

Table 3. Amino acids identified in the GRA 95229 meteorite

Amino acid (a.)	Concentration [†] (nmol/g [‡])	
	Unhydrolyzed	Hydrolyzed
Linear α-amino acids R-CH(NH₂)-COOH		
glycine	509.7	751.3
alanine	513.5	642.6
2-aminobutyric a.	145.7	183.8
2-aminovaleric a.	13.7	31.6
2-aminohexanoic a.	5.6	ND [§]
2-methyl α-amino acids R-C(CH₃)(NH₂)-COOH		
2-aminoisobutyric a.	246.0	237.2
isovaline	62.5	59.1
2-methylnorvaline	6.5	6
2,3-dimethylbutyric a.	<1	<1
2-methylhexanoic	<1	<1
Other branched α-amino acids, R-CH(CH₃)-(R)CH(NH₂)-COOH		
valine	25.1	ND
isoleucine	8.8	“
alloisoleucine	20.4	“
leucine	21.7	“
2-amino-3-methylhexanoic a.	ND	<1
2-amino-4-methylhexanoic a.	ND	<1
Non-α-amino acids R-CH₂(NH₂)-R-COOH		
β -alanine	ND	72
β -aminobutyric a.	20.0	37
β -aminoisobutyric a.	19.4	29.8
γ -aminobutyric a.	8.5	29.2
β -aminopentanoic a.	ND	7.0
β -amino-3-methylbutyric	ND	6.55
γ -aminopentanoic a.	ND	23.1
δ -aminovaleric a.	2	12.0
Dicarboxylic α-amino acids HOOC-R-CH(NH₂)-COOH		
aspartic a.	6.6	<1
glutamic a.	49.6	205.4
2-aminoadipic a.	2.2	7.9
2-methylglutamic a.	NF	2.1
N-cyclic amino acids		
proline	28.0	34.6
pipecolic a.	25.0	44.2
β-hydroxy α-amino acids R-C(OH)-CH(NH₂)-COOH		
serine	7.2	ND
threonine	17.9	“
allothreonine	4.4	“

NF, not found. ND, not determined due to chromatographic coelutions

[†]Concentrations were measured by GC-MS and are approximate by $\pm 4\%$.

[‡]Nanomole/gram of meteorite.

[§]Not determined due to chromatographic coelutions.