## Concise Separations Columns for Amino Acid Analysis

- Rugged polymeric substrate, stable in pH range of 0 to 14
- High efficiency and resolution
- Reproducibility lot-to-lot and column-to-column
- Available for both physiological samples (Li+ format) and protein hydrolysate samples (Na+ form)
- Post column derivitization detection

Ion-exchange chromatography is a popular technique for the analysis of amino acids because both retention times and quantification are highly reproducible regardless of the sample matrix. This unique matrix insensitivity is important when comparing results from different patients or batches of protein hydrolysate.

Amino acids are zwitterions; at low pH, they are positively-charged and are bound to the resin by their attraction to the negatively-charged ion-exchange sites. Almost all the contaminants, i.e. matrix, are eluted at the void. The amino acids are then selectively eluted by increasing the pH and salt concentration with different buffers. With few exceptions, the order of elution follows the isoelectric point of the amino acids, i.e. acidic amino acids first, then neutral and basic. Because the separation and the ensuing post-column reaction of amino acids are devoid of contaminants, amino acid analyses via ion-exchange chromatography are highly reproducible.

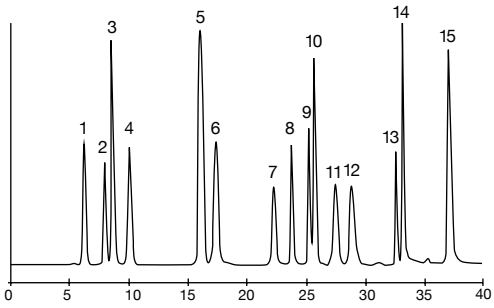
**CONCISE SEPARATIONS AMINO ACID ANALYSIS COLUMN COMPARISON CHART**

| PHASE | CROSS-LINKAGE | IONIC FORM | PARTICLE SIZE (µm) | KEY SAMPLES | COMMENTS |
|---|---|---|---|---|---|
| **AMINOSep AA-911** | 8 | Sodium | 9 | Designed for complicated samples from protein hydrolysates. Increased polymer bed yields better resolving power | Popular column—Higher capacity than the Beckman columns |
| **AMINOSep AA-511** | 10 | Sodium | 5 | Designed for faster analysis than the AA-911 but still gives high resolution | Most popular AA column |
| **Lithium Amino Acid (6300 & 7300 systems)** | 10 | Lithium | 6 | Designed for use with the Beckman Coulter® 6300 and 7300 Amino Acid Analyzers using either the Beckman or Pickering Lithium buffer systems | Ideal for Physiological amino acid analysis |
| **Sodium Amino Acid (6300 & 7300 systems)** | 10 | Sodium | 5 | Designed for use with the Beckman Coulter® 6300 and 7300 Amino Acid Analyzers using either the Beckman Coulter or Pickering Sodium buffer systems | Ideally suited for routine hydrolysate analysis, Extremely rugged polymer |
| **Sodium Amino Acid (for System Gold)** | 10 | Sodium | 5 | Designed for use with the Beckman Coulter® System Gold Amino Acid Analyzer | Ideal for the separation of hydrolysate amino acids. |

| DESCRIPTION | SIZE | AMINOSep AA-911 | AMINOSep AA-511 | LITHIUM AMINO ACID (6300/7300) | SODIUM AMINO ACID (6300/7300) | SODIUM AMINO ACID (System Gold) |
|---|---|---|---|---|---|---|
| Column | 4.6 x 250 mm | **AAA-99-8553** | – | – | – | – |
| Column (Waters) | 4.6 x 250 mm | **AAA-99-8553W** | – | – | – | – |
| Column | 4.6 x 150 mm | – | **AAA-99-7554** | – | – | – |
| Column | 4.6 x 120 mm | – | **AAA-99-6554** | – | – | – |
| Column | 4.0 x 200 mm | – | – | – | – | **AAA-99-6310** |
| Column | 4.0 x 120 mm | – | – | – | **AAA-99-6312** | – |
| Column | 4.0 x 100 mm | – | – | **AAA-99-6311** | – | – |
| Guard Kit (1 holder, 2/pk cartridges) | | **AAA-99-2353** | **AAA-99-2354** | **AAA-99-2311** | **AAA-99-2312** | **AAA-99-2312** |
| Guard Cartridges (2/pk) | | **AAA-99-1353** | **AAA-99-1354** | **AAA-99-1311** | **AAA-99-1312** | **AAA-99-1312** |

## AMINOSep AA-511 Sodium Column

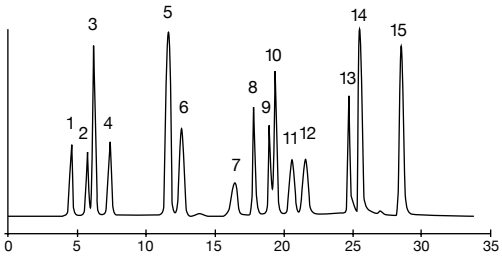
0.5 ml/min with Sodium Citrate A, B, C at 82 °C, Fluorescence Detector



1. asp
2. thr
3. ser
4. glu
5. gly
6. ala
7. val
8. met
9. ile
10. leu
11. tyr
12. phe
13. lys
14. his
15. arg

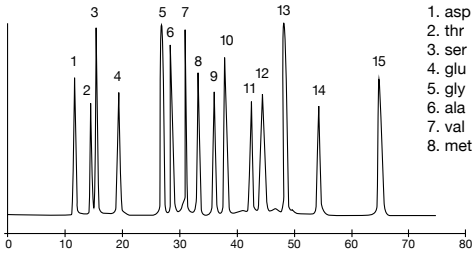
## AMINOSep AA-511 High Speed Sodium Column

0.5 ml/min with Sodium Citrate A, B, C at 60 °C, Fluorescence Detector



## AMINOSep AA-911 Sodium Column

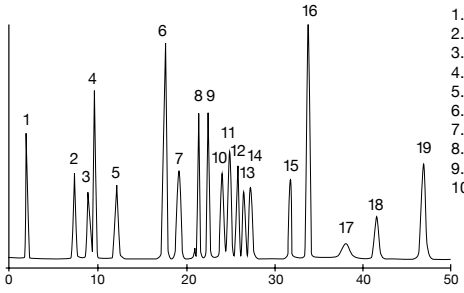
0.5 ml/min with Sodium Citrate A, B, C at 82 °C, Fluorescence Detector



1. asp
2. thr
3. ser
4. glu
5. gly
6. ala
7. val
8. met
9. ile
10. leu
11. tyr
12. phe
13. lys
14. his
15. arg

## Sodium Amino Acid Column (System Gold)

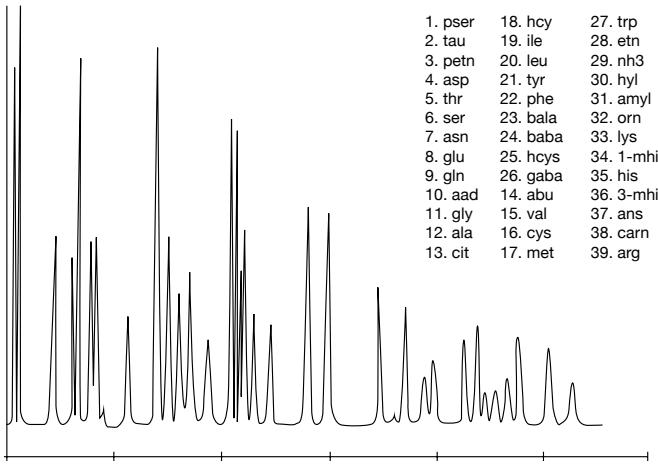
26 ml/hr with NaE, NaF, NaD at 50-65-77°C, Fluorescence Detector



1. cysh
2. asp
3. thr
4. ser
5. glu
6. gly
7. ala
8. val
9. met
10. ile
11. leu
12. nle
13. tyr
14. phe
15. his
16. lys
17. trp
18. nh3
19. arg

## Lithium Amino Acid Column

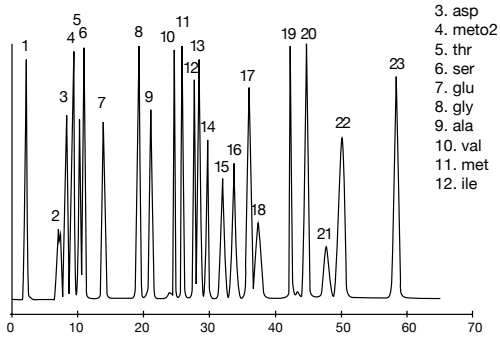
20 mL/hr with LiA, LiB, LiC at 33-60-77°C, Fluorescence Detector



1. pser
2. tau
3. petn
4. asp
5. thr
6. ser
7. asn
8. glu
9. gln
10. aad
11. gly
12. ala
13. cit
18. hcy
19. ile
20. leu
21. tyr
22. phe
23. bala
24. baba
25. hcys
26. gaba
14. abu
15. val
16. cys
17. met
27. trp
28. etn
29. nh3
30. hyl
31. amyl
32. orn
33. lys
34. 1-mhis
35. his
36. 3-mhis
37. ans
38. carn
39. arg

## Sodium Amino Acid Column (6300/7300 systems)

26 ml/hr with NaE, NaF, NaD at 50-65-77°C, Fluorescence Detector



1. cysh
2. meto
3. asp
4. meto2
5. thr
6. ser
7. glu
8. gly
9. ala
10. val
11. met
12. ile
13. leu
14. nle
15. tyr
16. phe
17. glcnh2
18. glanh2
19. his
20. lys
21. trp
22. nh3
23. arg