on the succinylation of proteins, this was attributed to an increase in Stokes radius caused by chemical modification. The molecular weight and the Stokes radius of the alkali-treated light component were 24000 and 21.6×10^{-8} cm respectively; Stokes radius for the maleylated light component was 27.5×10^{-8} cm and 22.7×10^{-8} cm for the acetylated light component.

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Localization and Chemical Composition of Elastin in Ox Lung

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The protein elastin occurs in elastic fibres in the connective tissues of animals. In most tissues elastin is a minor component, but a few tissues such as ligaments and blood vessels contain considerable amounts. The elastin from the ligamentum nuchae of ruminants has been extensively purified, its chemical composition established and is generally taken as standard elastin (Partridge, 1962, 1966).

Despite the elastic nature of lung relatively few biochemical studies have been made on its elastin content and composition (Fitzpatrick & Hospelhorn, 1962). In the present work adult ox lung has been dissected into the main components, major bronchi, parietal and visceral pleuras and the parenchyma. The trachea and ligamentum nuchae were also taken. The elastin contents of these tissues expressed as g/100g of dried tissue and determined by the method of Lansing, Rosenthal, Alex & Dempsey (1952) were as follows: visceral pleura, 27%; parietal pleura, 15%; parenchyma, 13%; bronchi, 1.4%; trachea, 1%; ligamentum nuchae, 70%.

In view of the low elastin content no further studies were made on bronchi and trachea. The elastins obtained from the other lung tissues were analysed for nitrogen, carbohydrate and amino acid content and gave values similar to those for ligament elastin. Carbohydrate was present in small amounts only. Nitrogen content was 16.6%, and almost 96% of this could be recovered as amino acids. The characteristic features of the amino acid pattern were the high content of proline, glycine, alanine

and valine; the low content of amino acids with polar side chains; and the presence of the three cross-linking amino acids desmosine, isodesmosine and lysinonorleucine, which are specific for elastin.

Further characterization of lung elastin was confined to that from visceral pleura. The number and type of *N*-terminal residues in this material, as determined by the fluorodinitrobenzene method of Sanger (1945), were virtually identical with those of ligament elastin. It has long been known that elastin has a characteristic bluish-white fluorescence (Blomfield & Farrar, 1967). Elastins from ligamentum nuchae and visceral pleura solubilized by proteolytic digestion had three fluorescent peaks with activation/fluorescence maxima of 250/374 nm, 280/312 nm and 330/384 nm. The 280/312 nm peak is due to tyrosine, but the others are due to unidentified substances.

Since elastin is an insoluble protein it is generally prepared by harsh methods such as autoclaving, treatment with formic acid or alkali to remove all other materials. It can also be purified by a comparatively mild method using guanidine and collagenase (Miller & Fullmer, 1966). Elastins purified from ligamentum nuchae by these four methods gave a protein of almost constant chemical composition. However, the elastin from visceral pleura was more difficult to purify, the best preparations being obtained from the alkali and formic acid methods.

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