Comment on: Klöting et al. (2008) Autocrine IGF-1 Action in Adipocytes Controls Systemic IGF-1 Concentrations and Growth: *Diabetes* 57:2074–2082

Andrzej Bartke[1] and John Kopchick[2]

The August 2008 issue of *Diabetes* contained a very interesting study by Kloting et al. (1) claiming that autocrine action of IGF-1 in adipocytes controls systemic IGF-1 levels. The animals generated by these investigators are of great potential importance, and the data are novel and intriguing. However, we feel that the interpretation of these findings offered by the authors ignores an important alternative explanation and may be incorrect. The mice with a conditional inactivation of the IGF-1 receptor in adipose tissue (IGF-1R^{aP2Cre} mice) had increased serum IGF-1 and IGF binding protein-3 levels, were larger in size, and had increased liver weight, whereas the relative brain weight and serum adiponectin levels were reduced. These phenotypic characteristics, together with reduced expression of IGF-1 receptor in the brain, strongly suggest that secretion of growth hormone was elevated.

The authors argue that this is not a likely explanation of their findings because circulating growth hormone levels "are normal." This is based on measurement of growth hormone at one age (24 weeks). The number of animals used for these determinations is not specified, and SD values are ~50% of the mean values, consistent with the well-documented pulsatile pattern of growth hormone release. We suggest that this evidence is not sufficient for rejecting what appears to be the most likely explanation for the findings reported in this study. Naturally, we recognize that a convincing demonstration of an effect of IGF-1 signaling in adipocytes on systemic IGF-1 levels independent of alterations in growth hormone secretion would represent a very important advance in the current understanding of the functioning of the somatotropic axis.

ACKNOWLEDGMENTS

No potential conflicts of interest relevant to this article were reported.

REFERENCE

1. Klöting N, Koch L, Wunderlich T, Kern M, Ruschke K, Krone W, Brüning JC, Blüher M: Autocrine IGF-1 action in adipocytes controls systemic IGF-1 concentrations and growth. *Diabetes* 57:2074–2082, 2008

From the [1]Departments of Internal Medicine and Physiology, Southern Illinois University School of Medicine, Springfield, Illinois; and the [2]Department of Biomedical Sciences, Konneker Research Center, Ohio University, Athens, Ohio.

Corresponding author: Andrzej Bartke, abartke@siumed.edu.

DOI: 10.2337/db08-1308