MEDICAL SCHOOL
METABOLOMICS CORE
UNIVERSITY OF MICHIGAN

Amino Acids: Biofluids, cell cultures, Tissues or Feces
Service Code: AAA

Summary: Amino acids are analyzed using the Phenomenex EZfaast kit. Samples are extracted, semi-purified, derivitized and measured by EI-GCMS using norvaline as an internal standard for normalization. See reference for User Guide and analytical details. Analytes are reported as uM with CV's generally 10%, but Histidine is exceptional with a CV ~30%.

Container: Eppendorf Tube or equivalent
Normal Volume: Plasma (100 ul) Tissue (50-100 mgs); Cells (2E7); Feces(50 mg).
Minimal Volume: Plasma (50 uL) Tissue (30 mg); Cells (~5E6); Feces (20 mg)
Special Handling: If human or primate, note any known presence of infectious agents
Sample Collection: Please see our detailed sample collection protocol on the Michigan Regional Comprehensive Metabolomics Resource Core (MRC^2) website before preparing samples for analysis or contact the core director at the number below for details.

Reference: http://www.fortunesci.com/image/download2/USER%20GUIDE/EZfaast%20Guide.pdf

Table I: Analytes Reported. D- and L- enantiomers are not distinguished Arginine, Cysteine, Cystine, and others on request.

Analyte	Abbr.	Molecular Formula	Pubchem	LOQ (uM)
Alanine	A, Ala	$C_3H_7NO_2$	5950	20
Asparagine	N, Asn	$C_6H_{14}N_4O_2$	236	20
Aspartate	D, Asp	$C_4H_8N_2O_3$	424	20
Glutamine	Q, Gln	$C_4H_7NO_4$	738	20
Glutamate	E, Glu	$C_3H_7NO_2S$	611	20
Glycine	G, Gly	$C_5H_9NO_4$	750	20
Histidine	H, His	$C_5H_{10}N_2O_3$	773	20
Isoleucine	I, Ile	$C_2H_5NO_2$	791	20
Leucine	L, Leu	$C_6H_9N_3O_2$	857	20
Lysine	K, Lys	$C_6H_{13}NO_2$	866	20
Methionine	M, Met	$C_6H_{13}NO_2$	876	20
Phenylalanine	F, Phe	$C_6H_{14}N_2O_2$	994	20
Proline	P, Pro	$C_5H_{11}NO_2S$	614	20
Serine	S, Ser	$C_9H_{11}NO_2$	617	20
Threonine	T, Thr	$C_5H_9NO_2$	205	20
Tryptophan	W, Trp	$C_3H_7NO_3$	1148	20
Tyrosine	Y, Tyr	$C_4H_9NO_3$	1153	20

Valine	V, Val	$C_{11}H_{12}N_2O_2$	1182	20
Sarcosine(N-methyl-glycine)	Sar	$C_3H_7NO_2$	1088	20
alpha-Aminoisobutyric acid	Aib	$C_4H_9NO_2$	6119	20
gamma-Hydroxyproline	Hyp	$C_5H_9NO_3$	825	20
Ornithine	Orn	$C_5H_{12}N_2O_2$	389	20