

The Sequence Determination of a Protein in a Micro Scale: The Sequence Analysis of Ribosomal Protein L34 of *Escherichia coli*

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Summary: The complete amino acid sequence of ribosomal protein L34 has been established by improved micro techniques with 3 mg of the lyophilized protein. The protein was digested with trypsin, thermolysin and chymotrypsin and the resulting peptides were isolated from fingerprints performed on cellulose thin-layer plates. The

amino acid sequences of the peptides were determined by the combined micro dansyl-Edman technique using 5 - 10 nmol per sample. Aspartic acid and glutamic acid were distinguished from their amides by use of the color reaction of ninhydrin with the respective amino acid phenylthiohydantoin.

Sequenzbestimmung eines Proteins im Mikromaßstab: Die Sequenzanalyse des ribosomalen Proteins L34 aus Escherichia coli.

Zusammenfassung: Die vollständige Aminosäuresequenz des Ribosomenproteins L34 wurde mit einer bewährten Mikromethode mit 3 mg des lyophilisierten Proteins bestimmt. Das Protein wurde mit Trypsin, Thermolysin und Chymotrypsin ver-

daut und die entstandenen Peptide wurden mittels Fingerprints an Cellulose-Dünnschichtplatten isoliert. Die Aminosäuresequenzen der einzelnen Peptide wurden mit der kombinierten Mikro-Dansyl-Edman-Methode unter Verwendung von

Enzymes:

Trypsin (EC 3.4.21.4); thermolysin (EC 3.4.24.4); α -chymotrypsin (EC 3.4.21.1); carboxypeptidase A, peptidyl-L-amino acid (L-proline) hydrolase (EC 3.4.12.2); carboxypeptidase B, peptidyl-L-lysine (L-arginine) hydrolase (EC 3.4.12.3).

Symbols:

- ∩ Micro dansyl-Edman procedure;
- ∪ carboxypeptidase A digestion;
- ∩∪ carboxypeptidase A and B digestion.

Abbreviations:

- T: Peptide resulting from digestion with trypsin;
- Th: peptide resulting from digestion with thermolysin;
- Ch: peptide resulting from digestion with α -chymotrypsin;
- amino acid > PhNCS: phenylthiohydantoin of an amino acid;
- dansyl chloride: 5-dimethylamino-1-naphthalene-sulfonyl chloride;
- TPCK: chloro-(*N*-*p*-tosyl-L-phenylalanyl)methane;
- TLCK: chloro-(*N*-*p*-tosyl-L-lysyl)methane.