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Molecular cloning, characterization and expression of the energy homeostasis-associated gene in piglet

Key words: Adropin, *Enho*, Gene cloning, Piglets, RT-PCR

Research Summary

The porcine *Enho* cloned , which encodes a 76-AA protein with one trans-membrane domain or signal peptide. It has a high degree of sequence and structure similarity with bovine *pEnho*.

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porcine  ATGGGGGCAGCCATCTCCCAGGGGGCCCTCATCGCCATC ATCTGCAACGGCCTCGTAGGC
bovine  ATGGGGGCAGCCCTCTCCCAGGGGGCCCTCATCGCCATC ATCTGCAACGGCCTCGTGGGC
homo    ATGGGGGCAGCCATCTCCCAGGGGGCCCTCATCGCCATC GTCTGCAACGGTCTCGTGGGC
mouse   ATGGGGGCAGCCATCTCCCAAGGGGCTCTCATCGCCATC GTCTGCAATGGCCTCGTAGGC
*****

porcine  TTCTTGCTGCTGCTGCTCTGGGTCAATTCCTGCTGGGCC TGCCACTCCCGCTCTGCCAAC
bovine  TTCTTGCTGCTGCTGCTGTGGGTCAATTCCTGCTGGGCC TGCCACTCGCGCTCTGCCAAC
homo    TTCTTGCTGCTGCTGCTCTGGGTCAATCCTCTGCTGGGCC TGCCATTCTCGCTCTGCCGAC
mouse   TTCTTGCTGCTACTGCTCTGGGTCAATTCCTGCTGGGCC TGCCATTCTCGATCTGCTGAC
*****

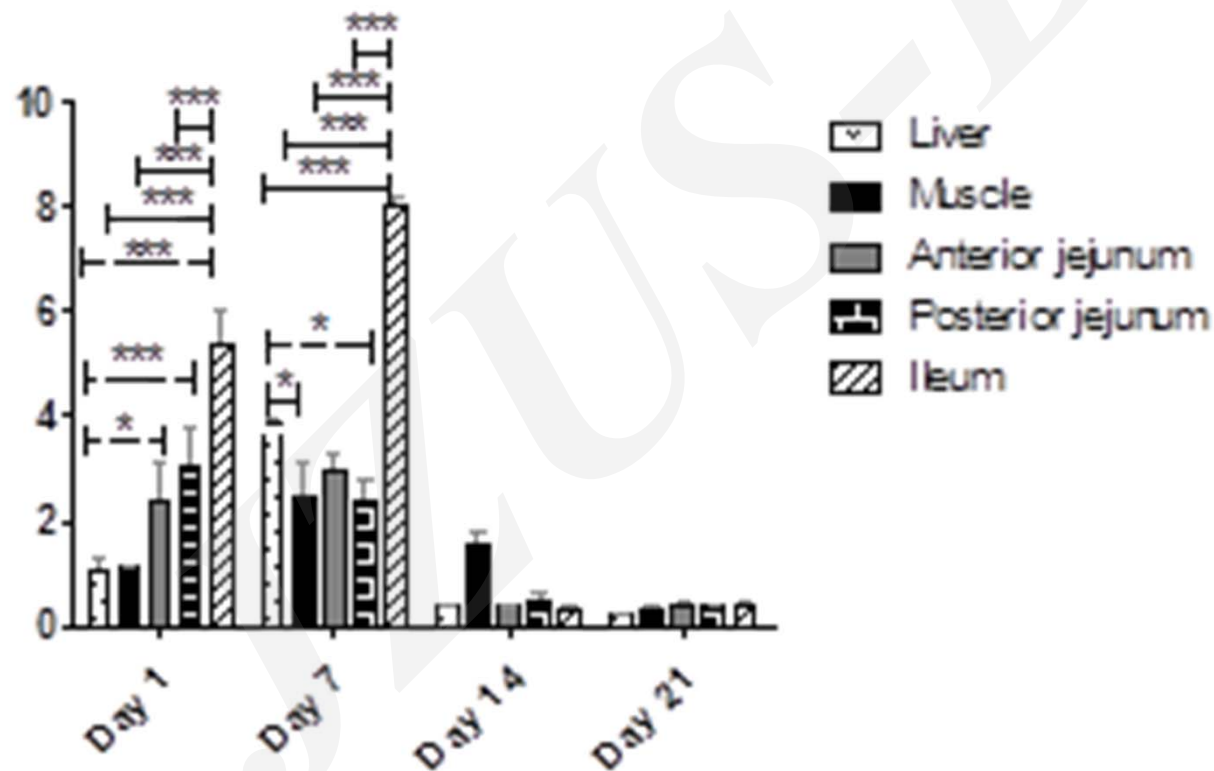
porcine  ATCGACTCCCTCTCGGGAATCCAGTCCCAACTCCAGCCCT GGCCCCCTGTCCTGAGAAGGCA
bovine  ATCGACTCCCTCTCTGAATCCAGTCCCAACTCCAGCCCT GGCCCCCTGTCCTGAGAAGGCA
homo    GTTGACTCTCTCTCTGAATCCAGTCCCAACTCCAGCCCT GGCCCCCTGTCCTGAGAAGGCC
mouse   GTCGATTCTCTCTCGGGAATCCAGTCCCAACTCCAGCCCT GGCCCCCTGTCCTGAGAAGGCG
* ** ** *****

porcine  CCCCCGCCCCAGAAGCCCAGCCATGAAGGCAGCTACCTGCTGCAGCCCTGA
bovine  CCCCCGCCCCAGAAGCCCAGCCATGAAGGCAGCTACCTGCTGCAGCCCTGA
homo    CCACCACCCCAGAAGCCCAGCCATGAAGGCAGCTACCTGCTGCAGCCCTGA
mouse   CCACCACCCCAGAAGCCCAGCCATGAAGGCAGCTACCTGCTGCAGCCCTGA
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Nucleotide sequence alignment of *Homo sapiens*, *Mus musculus*, *Bos taurus* and *Sus scrofa* *Enho*. Multiple sequence alignment was generated using Clustal W 1.83.

Research Summary

The expression profile of *pEnho* in porcine tissues (liver, muscle, anterior jejunum, posterior jejunum and ileum) was determined



The *pEnho* abundance in different tissues of piglets at days 1, 7, 14, 21. All samples were normalized using GAPDH. Data are means \pm SEM (n=6). *P < 0.05, **P < 0.01, ***P < 0.001.

Innovation points

A series of comprehensive figures and table were generated when the pEnho sequence was analyzed and the express profiles were determined.

Figure 1 | Nucleotide and predicted amino acid sequences of *pEnho*.

Figure 2 | Unrooted phylogenetic tree depicting the evolutionary relationship of the vertebrate *Enho* and adropin.

Figure 3 | Nucleotide sequence alignment of *Homo sapiens*, *Mus musculus*, *Bos taurus* and *Sus scrofa Enho*.

Figure 4 | Amino acid alignment of *Homo sapiens*, *Mus musculus*, *Bos taurus* and *Sus scrofa Enho*.

Figure 5 | The putative second structure of the adropin protein of *sus scrofa*.

Figure 6 | The *pEnho* abundance in different tissues of piglets at days 1, 7, 14, 21.

Table 1 | The relative abundance of pEnho in different tissues on different days.