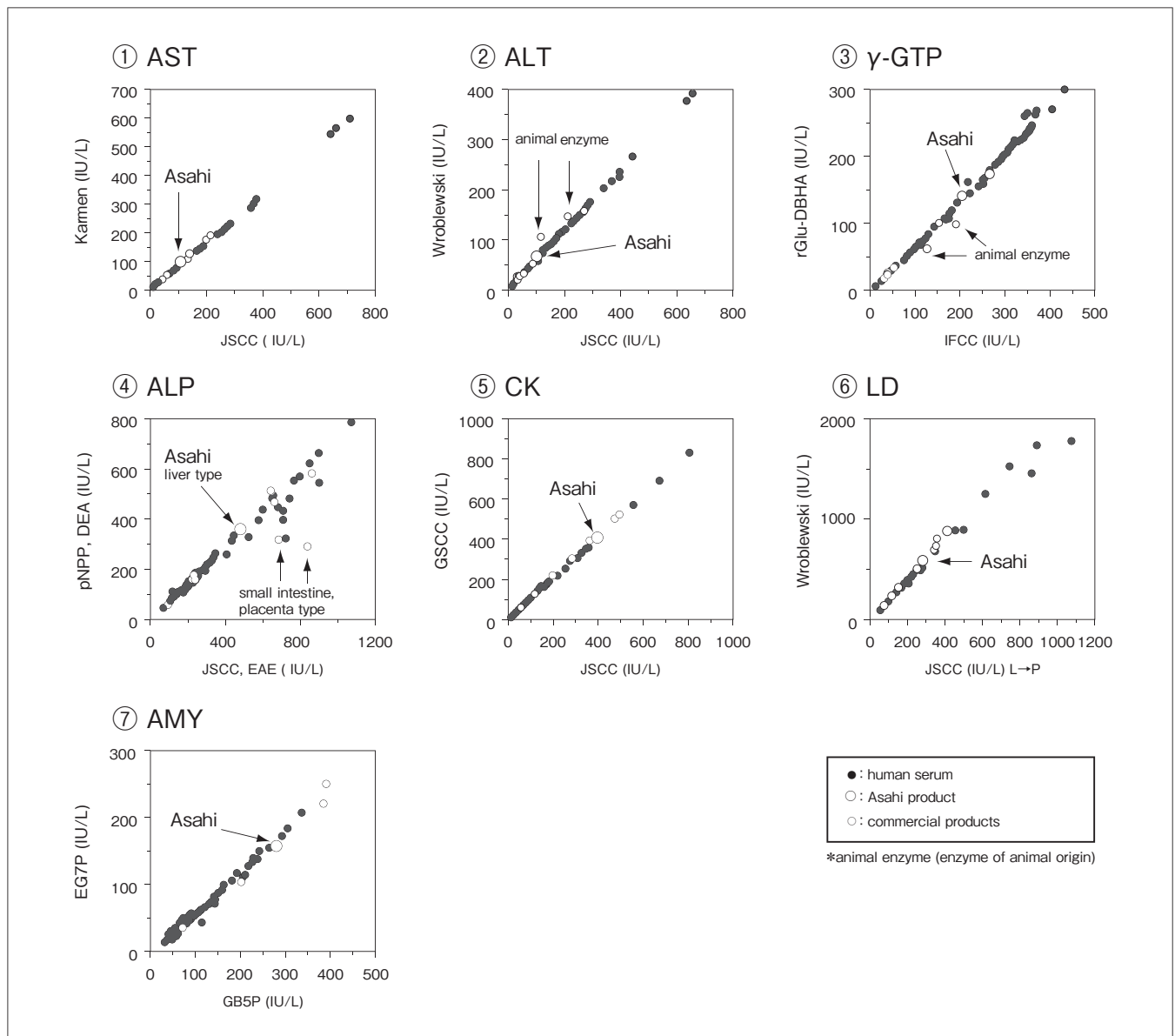
(mmol/l)

Enzyme	Substrate	Asahi Enzyme	Human Sera
AST	L-Asparatate	5.56	5.88
	2-Oxoglutarate	0.09	0.20
ALT	L-Alanine	20.4	16.7
	2-Oxoglutarate	0.29	0.41
γ -GTP	Glycylglycine	14.2	10.8
	L- γ -Gultamyl-3-carboxy-4-nitroanilide	0.64	0.69
ALP	4-Nitrophenylphosphate	1.31	1.12
CK	Creatine phosphate	2.94	1.96
LD	L-Lactic Acid	2.52	2.66
	Pyruvate	0.23	0.24
AMY	p-Nitrophenyl benzyl- α -maltopentaoside	0.13	0.11

b) Correlation Test (Test method)

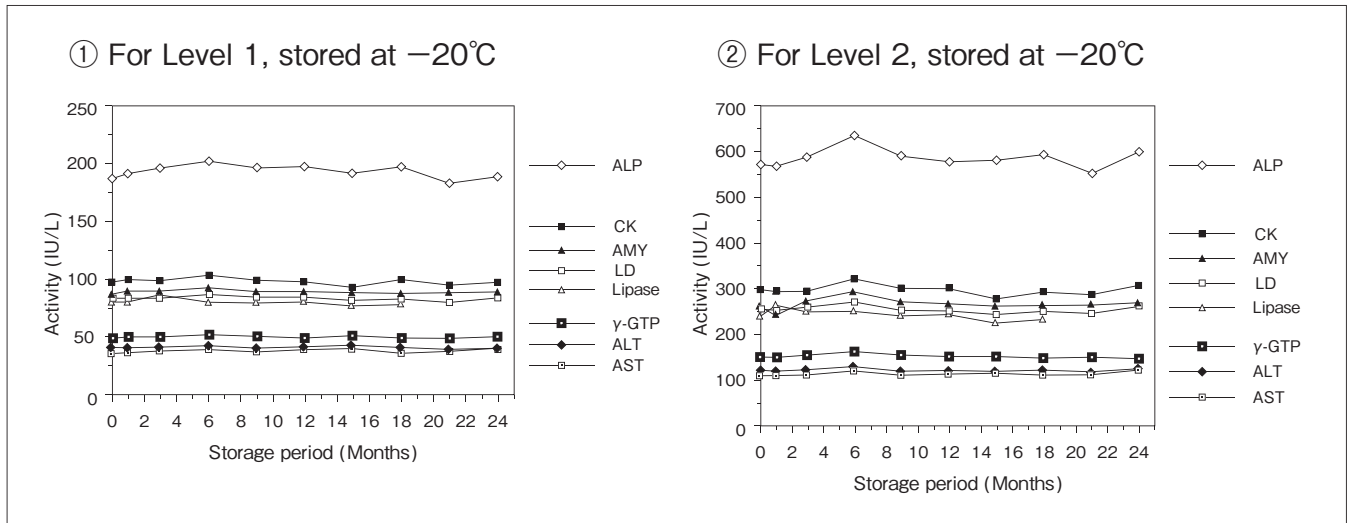
Enzyme	Recommended Method	Reference Method
AST	JSCC	Karmen Method
ALT	JSCC	Wroblewski-La Due Method
γ -GTP	IFCC	γ -Glu-DBHA
ALP	JSCC (EAE)	p-nitrophenylphosphate (DEA)
CK	JSCC	GSCC
LD	JSCC (L \rightarrow P)	Wroblewski-La Due Method
AMY	[BG5P]	EG7P

c) Correlation curve



4) Stability of Preparation

a) Stability in long-term storage (-20°C)



b) Stability after thawing (5°C, 25°C)

