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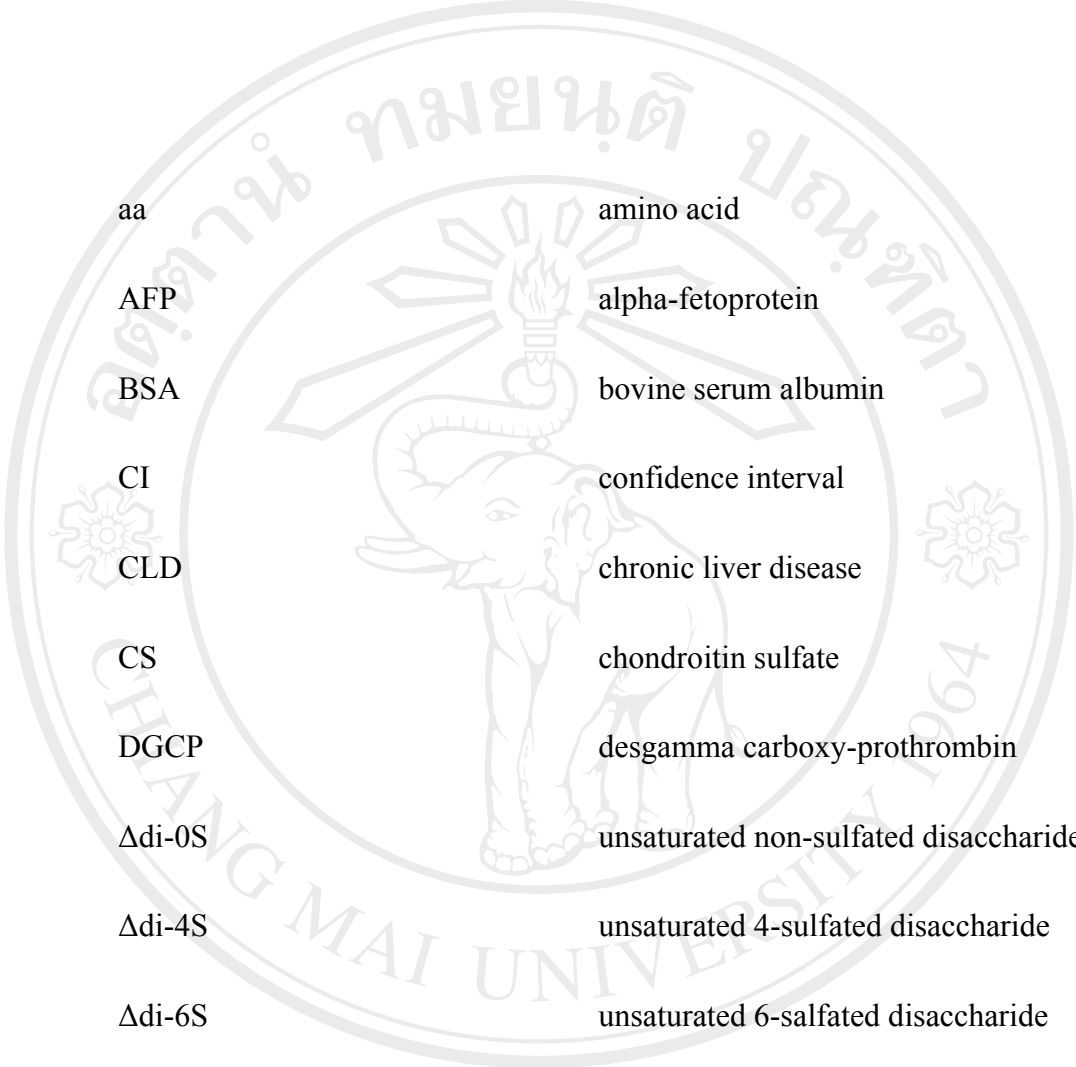
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## LIST OF ABBREVIATIONS



aa	amino acid
AFP	alpha-fetoprotein
BSA	bovine serum albumin
CI	confidence interval
CLD	chronic liver disease
CS	chondroitin sulfate
DGCP	desgamma carboxy-prothrombin
$\Delta$ di-0S	unsaturated non-sulfated disaccharide
$\Delta$ di-4S	unsaturated 4-sulfated disaccharide
$\Delta$ di-6S	unsaturated 6-sulfated disaccharide
ECM	extracellular matrix
ELISA	enzyme-linked immunosorbent assay
FRZ	Frizzled receptors
GAG	glycosaminoglycan
GalNAc	<i>N</i> -Acetylgalactosamine
GlcA	glucuronic acid

GlcNAc	<i>N</i> -acetylglucosamine
GPC3	glypican-3
GPI	glycosylphosphatidylinositol
HBV	hepatitis B virus
HB-EGF	heparin-binding epidermal growth factor
HBsAg	hepatitis B surface antigen
HCC	hepatocellular carcinoma
HCV	hepatitis C virus
HDV	hepatitis D virus
HS	heparan sulfate
HSPGs	heparan sulfate proteoglycans
IdoA	iduronic acid
IgM	Immunoglobulin M
kDa	kilodaltons
KDN	deaminoneuraminic acid
Mab	monoclonal antibody
mRNA	messenger RNA
min	minute
ml	milliliter
mg	milligram
μg	microgram



$\mu\text{l}$	microliter
Neu5Ac	<i>N</i> -acetylneuraminic acid
Neu5Gc	<i>N</i> -glycolylneuraminic acid
ng	nanogram
nm	nanometer
OPD	<i>o</i> -phenylenediamine
PBS	phosphate buffer saline
PIVKA-II	protein induced by vitamin K absence or antagonist-II
%	percentage
w/v	weight by volume
$^{\circ}\text{C}$	degree celcius

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