

Table S1: List of strains used in the study

Name	Genotype (all strains also carry <i>veA1</i>)
KF45	<i>nimA-GFP::pyrG^{AF}</i> ; <i>NDC80-CR::pyroA^{AF}</i> ; <i>argB2</i> ; <i>nirA14?</i> ; <i>sE15?</i> ; <i>wA3</i>
CDS683	<i>alcA::NIMA-GFP::pyr4⁺</i> (<i>pyrG89</i>); <i>Nup49-CR::pyroA^{AF}</i> ; <i>chaA1</i> (<i>pyroA4?</i> <i>nirA14?</i>)
CDS1068	<i>GFP-S-tag::pyrG^{AF}</i> (<i>pyrG89</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>pyroA4</i> ; <i>nirA14</i> ; <i>sE15</i> , <i>wA3</i> ; <i>fwA1</i> ; <i>chaA1</i>
CDS131	<i>alcA::^{HA-285}ΔNnimA-GFP::pyr4</i> (<i>pyrG89</i>); <i>pyr4⁺</i> ; <i>pyroA4</i> ; <i>wA</i>
R153	<i>pyroA4</i> ; <i>wA3</i>
MG385	<i>alcA::NIMA-GFP::pyr4⁺</i> (<i>pyrG89</i>); <i>EB1-CR::pyro^{AF}</i> (<i>pyroA4?</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB/argB⁺?</i> , <i>wA3</i>
MG409	<i>alcA::NIMA-GFP::pyr4⁺</i> (<i>pyrG89</i>); <i>argB2</i> ; <i>sE15</i> ; <i>wA3</i>
MG410	<i>alcA::NIMA-GFP::pyr4⁺</i> ; <i>pyrG89</i> ; Δ <i>An-EB1::pyrG^{AF}</i> (<i>pyrG89</i>); <i>argB2</i> ; <i>sE15</i> ; <i>wA3</i>
MG395	<i>GFP-tubA</i> ; <i>EB1-CR::pyro^{AF}</i> (<i>pyroA4</i>); <i>argB2</i> ; <i>sE15</i> ; <i>nirA14?</i>
MG397	<i>nimA7</i> ; <i>GFP-tubA</i> ; <i>EB1-CR::pyro^{AF}</i> (<i>pyroA4</i>); <i>argB2</i> ; <i>sE15</i> ; <i>nirA14?</i>
MG44	<i>nimA7</i> ; Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>riboA1</i> ; <i>pyroA4</i> ; <i>pyrG89</i> ; <i>nicB8/A2?</i> ; <i>wA3</i>
MG8	Δ <i>An-zuo1::pyrG^{AF}</i> (<i>pyrG89</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>pyroA4</i> ; <i>nirA14</i> ; <i>sE15</i> , <i>wA3</i> ; <i>fwA1</i> ; <i>chaA1</i>
MG61	<i>nimA7</i> ; Δ <i>An-zuo1::pyrG^{AF}</i> (<i>pyrG89</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>riboA1</i> ; <i>pyroA4</i> ; <i>nicB8/A2?</i> ; <i>wA3</i>
MG19	Δ <i>An-bud14::pyrG^{AF}</i> (<i>pyrG89</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>pyroA4</i> ; <i>nirA14</i> ; <i>sE15</i> , <i>wA3</i> ; <i>fwA1</i> ; <i>chaA1</i>
MG67	<i>nimA7</i> ; Δ <i>An-bud14::pyrG^{AF}</i> (<i>pyrG89</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>riboA1</i> ; <i>pyroA4</i> ; <i>nicB8/A2?</i> ; <i>wA3</i>
MG10	Δ <i>An-ssz1::pyrG^{AF}</i> (<i>pyrG89</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>pyroA4</i> ; <i>nirA14</i> ; <i>sE15</i> , <i>wA3</i> ; <i>fwA1</i> ; <i>chaA1</i>
MG62	<i>nimA7</i> ; Δ <i>An-ssz1::pyrG^{AF}</i> (<i>pyrG89</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>riboA1</i> ; <i>pyroA4</i> ; <i>nicB8/A2?</i> ; <i>wA3</i>
MG12	Δ <i>An-dot1::pyrG^{AF}</i> (<i>pyrG89</i>); Δ <i>nKuA^{Ku70}</i> :: <i>argB</i> (<i>argB2</i>); <i>pyroA4</i> ; <i>nirA14</i> ;

	<i>sE15, wA3; fwA1; chaA1</i>
MG63	<i>nimA7; ΔAn-dot1::pyrG^{AF} (pyrG89); ΔnKuA^{Ku70}::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3</i>
MG22	<i>ΔAn-mph1::pyrG^{AF} (pyrG89); ΔnKuA^{Ku70}::argB(argB2); pyroA4; nirA14; sE15, wA3; fwA1; chaA1</i>
MG68	<i>nimA7; ΔAn-mph1::pyrG^{AF} (pyrG89); ΔnKuA^{Ku70}::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3</i>
MG14	<i>ΔAn-hsl7::pyrG^{AF} (pyrG89); ΔnKuA^{Ku70}::argB(argB2); pyroA4; nirA14; sE15, wA3; fwA1; chaA1</i>
MG64	<i>nimA7; ΔAn-hsl7::pyrG^{AF} (pyrG89); ΔnKuA^{Ku70}::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3</i>
SO451	<i>pyrG89; ΔnKuA^{Ku70}::argB(argB2); pyroA4; nirA14; sE15, wA3; fwA1; chaA1</i>
MGH21	Heterokaryon carrying both WT <i>An-vps23</i> and <i>ΔAn-vps23::pyrG^{AF} (pyrG89); ΔnKuA^{Ku70}::argB(argB2); pyroA4; nirA14; sE15, wA3; fwA1; chaA1</i>
MGH26	Heterokaryon carrying both WT <i>An-vps25</i> and <i>ΔAn-vps25::pyrG^{AF} (pyrG89); ΔnKuA^{Ku70}::argB(argB2); pyroA4; nirA14; sE15, wA3; fwA1; chaA1</i>
MGH19	Heterokaryon carrying both WT <i>An-vps23</i> and <i>ΔAn-vps23::pyrG^{AF} (pyrG89); nimA7; ΔnKuA^{Ku70}::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3</i>
MGH14	Heterokaryon carrying both WT <i>An-vps25</i> and <i>ΔAn-vps25::pyrG^{AF} (pyrG89); nimA7; ΔnKuA^{Ku70}::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3</i>
MGH17	Heterokaryon carrying both WT <i>An-vps23</i> and <i>ΔAn-vps23::pyrG^{AF} (pyrG89); nimA7; ΔnKuA^{Ku70}::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3</i>
MG71	<i>nimA7; pyrG^{AF} insertion (pyrG89); ΔnKuA^{Ku70}::argB (argB2); riboA1; pyroA4; nicB8/A2?; wA3</i>
MGH53	Heterokaryon carrying both WT <i>An-vps28</i> and <i>ΔAn-vps28::pyrG^{AF} (pyrG89); ΔnKuA^{Ku70}::argB(argB2); pyroA4; nirA14; sE15, wA3; fwA1; chaA1</i>
MGH55	Heterokaryon carrying both WT <i>An-vps28</i> and <i>ΔAn-vps28::pyrG^{AF} (pyrG89); nimA7; ΔnKuA^{Ku70}::argB (argB2); riboA1; pyroA4; nicB8/A2?;</i>

	wA3
MGH49	Heterokaryon carrying both WT <i>An-vps24</i> and $\Delta An-vps24::pyrG^{AF}$ (<i>pyrG89</i>); $\Delta nKuA^{Ku70}::argB(argB2)$; <i>pyroA4</i> ; <i>nirA14</i> ; <i>sE15</i> , wA3; <i>fwA1</i> ; <i>chaA1</i>
MGH51	Heterokaryon carrying both WT <i>An-vps24</i> and $\Delta An-vps24::pyrG^{AF}$ (<i>pyrG89</i>); <i>nimA7</i> ; $\Delta nKuA^{Ku70}::argB(argB2)$; <i>riboA1</i> ; <i>pyroA4</i> ; <i>nicB8/A2?</i> ; wA3
MGH57	Heterokaryon carrying both WT <i>An-vps36</i> and $\Delta An-vps36::pyrG^{AF}$ (<i>pyrG89</i>); $\Delta nKuA^{Ku70}::argB(argB2)$; <i>pyroA4</i> ; <i>nirA14</i> ; <i>sE15</i> , wA3; <i>fwA1</i> ; <i>chaA1</i>
MGH59	Heterokaryon carrying both WT <i>An-vps36</i> and $\Delta An-vps36::pyrG^{AF}$ (<i>pyrG89</i>); <i>nimA7</i> ; $\Delta nKuA^{Ku70}::argB(argB2)$; <i>riboA1</i> ; <i>pyroA4</i> ; <i>nicB8/A2?</i> ; wA3
MGH45	Heterokaryon carrying both WT <i>An-vps4</i> and $\Delta An-vps4::pyrG^{AF}$ (<i>pyrG89</i>); $\Delta nKuA^{Ku70}::argB(argB2)$; <i>pyroA4</i> ; <i>nirA14</i> ; <i>sE15</i> , wA3; <i>fwA1</i> ; <i>chaA1</i>
MGH47	Heterokaryon carrying both WT <i>An-vps4</i> and $\Delta An-vps4::pyrG^{AF}$ (<i>pyrG89</i>); <i>nimA7</i> ; $\Delta nKuA^{Ku70}::argB(argB2)$; <i>riboA1</i> ; <i>pyroA4</i> ; <i>nicB8/A2?</i> ; wA3

? Indicates marker might be present but covered by another mutation or the allele present not known.