

## **Effects of acidosis on leptin secretion from 3T3-L1 adipocytes and on serum leptin in the uraemic rat**

**Project: 270**

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Marked hyperleptinaemia and metabolic acidosis are common findings in patients with chronic renal failure. In animal models, both leptin administration and acidosis reduce food intake. However, leptin causes loss of body fat, while acidosis induces muscle wasting. Whether a low pH and leptin production are related has not been studied. Leptin secretion was measured in cultured 3T3-L1 adipocytes exposed to acid or control pH for up to 96 h. In addition, serum leptin was compared between acidotic and bicarbonate-treated uraemic Wistar rats using the remnant model. Leptin levels in the culture medium were decreased at an acid pH of 7.1 compared with a control pH of 7.5 at 96 h ( $562 \pm 78$  and  $831 \pm 103$  pg  $\cdot$  48 h<sup>-1</sup>  $\cdot$  well<sup>-1</sup> respectively; mean  $\pm$  S.E.M.; P= 0.037). Similarly, serum leptin in uraemic rats was found to be lower in the acidotic group than in the bicarbonate-treated group, although this observation fell just short of statistical significance ( $1273 \pm 171$  compared with  $2059 \pm 376$  pg/ml; P=0.07).

In conclusion, acidosis decreases leptin secretion from cultured adipocytes. Accordingly, acidotic uraemic rats seem to exhibit lower serum leptin levels than their bicarbonate-supplemented counterparts. This study is the first report providing a link between acidosis and leptin levels.

Clinical Science, 1999  
Volume 97, 363-368