Molecular characterization and tissue expression profile of porcine Ephrin-B2

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ABSTRACT. Ephrin-B2 (EFNB2) is a signaling molecule that plays an important role in cell adhesion, proliferation, and migration in humans. However, little is known about this molecule in pigs. In order to investigate whether EFNB2 is associated with the skeletal muscle in pigs, we cloned the full-length cDNA of EFNB2 (GenBank accession No. KF500033) from the longissimus dorsi muscle of Yorkshire pigs by rapid amplification of cDNA ends. The results indicated that its full-length cDNA comprises 1991 bp, with an open reading frame of 1002 bp, a 5’ end of 88 bp, and a 3’ end of 901 bp. We analyzed the homology of porcine EFNB2 with sequences from other species, and the phylogenetic tree showed that pig EFNB2 was most closely related to that from sheep, followed by domestic cats and wolf, with mackerel being the most distantly related. Porcine EFNB2 is a water-soluble protein with a theoretical molecular weight of 36,928.1 Da, an isoelectric point of 8.98, and a hydrophilic transmembrane-spanning region. It contains 19 glycosylation sites and eight phosphorylation sites. The tertiary structure of the EFNB2 protein showed a fomiciform helix structure. The porcine EFNB2 gene was expressed in ten different tissues from 25-day-old Shaziling and Yorkshire piglets, with the highest expression observed in the longissimus dorsi. These results lay the foundation for further study on the EFNB2 gene in pigs.

Key words: Pig; EFNB2; Cloning; Expression profiles