

## ABSTRACT

Measurement of ribonuclease activity in rat diaphragm muscle formed the central part of the work described in this thesis. Two main forms of ribonuclease activity at physiological pH were demonstrated, as characterised by cation dependence and inhibition by ribonuclease inhibitor. These two forms are believed to be alkaline ribonuclease I and alkaline ribonuclease IV previously characterised in liver.

Rat diaphragm contained much less alkaline ribonuclease IV activity than liver and kidney. No effect on alkaline ribonuclease IV activity by insulin, fasting, actinomycin D, phrenic denervation, or cycloheximide was observed. Insulin did not have any effect on alkaline ribonuclease I activity, nor on ribonuclease inhibitor activity.

Partially purified inhibitor from liver and skeletal muscle stimulated the incorporation of  $^{14}\text{C}$ -leucine by hepatic ribosomes. However, this stimulation in amino acid incorporation by the inhibitor seems to be unrelated to the stimulation of incorporation of amino acids caused by insulin.