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Received January 25, 1965.

Collagen of Lamprey

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The amino acid composition of the collagen varies between the species.¹ Also the distribution of the subunits has been studied in the collagens of various vertebrates both by CM-cellulose column chromatography,^{2,3} and by starch gel electrophoresis,⁴ but thus far the qualitative pattern⁵ of $\alpha 1$, $\alpha 2$, β_{11} (= $\beta 2$), β_{12} (= $\beta 1$) and X-

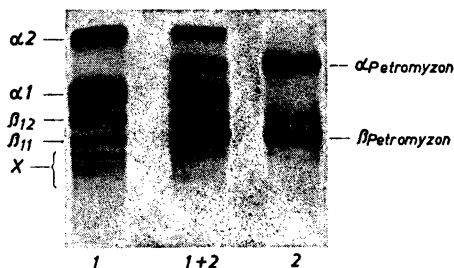


Fig. 1. Starch gel electrophoretic patterns of heat-denatured neutral salt-soluble collagens. 1 control sample from guinea pig skin, 2 sample from lamprey skin, 1+2 mixture.

units seems to have been similar. The only clear exception is the subject of this note, namely the collagen of lamprey (*Petromyzon fluviatilis*), which yields a different and simple pattern.

The neutral salt-soluble collagen was prepared from the skins of adult lampreys according to Gross⁶ with slight modifications. The preparations were subjected to starch gel electrophoresis,^{5,7} and the pattern is shown in Fig. 1 and compared to a corresponding sample from guinea pig. There are only two main bands and from sedimentation analysis (courtesy by Dr. Tapio Hollmén from our laboratory) we know that the total collagen preparation from lamprey contained two fractions with the same sedimentation velocities as α and β . We believe that the more rapid band represents α and the slower β in the molecular size, but have no suggestion on the intermediate band. The effect of pH on the electrophoretic migration was studied at wide range and then the $\alpha_{\text{Petromyzon}}$ resembled the conventional $\alpha 1$ and $\beta_{\text{Petromyzon}}$ the β_{11} . The amino acid composition of the collagen of lamprey differs from the collagen of mammals, e.g., by the high content of lysine.

These findings will be reported in full elsewhere, and further experiments are in progress to show whether the collagen of lamprey represents an ancestral form.

This work forms a part of a program supported by institutional grants from U.S. Department of Agriculture, Foreign Research and Technical Programs Division, and from Sigröd Jusélius Foundation.

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Received January 23, 1965.