Induction of Differentiation by AAV2-mediated Follistatin Overexpression in Ovine Primary Myoblasts

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ABSTRACT: Antagonists of myostatin (MSTN) have shown considerable promise for enhancing muscle mass and strength. Follistatin (FST) has been recognized as a potent myostatin antagonist. Recently, overexpression of FST by viruses in muscle has been represented to increase muscle hypertrophy in vivo. In the present study, to explore the effects of FST overexpression on differentiation of ovine primary myoblast (OPM), FST had been overexpressed by adeno-associated virus serotype 2 (AAV 2) vector in differentiation media. Real-time qPCR analysis indicated that FST overexpression contributed to an increase of myogenin, Myo D and p21 mRNA expression. The results suggested that FST positively regulated myogenin, Myo D and p21 in DM by blocking the MSTN signal, and it also expanded our understanding of the regulation mechanism of FST in OPM. Furthermore, the AAV system would be used to generate transgenic meat sheep in the future.

Keywords: Follistatin overexpression; AAV virus; Differentiation