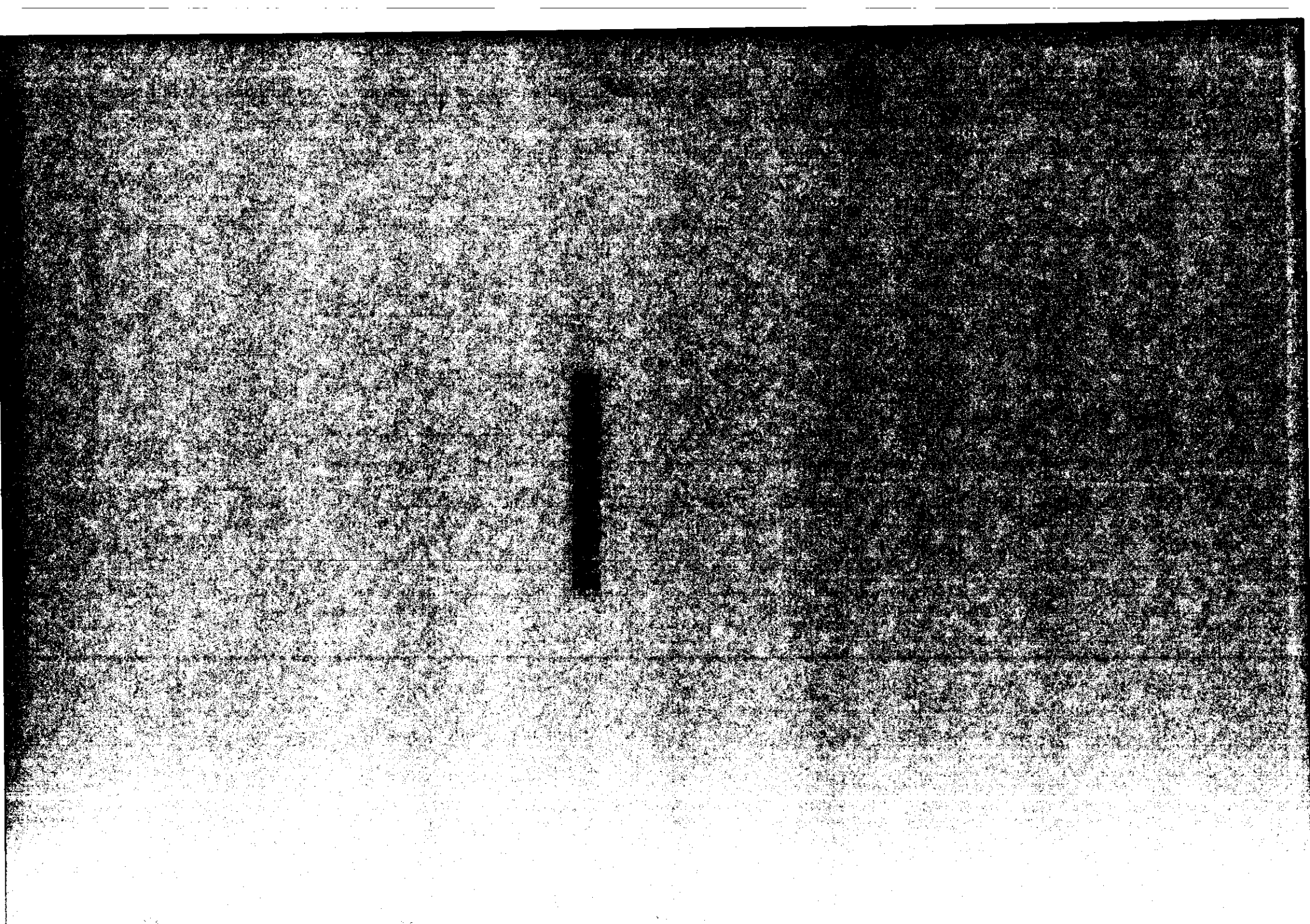

INTRODUCTION

Phylogenetically, prolactin is the oldest among the polypeptide hormones secreted by the pituitary gland the diversity of function which it serves among a wide variety of primitive vertebrates is corresponding great. Comparative endocrinologests have described more than twenty different physiologic effect of prolactin in teleost fishes, amphibians, birds and mammales Mc-ites J. (1966), and Nicoll (1972). Several species of teleost fishe have been found to nature their young by the prolactin dependant secretion of futaneous "milk" the osmoregulatory adaptation of other teleosts to fresh water depends upon prolactin-mediated alteration in sodium resorption and water excertion in the renal tubules of these animals. In poikilotherms prolactin initiates their migration from a terrestrial environment to the aquatic habitat where reproduction occurs, and prolactin induces profound structural changes in their skin texture and pigmentation. In birds prolactin induces brood patch formation, initiates premigratory fattening and stimulates hepatic lipogenesis the regulation of prolactin on these functions of the brain (behavior), kidney, liver and the skin and its appendeges has apparently depended up on successful interaction between the polypeptide hormone and hormone-specific receptor structures which have been retained in some form throughout evolutionary development in the various

target organs. However the possibility that prolactin might be of clinical relevance in the function of these organs in man has only recently been suspected.

In addition to its well recognized regulation of mammary gland function, prolactin also appears to exert a regulatory influence on several other target organs, and these exteramammary actions of prolactin have potential importance in the pathogenesis of human disease. A pronounced action of prolactin on the kidney has been demonesterated in several species, lockett and Co-Warkers Lockett (1965), and lockett et al., (1965) have shown that sheep prolactin increases renal blood flow and glomerular filteration rate, and causes a marked retention of water, sodium and potassium in the rat and cat. Prolactin appears to act directly on the proximal tubule and to facilitate the actions of aldosterone on the distal tubules. Horrobin and his Co-Warkers (1971) , have demonesterated that following a single injection of sheep prolactin in human volunteers renal excretion of water, sodium and potassium is decreased and serum sodium and serum osmolality are increased.

The recent demonstration of hormone-specific binding activity characteristic of a prolactin receptor in

the low speed sediments from kidney homogenates(Frantz et al. 1971), is also evidence that prolactin interacts with the kidney as a target organ. The action of prolactin on the kidney to promote sodium and water retention may represent a factor in the formation of edema under various clinical conditions and is worthy of further clinical investigations.

The potential role of prolactin in the regulation of other organs in health and disease remains to be determined. The recent demonesteration that liver cell membranes possess a hormone specific binding activity (receptor) for prolactin, Frantz (1971), suggests that function of the liver may be under regulation by prolactin. Such a regulatory role for prolactin might explain the large increases in rates of RNA formation observed in the liver during pregnancy and lactation Leake R (1968).

From the above facts it has therefore been essential to continue the endeavour to an additonal insight to the role of prolactin in carbohyderate and amino acid metabolism.