

Electronic Supplementary Material

Aminopeptidase N Knockout Pigs Are Not Resistant to Porcine Epidemic Diarrhea Virus Infection

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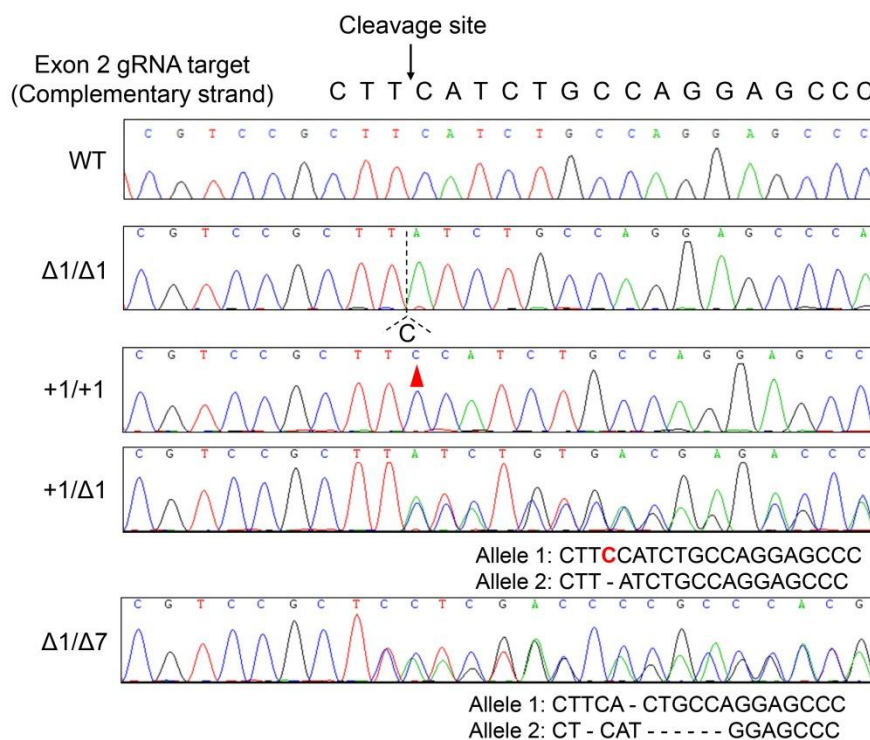


Figure S1. Representative sequencing chromatograms of the modified *APN* target sites showing all four genotypes ($\Delta 1/\Delta 1$, +1/+1, +1/ $\Delta 1$, and $\Delta 1/\Delta 7$) of *APN* in cloned pigs. The complementary sequences of targets are shown. Red arrowhead and letter represent insertions and dashes represent deletions.

Table S1. Genotypes of donor colonies used for SCNT

# colonies	Target exon	Sequences*	Indel size	Mutant type
2-1	2	Allele 1: CTT C CATCTGCCAGGAGCCC Allele 2: CTT-ATCTGCCAGGAGCCC	+1/Δ1	Biallelic KO
2-2	2	Allele 1: CTTCA-CTGCCAGGAGCCC Allele 2: CT-CAT-----GGAGCCC	Δ1/Δ7	Biallelic KO
2-5	2	Allele 1: CTT C CATCTGCCAGGAGCCC Allele 2: CTT-ATCTGCCAGGAGCCC	+1/Δ1	Biallelic KO
3-6	3	Allele 1: TGA A AGGCCACGTTCAACATC Allele 2: TGA--GCCACGTTCAACATC	+1/Δ2	Biallelic KO

* The complementary sequences to the targets are shown. Base insertions are labeled in red and deletions are shown by dashes.

Table S2. Embryo transfer data

Surrogate ID	Modified exon	Donors	No. of embryos transferred	Pregnancy	Piglet result
15-124404	Exon 2 or 3	2-5, 3-6	251	No	-
15-157202	Exon 2 or 3	2-5, 3-6	248	No	-
16-106802	Exon 2 or 3	2-5, 3-6	235	No	-
16-106800	Exon 2 or 3	2-5, 3-6	224	Yes	5 healthy piglets
15-372000	Exon 2 or 3	2-5, 3-6	239	No	-
15-366404	Exon 2	2-1, 2-2	209	Yes	0 piglets
16-106804	Exon 2	2-1, 2-2	208	Yes	5 healthy piglets, 1 born weak and died at day 1, and 2 stillborns
15-339908	Exon 2	2-1, 2-2	218	Yes	3 healthy piglets, and 1 stillborn
15-366900	Exon 2	2-1, 2-2	229	Yes	0 piglets
15-153802	Exon 2	2-1, 2-2	214	No	-
15-364900	Exon 2	2-1, 2-2	219	Yes	3 healthy piglets, 1 born weak and died at day 1, and 2 stillborns

Table S3. Genotypes of live cloned piglets

Piglet ID	Modified exon	Sequences*	Indel size	Derived donor	Mutant type
FF21	2	CTT C CATCTGCCAGGAGCCC	+1/+1	2-1	Homozygous KO
FF22	2	Allele 1: CTTCA-CTGCCAGGAGCCC Allele 2: CT-CAT-----GGAGCCC	$\Delta 1/\Delta 7$	2-2	Biallelic KO
FF23	2	CTT-ATCTGCCAGGAGCCC	$\Delta 1/\Delta 1$	2-1	Homozygous KO
FF24	2	Allele 1: CTTCA-CTGCCAGGAGCCC Allele 2: CT-CAT-----GGAGCCC	$\Delta 1/\Delta 7$	2-2	Biallelic KO
FF25	2	Allele 1: CTT C CATCTGCCAGGAGCCC Allele 2: CTT-ATCTGCCAGGAGCCC	+1/ $\Delta 1$	2-5	Biallelic KO
FF26	2	Allele 1: CTT C CATCTGCCAGGAGCCC Allele 2: CTT-ATCTGCCAGGAGCCC	+1/ $\Delta 1$	2-5	Biallelic KO
FF27	2	Allele 1: CTT C CATCTGCCAGGAGCCC Allele 2: CTT-ATCTGCCAGGAGCCC	+1/ $\Delta 1$	2-5	Biallelic KO
FF28	2	Allele 1: CTTCA-CTGCCAGGAGCCC Allele 2: CT-CAT-----GGAGCCC	$\Delta 1/\Delta 7$	2-2	Biallelic KO
FF29	2	Allele 1: CTT C CATCTGCCAGGAGCCC Allele 2: CTT-ATCTGCCAGGAGCCC	+1/ $\Delta 1$	2-5	Biallelic KO
FF30	2	CTT-ATCTGCCAGGAGCCC	$\Delta 1/\Delta 1$	2-1	Homozygous KO
FF31	2	CTT C CATCTGCCAGGAGCCC	+1/+1	2-1	Homozygous KO
FF32	2	Allele 1: CTTCA-CTGCCAGGAGCCC Allele 2: CT-CAT-----GGAGCCC	$\Delta 1/\Delta 7$	2-2	Biallelic KO
FF33	2	Allele 1: CTTCA-CTGCCAGGAGCCC Allele 2: CT-CAT-----GGAGCCC	$\Delta 1/\Delta 7$	2-2	Biallelic KO
FF34	2	Allele 1: CTT C CATCTGCCAGGAGCCC Allele 2: CTT-ATCTGCCAGGAGCCC	+1/ $\Delta 1$	2-5	Biallelic KO
FF35	2	CTT-ATCTGCCAGGAGCCC	$\Delta 1/\Delta 1$	2-1	Homozygous KO
FF36	2	CTT-ATCTGCCAGGAGCCC	$\Delta 1/\Delta 1$	2-1	Homozygous KO
# 1**	2	Allele 1: CTTCA-CTGCCAGGAGCCC Allele 2: CT-CAT-----GGAGCCC	$\Delta 1/\Delta 7$	2-2	Biallelic KO
# 2**	2	Allele 1: CTTCA-CTGCCAGGAGCCC Allele 2: CT-CAT-----GGAGCCC	$\Delta 1/\Delta 7$	2-2	Biallelic KO

*Complementary sequences of gRNA target. Insertions are indicated by red letters and deletions are indicated by dashes. **Weak pigs died shortly after birth.

Table S4. Fecal consistency scores in PEDV inoculated APN KO vs WT pigs from PID 1 to PID 5

PID	Mean fecal score (SEM)*		% with diarrhea**	
	KO	WT	KO	WT
1	0 (0)	0 (0)	0	0
2	0.4 (0.2)	0.5 (0.3)	11.1	16.7
3	1.9 (0.4)	1.5 (0.6)	62.5	50
4	1 (0.4)	0.8 (0.3)	25	16.7
5	0.5 (0.3)	0.5 (0.3)	12.5	16.7

*No significant difference was found between the two groups.

**Fecal consistency scores of 2 or more considered diarrheic.