Supplementary Figure Legends

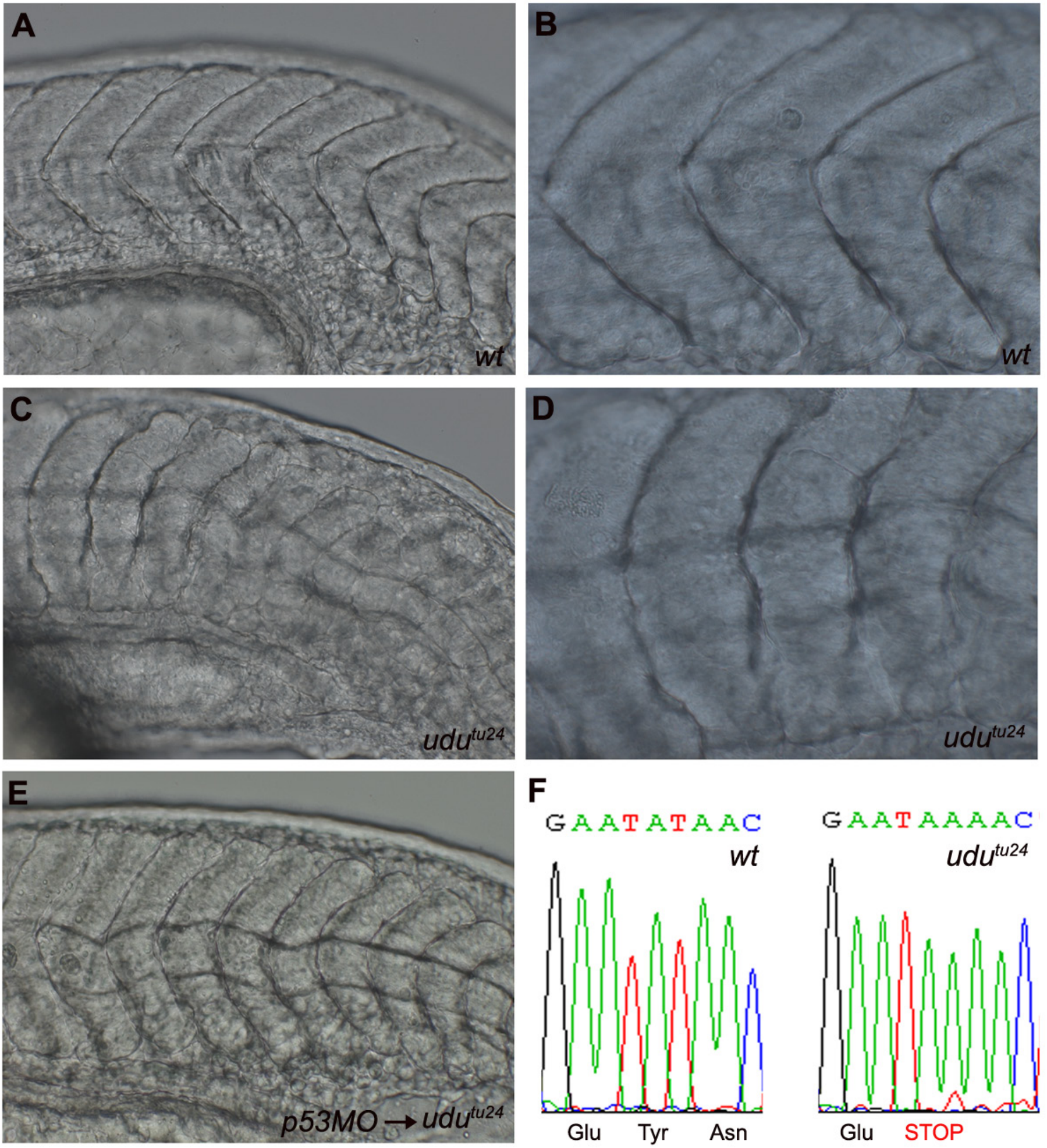
Supplementary Figure S1. Genotyping experiments confirm that embryos selected for subsequent experiments were homozygous *udu*^{tu24} mutants. (A–E) Somite structures of wild-type embryos and *udu*^{tu24} embryos injected with *p53*-MO. (A–B) Wild-type embryos showed somite structures with characteristic chevron-shape and well-defined somite boundaries. (C–D) *udu*^{tu24} embryos have somite structures that were not V-shaped and posterior somites that were not clearly defined by boundaries. (E) In *udu*^{tu24} embryos injected with *p53*-MO, V-shaped somite structures were restored but not with characteristic chevron-shape. (F) Representative DNA sequence analyses showed nonsense mutation in homozygous *udu*^{tu24} mutants in which Tyr has been converted to a STOP codon.

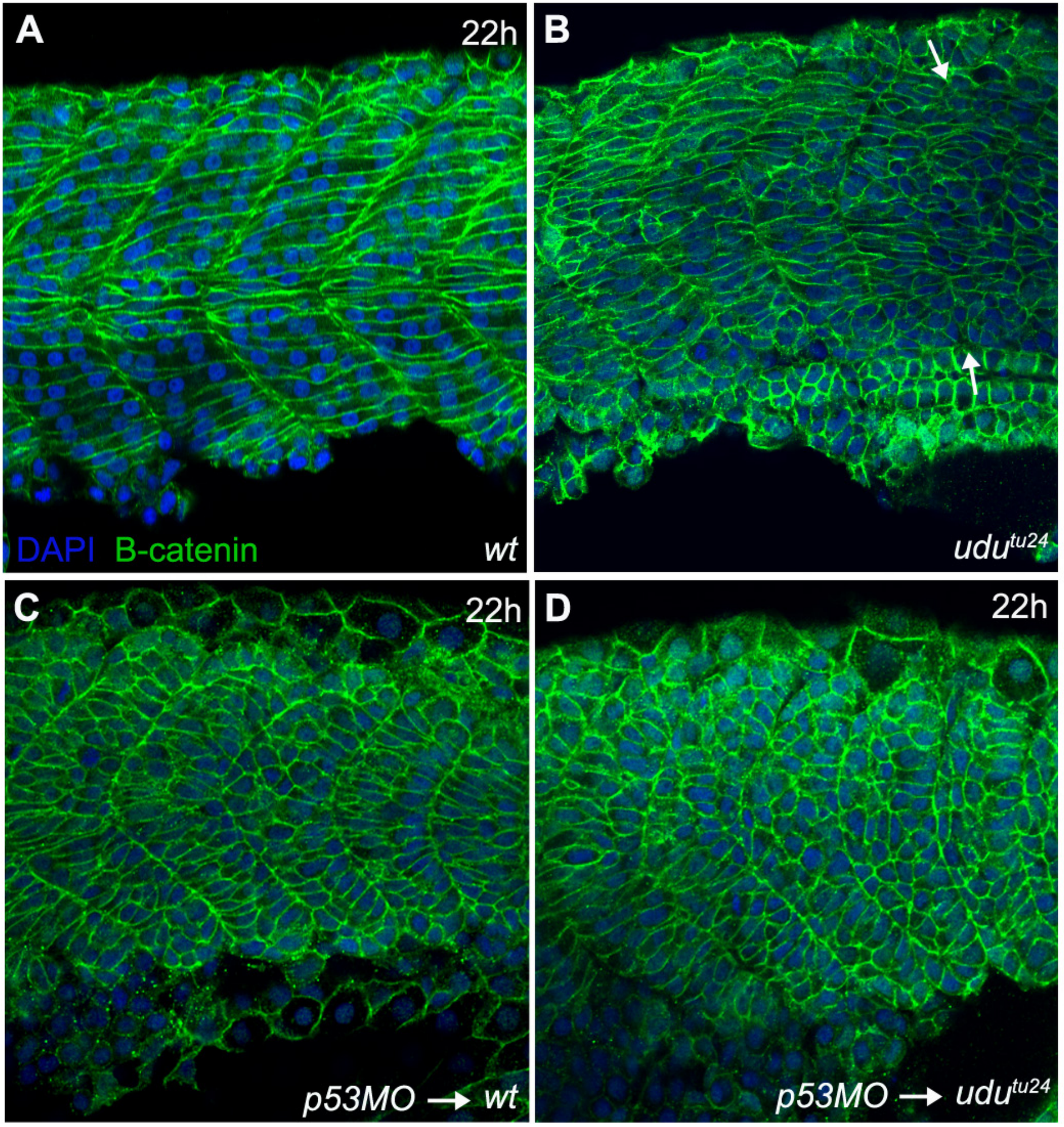
Supplementary Figure S2. Somite boundaries highlighted by membrane-localized β-catenin antibody. (A–B) High resolution confocal images of somite boundaries in wild-type and *udu*^{tu24} embryos, approximately the 12th to 16th somite region. Somites of wild-type embryos were chevron-shaped with clear boundaries; however, mutant somite boundaries were not clearly defined as indicated by arrows. (C–D) High resolution confocal images of posterior somite boundaries in wild-type and *udu*^{tu24} embryos injected with *p53*-MO.

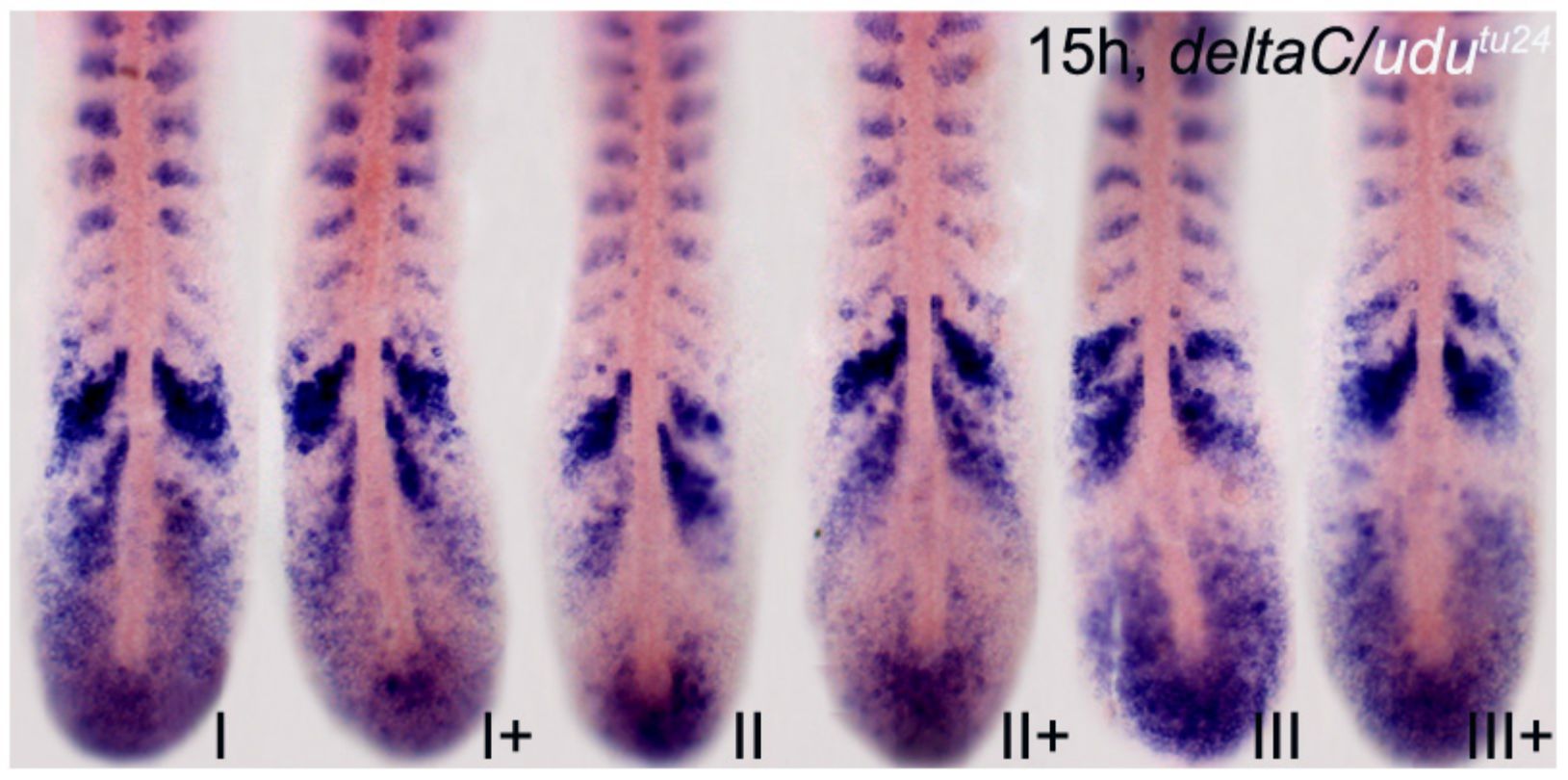
Supplementary Figure S3. Segmentation clock is functional in *udu*^{tu24} mutants. Expression of *deltaC* in homozygous *udu*^{tu24} embryos at 15 hpf (12 ss). *deltaC* expression patterns were arranged in a sequence corresponding to a temporal oscillation in the PSM linked to somitogenesis. The different phases of the oscillation cycle were numbered I, II and III and intermediate phases were designated I+, II+ and III+. All embryos were in dorsal view with anterior to the top.

Supplementary Table 1. Gene accession number and primer sequence used in quantitative real-time PCR.

Gene	**Accession number**	**5' sequence**	**3' sequence**
p53	NM_131327	ACCACAGCTTGGTGCTGAAT	GCCTGGACATGCACACACA
mdm2	AF010255	TGGAGTCCATCAACTCTGAT	CGAGGAAGAGGAGGGTTGAAC
cyclin D1	NM_131025	GCAGCTTTTAGGAGCAACTT	CTGAGGCCAGATCCCACTTC
p21$^{WAF/CIP1}$	AL912410	GACTGAGGAATGGATCTTTC	CTTCATCTGTCTGGAGCTGCAT
caspase 8	NM_131510	CCAGACAATCTGGATGAACT	CATTGTTTCAGATACAGGGTTGTTG
bax	NM_131562	GCTGCACTTCTCAACAACTT	CGGGCCACTCTGATGAAGAC
gadd45αl	AY714218	AAGGATGGACTCGGTGATTA	CCTTCACATCGTCGTCATCAGT
gadd45β1	AB180735	AGGAGGTTGTTGGATGCAA	TCTGGATCCACATTCATGAGTTG
gadd45β2	AB180736	GAGGATCTGGACGACATT	TGAGAGTTAGTGACGAGGATGCA
atm	AJ605775	ACGAGCTAATCTGTCAGTCA	TTCTGCCCGCTCCAAGTC
atr	CT623247	ATGGTCACTGACAACAAGCT	GCGGCCAGCTTTTTCAAAT
chk1	CB363820	TGCGTTAACAAACCGCTTCA	TTTTGCCATGTCCACAACTT
chk2	AF265346	AGCGTGCTCAATTGCACAGA	TCGTCGTCCACCCATGTG
elf1a	NM_131263	TGGAAATTCGAGACCAGCAA	TCACGGGTCTGTCCGTTCTT


A
wt
B
wt
C
udu^tu24
D
udu^tu24
E
p53MO → udu^tu24
F
GAATATAAC
wt
Glu Tyr Asn
GAATAAAAC
udu^tu24
Glu STOP


A
22h
DAPI B-catenin
wt
B
udu^tu24
C
22h
p53MO → wt
D
22h
p53MO → udu^tu24


15h, deltaC/udu^tu24
I
I+
II
II+
III
III+