**Supplemental Appendix 1: Construction of RNAi vectors.**

RNAi vector construction, transformation and selection. For generating the AphVIII-\textit{HLA3} inverted repeat (IR) transgene, a 540-bp fragment corresponding to the 3’UTR sequence of \textit{HLA3} was amplified with primers \textit{HLA3-XbaI-S} [5’-\texttt{aattctaga}CACGTGACCCAAGGC-3’] and \textit{HLA3-HindIII-As} [5’-\texttt{ttaagctt}TTTGTCACTCGCGCT-3’]; \textit{HLA3-BamHI-S} [5’-\texttt{aaaggatcc}CAAGGAGGTGAGAA-3’] and \textit{HLA3-HindIII-As} [5’-\texttt{gccaagctt}CTTTTAATTCTGCAACC-3’]. The two PCR products were ligated into XbaI/BamHI sites of plasmid pSI103 (1). This \textit{HLA3} IR cassette was then excised with XbaI/KpnI and cloned into the XbaI/KpnI sites of plasmid pSP124S. The AphVIII gene was further amplified with primers \textit{SacI-AphVIII} [5’-\texttt{ggggagctc}GCTGAGGCTTG-3’] and \textit{XbaI-AphVIII} [5’-\texttt{cctctaga}TCAGAAGAACTCGTCCAACAGC-3’] and inserted into the XbaI/SacI sites of pSP124S-HLA3 IR intermediate plasmid. The final RNAi vector, in which the \textit{HLA3} inverted repeat is transcribed as part of the AphVIII transcript, was named AphVIII-HLA3 IR.

For generating tandem repeat construct, a 120-bp fragment from \textit{HLA3} exon6 was amplified by PCR with primers \textit{N-1} [5’-\texttt{caaccatgg}TCCATCTCCCTCTTGCACTC-3’] and \textit{E-1} [5’-\texttt{caagaattc}GGACGATTTGGCTTGGCGACG-3’]; \textit{E-2} [5’-\texttt{caagaattc}CATCTCCCTCTTGCACTC-3’] and \textit{P-2} [5’-\texttt{caactgag}GGACGATTTGGCGACG-3’]. The two PCR products were inserted into NcoI/PstI sites of plasmid p300 (2). The intermediate plasmid was PCR amplified with primers \textit{P-3} [5’-\texttt{caactgag}TCCATCTCCCTCTTGCACTC-3’] and \textit{X-3} [5’-\texttt{caactgag}GGACGATTTGGCGACG-3’]. The PCR product was ligated into PstI/XhoI site of intermediate plasmid and thus named 4×\textit{HLA3} plasmid. The 4×\textit{HLA3} construct was then excised with XbaI/BamHI and inserted into XbaI/BamHI sites of vector pGenD-Ble (3). An AphVIII cassette was excised with HindIII/KpnI from the plasmid pSI103 and inserted into HindIII/KpnI sites of the p53 vector. The chimeric plasmid was double digested with HindIII/NdeI to eliminate the Ble gene and re-ligated. The resulting RNAi plasmid (containing 4×\textit{HLA3} cDNA tandem repeat and AphVIII gene) was named AphVIII-HLA3 TR.

For transformation, cells were collected and resuspended in autolysin for approximately 1h (autolysin treatment only for walled cells CC125 and \textit{pmp1}) to remove the cell walls and glass
bead transformations were performed as previously described (4). Paromomycin resistant transformants were selected as RNAi lines.

References for Appendix 1