

**Exon1:**ATGGTCCCTTCCCAGACCCTGGTGTGTGCTGCAGTGCTTGCCCTGGCAG  
**Initiation codon**  
TCCTGCAGGCCCTGGCCTCAGACACCTTCATCGCAGCCGTGTACGAGCACGCCG  
TCATCCTGCCACGCACCATTACACAAGGTTTCTCCTGCTGATGCTTTGGCCCTGAT  
GAACAGAAACATGGATGTTCTGGAAGGAGCTGTCAAGGAAGCAGCCCAGCAG

**Exon2:**GGTGCCCGCATCATTGTGACTCCTGAGGATGGCATTATGGCTGGGTTTTCAC  
**sgRNA2#** **sgRNA3#**  
GAGGGAAACCATTACCCCTACCTGGAGGATATTCCTGATCCAGAGGTGAACTGGA  
**sgRNA1#**  
TTCCCTGCACCGATCCCACAAG

**Exon3:**ATTTGGTCGAACACCAGTGCAGGAACGACTCAGCTGCATGGCCAGGAAC  
AACTCCATCTATGTAGTGGCAAATATCGGGGACAAGAAGCCATGTAATTCCAGTG  
ACCCCAAGTGCCCCAGTGATGGTCGCTACCAGTACAACACTGACATTGTCTTTGA  
**→ VNNI-qF**  
CTCTGAAGGGAAACTGGTGGCTCGTTACCACAAG

**Exon4:**TATAATCTGTTTATGTCAGAAGCAAATTATTTAATTACCCAAAGGAGCCA  
GAAGTCATCACCTTCGAGACTCCCTTTGGGAAGTTIGGCATTTTCACCTGCTTTG  
**VNNI-qR ←**  
ACATTCTTTTCCGGGAGCCTGCTGTGGTGTGGTGAGCAAGCTACAGGTGGACA

Supplementary Figure S2. Schematic representation of the sgRNA and RT-qPCR primer targeting *VNNI* gene

The single underline in exon 1 represented the initiation codon ATG, the italic plus single underline in exon 2 was marked with different sgRNA, and the double underline in exon 3 and exon 4 was labeled with *VNNI* fluorescence quantitative primer.