Copy of a printed diagram referenced as "Amino acid sequence of T.M.V."

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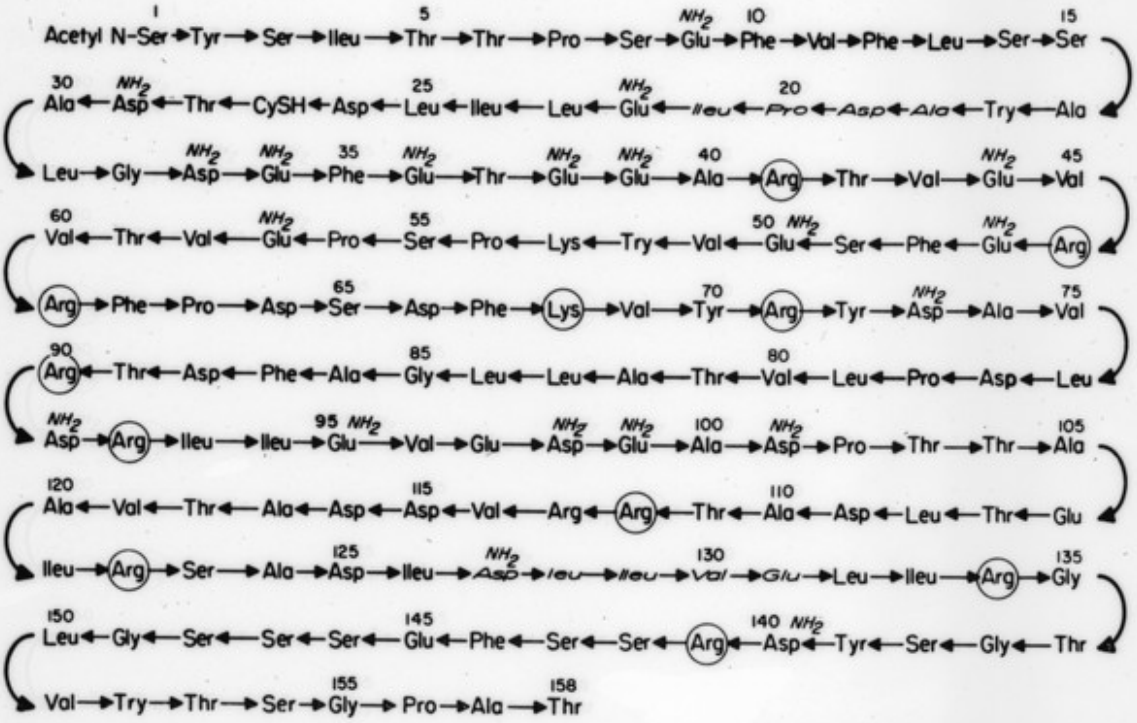
s (8 and 6 hr at 37°, respectively, at pH 7.8, with an enzyme substrate ratio 1:100). The peptides containing basic residues (mostly arginine) were isolated by column chromatography (Dowex 1-X2, 150 cm × 2.8 cm column) using collidine-pyridine-acetic acid for development (pH gradient from 8.5 to about 3.0). The resultant peptide fractions were tested for purity by paper chromatography (pyridine, acetic acid, water, *n*-butanol), and further purified by this method and by electrophoresis, if necessary. They were then analyzed for their amino acid composition by means of an automatic analyzer.[34] Only the isolation of tripeptides or longer peptides carrying arginine in non-C-terminal position, or those containing a lysine which was not flanked by tryptophan and proline, was germane. That is, since peptides with such characteristics must possess sequences which overlap those of the peptides released by trypsin, they could be used to indicate which tryptic



Sequence of the 158 amino acid residues in the protein subunit of tobacco mosaic virus. The encircled residues indicate the points of splitting by trypsin.

peptides were linked in the intact protein. Table 1 lists those peptides which fulfilled these requirements, and permitted a unique sequential arrangement of the twelve tryptic split products. Many more peptides were analyzed and none was found to be in conflict with the established amino acid sequence.

In previous publications from this laboratory the various peptides were identified by their K-value as found in the course of their isolation by counter-current distribution. The Tübingen group listed them in order of their separation by column chromatography. Since the sequence of the peptides is now well established, we propose to call them by their sequential number, starting with the N-acetylated I-peptide (No. I), and ending with the C-terminal threonine peptide (No. XII). Table 2 lists the peptides in this order, identifying each also by common laboratory designations and summarizing its composition.