

## Modified Amino Acids for Reference Standard I Applied Biosystems Instruments

PTH#	Name	Contributor
1	$\gamma$ -Carboxyglutamic Acid (Gla)	I, R <sup>i,ii</sup>
2	O-Fucosyl threonine	K <sup>iii</sup>
3	S-Carboxymethyl cysteine	J,M,R
4	Homoserine	M,R
5	S-Carboxamidomethyl cysteine	D,J
6	Carboxamidomethyl methionine	T
7	Methionine sulfone	C,M,R,T
8	N- $\epsilon$ -Succinyl lysine	B,D
9	5-Hydroxy lysine derivative	R <sup>iv</sup>
10	Hydroxyproline (Hyp)	B,D,F,G,I,J,R,T
11	N- $\epsilon$ -Acetyl lysine	M,P, Q, T
12	Methyl histidine	O,R
13	O-Methyl threonine	M
14	Cystine	O
15	O-Methyl glutamic acid	B, U <sup>ii</sup>
16	N- $\epsilon$ -Methyl lysine	B, C, J, M, P, Q, R <sup>v</sup>
17	N- $\epsilon$ -dimethyl lysine	C, J, P, Q <sup>v</sup>
18	N- $\epsilon$ -trimethyl lysine	C, E, J, P, Q <sup>v</sup>
19	Canavanine	C
20	$\alpha$ -Aminobutyric acid (Abu)	G
21	Methyl arginine	R
22	S-Methyl cysteine	M
23	DL-Homocystine	M
24	5-Hydroxylysine (Hyl)	D,K,R
25	Iodotyrosine	C,T
26	$\alpha,\gamma$ -diaminobutyric acid	I
27	Ornithine (Orn)	R,T
28	O-Methyl tyrosine	T
29	Lanthionine (Lan)	R <sup>vi</sup>
30	Norleucine (Nle)	C,M
31	p-Chlorophenylalanine	T
32	diiodotyrosine	C

*i* In systems where Gla is efficiently extracted from the cartridge it runs as a broad peak immediately in front of Asp. A certain percentage (~ 5-10%) can decarboxylate to Glu, which is the only PTH-aa seen if Gla is not extracted from the cartridge.