

Table S3. Construct information			
Construct name	Primers	Vector	Comments
<i>Pmig-17::SL2::GFP</i>	Forward: aaatatacATGAGTAAAggagaagaacttttactggag Reverse: TTAATCATgtatattttcccttttcgcacacgttctacaac	pDEST	The Gateway system was described in (Norlia Basherudin et al., 2006).
<i>Pmig-17::mig-17</i>		pDEST	SL2 and GFP were removed from <i>Pmig-17::SL2::GFP</i>
<i>mig-17(shc19)</i> Cas9-sgRNA1	Forward: AATACTCGACTTCAAAATTAgttttagagctagaaatagcaagt Reverse: TAATTTTGAAGTCGAGTATTcaagacatctcgcaatagg	pDD162	pDD162 was described in (Daniel J Dickinson et al., 2015). This plasmid was constructed using the protocol of Dickinson 2015.
<i>mig-17(shc19)</i> Cas9-sgRNA2	Forward: ACGTTCTACAACAAATCTCAgttttagagctagaaatagcaagt Reverse: TGAGATTGTTGTAGAACGTcaagacatctcgcaatagg	pDD162	pDD162 was described in (Daniel J Dickinson et al., 2015). This plasmid was constructed using the protocol of Dickinson 2015.
<i>mig-17(shc19)</i> repair template of CRISPR/Cas9	right and left homologous arm: Forward: ttttGGCGCGCCTCTGACAATTCCTCAACGGATGC Reverse: GACGCCTAGGgtaactaggcgggactcaagct mutate NGG of sgRNA1: Forward: AATTCAAAGACATGTTcAAATACTCGACTTC Reverse: GAACATGTCTTTGAATTAATATCTTTACAATCCATC mutate NGG of sgRNA2: Forward: TCGTGAGATTGTTGTGTAGAACGTGTGCGAAAAAAG Reverse: TTCTACAACAAATCTCACGAAAATCTTTTCGATTTA insert mNeonGreen: Forward: gacgACCGGTATGGTGTCTAAGGGCGAAGA Reverse: tccccccgggCTGTACAGCTCGTCCATGC Forward: tccccccgggTGAttggagtaataaacgtttcatatat Reverse: gacgACCGGTGTATATTTTTCCTTTTTCGCACACGTTTC insert Flag: Forward: cgcggatccttcagGGAGCCGGATCTG Reverse: tccccccgggTCTCTTGTCATCGTCATCCTTG Forward: tccccccgggTGAttggagtaataaacgtttcatatat Reverse: cgcggatccCTTGTACAGCTCGTCCATGC verification of knock-in animals: Forward: GCTGGAACCTGGATCGCAAC Reverse: GAAGTGACCTGTTGAGGTT	pSM	<i>mig-17(shc19)</i> contains <i>mig-17::mNeonGreen::3×flag</i> . This plasmid was constructed by enzyme digest and T4 ligation.
<i>mig-17(shc8)</i> Cas9-sgRNA1	Forward: AGGTCTCACTTCGTTGATTAgtttagagctagaaatagcaagt Reverse: TAATCAACGAAGTGAGACCTcaagacatctcgcaatagg	pDD162	pDD162 was described in (Daniel J Dickinson et al., 2015). This plasmid was constructed using the protocol of Dickinson 2015.
<i>mig-17(shc8)</i> Cas9-sgRNA2	Forward: TTGATTATGGCTCACGAAATgttttagagctagaaatagcaagt Reverse: ATTTTCGTGAGCCATAATCAACaagacatctcgcaatagg	pDD162	pDD162 was described in (Daniel J Dickinson et al., 2015). This plasmid was constructed using the protocol of Dickinson 2015.

<i>mig-17(shc8)</i> repair template of CRISPR/Cas9	Forward: ttttGGCGCGCCtttgggctgttaggagtagttc Reverse: gacgACCGGTgttctggaccacaaggaga Forward: TTAATCATGGCCCATGCAATC GGTCACCTCgtgagtaaact Reverse: ATGGGCCATGATTAATGAGGTAAGACCTGCTCCAATGTCCTCTA verification of mutant animals: Forward: GACGTGAGAAGCAACAAAGC Reverse: GAAGTGGACCTGTTGAGGTT	pSM	<i>mig-17(shc8)</i> contains <i>mig-17(E303A)</i> where the protease catalytic site of MIG-17 is altered from E303 to A. This plasmid was constructed by enzyme digest and T4 ligation.
<i>Pmig-17::mig-17(E303A)::GFP</i>		pSM	A gift from the lab of Kiyoji Nishiwaki
<i>Phlh-17::mig-17</i>	Forward: TACCCATCCGCAGACACTG Reverse: AAGCTCCTGAGTCTTGTTTCG	pDEST	<i>Phlh-17</i> is published in (McMiller and Johnson, 2005). The Gateway system was described in (Norlia Basherudin et al., 2006).
<i>Prab-3::mig-17</i>		pDEST	<i>Prab-3</i> was described in (Nonet et al., 1997). From the lab of Daniel A. Colón-Ramos.
<i>Ppdy-7::mig-17</i>		pDEST	<i>Pdpy-7</i> is published in (Bülow et al., 2004). The Gateway system was described in (Norlia Basherudin et al., 2006).
<i>Pmyo-3::mig-17</i>		pDEST	<i>Pmyo-3</i> was described in (Okkema et al., 1993). The Gateway system was described in (Norlia Basherudin et al., 2006).
<i>dgn-1 RNAi</i>	Forward: atttgcggccgcAACCCCTCAAGTTTACACTGT Reverse: atttgcggccgcAGTGAGAATGACCATTGACC	pPD129.36	The full length of <i>dgn-1 cDNA</i> .
<i>Pdpy-7::egl-15(5A)</i>		pDEST	<i>Pdpy-7</i> is published in (Bülow et al., 2004). The Gateway system was described in (Norlia Basherudin et al., 2006).
<i>Prab-3::mCherry</i>			<i>Prab-3</i> was described in (Nonet et al., 1997). From the lab of Daniel A. Colón-Ramos.
<i>Pttx-3g::GFP::rab-3</i>			<i>Pttx-3g</i> was described in (Wenick and Hobert, 2004). From the lab of Daniel A. Colón-Ramos.
<i>Phlh-17::mCherry</i>			<i>Phlh-17</i> is published in (McMiller and Johnson, 2005). From the lab of Daniel A. Colón-Ramos.
<i>Pdpy-4::mCherry</i>			From the lab of Daniel A. Colón-Ramos.