

CHARACTERIZATION OF NEURONAL IGF-1 DEFICIENT MICE

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The insulin/IGF-I signaling pathway has been shown to regulate the lifespan of organisms ranging from invertebrates to mammals. Studies with *C. elegans*, showing that mutations in genes that reduce insulin/IGF-I signaling resulted in a dramatic increase in life span are particularly persuasive. Interestingly, reduction in insulin/IGF-I signaling in neurons was shown to be responsible for the increased longevity in *C. elegans*. At present, there are no data about the role of neuronal insulin/IGF-I signaling in mammalian aging. In an effort to address this issue, we generated a neuronal IGF-1 deficient (NID) mouse model. The NID mice were generated by crossing the mice with the floxed *Igf1* gene to the Synapsin1 Cre transgenic mice, which express Cre recombinase in neurons. Interestingly, our preliminary results show that the NID mice have a dramatic reduction in body size. For example, at 8 weeks of age, female NID mice have a 30% decrease in bodyweight compared to their littermates that are not neuron-IGF-1 deficient. The organ weights (including brain) expressed per body weight was similar for NID and wild type mice. However, the NID mice had lower bone mineral density (BMD) than wild type mice. We are currently characterizing the hormonal status of the NID mice.