











Y' Probe

В

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TG Probe











В





Plat	ed Strains				Identity of FOA [®] Colonies
TLC1+ CDC13+ + pURA3[CDC13]	DLY6440			6 🛛 🔅 👘 👘	CDC13+ TLC1+
TLC1+ CDC13+ + pURA3[CDC13]	DLY6441			🕘 🔮 🧐 🗍	CDC13 ⁺ TLC1 ⁺
pif1∆ exo1∆ TLC1⁺ CDC13⁺ + pURA3[CDC13]	DLY6442		🕘 🕘 🏶 🏶 🐍	🕒 🔮 🏶 🥵 👘 👘	CDC13 $^{+}$ TLC1 $^{+}$ exo1 Δ pif1 Δ
pif1∆ exo1∆ TLC1⁺ CDC13⁺ + pURA3[CDC13]	DLY6443	• • • • • •	🔵 🕘 🕲 🛞 🚳 🚳	🌒 🌒 🍪 🍪 🖓	CDC13 $^{+}$ TLC1 $^{+}$ exo1 Δ pif1 Δ
tlc1∆ CDC13+ + pURA3[CDC13]	DLY6444	•••••	🕒 🕘 🍩 🚿 🗧 🗧	🕘 🚳 🖓 🖓 stationed	CDC13⁺ tlc1∆
tlc1∆ CDC13⁺ + pURA3[CDC13]	DLY6445	🔵 🕘 🔮 🏘 🗧 🐥	🕒 🌒 🌒 🎲 🦃 💭	🕘 🥵 j 🌮 🖓 - S	CDC13⁺ tlc1∆
pif1∆ exo1∆ tlc1∆ CDC13 * + pURA3[CDC13]	DLY6446	🔵 🌒 🌒 🛞 🎨 🔅	🕒 🚳 🏟 🎲 😁		CDC13⁺ tlc1∆ exo1∆ pif1∆
pif1∆ exo1∆ tlc1∆ CDC13⁺ + pURA3[CDC13]	DLY6447	🗶 🌢 🌒 🏶 🔍 < /	Q O O O V V		CDC13 $^{+}$ tlc1 Δ exo1 Δ pif1 Δ
TLC1⁺ cdc13∆ + pURA3[CDC13]	DLY6448	· * * • • • •	• • • • • •		N/A
$TLC1^+$ cdc13 Δ + pURA3[CDC13]	DLY6449	••*	• • • • • •		N/A
pif1 Δ exo1 Δ TLC1 $^{+}$ cdc13 Δ + pURA3[CDC13]	DLY6450	🔘 🎯 🍈 🍈 🤹		🌸 🎎 AR an ing ang ang ang ang ang ang ang ang ang a	cdc13 Δ TLC1 $^+$ exo1 Δ pif1 Δ
pif1 Δ exo1 Δ TLC1 $^+$ cdc13 Δ + pURA3[CDC13]	DLY6451		🔘 🍭 🌒 🏶 🥵 🧭	🏶 - 🏇 (Berlin 1997)	cdc13 Δ TLC1 $^+$ exo1 Δ pif1 Δ
$tlc1\Delta$ cdc13 Δ + pURA3[CDC13]	DLY6452	● ● 微 微 私 トー	🕒 · 🕲 🞯 🍇 👌 🐇		N/A
$tlc1\Delta cdc13\Delta + pURA3[CDC13]$	DLY6453	🔘 🌒 🌒 🏶 😵 👘	• • • • • • • •		N/A
pif1 Δ exo1 Δ tlc1 Δ cdc13 Δ + pURA3[CDC13]	DLY6454	🌑 🚳 🍕 👌 🖓		۲	N/A
$pif1\Delta exo1\Delta tlc1\Delta cdc13\Delta + pURA3[CDC13]$	DLY6455				N/A
YKU70* CDC13* + pURA3[CDC13]	DLY6520		•••	•••*	CDC13 ⁺ YKU70 ⁺
YKU70⁺ CDC13⁺ + pURA3[CDC13]	DLY6521		• • • • • •	ية & & @	CDC13 ⁺ YKU70 ⁺
pif1 Δ exo1 Δ YKU70 ⁺ CDC13 ⁺ + pURA3[CDC13]	DLY6522	• • • • • • •	• • • * * *	🔍 🏶 🏶 🎄 🕹 💰	CDC13⁺ YKU70⁺ exo1∆ pif1∆
pif1∆ exo1∆ YKU70⁺ CDC13⁺ + pURA3[CDC13]	DLY6523	●●●◎ ◎ № .	🕒 🕘 🚳 🏘 🔅 🔅	• • • • •	CDC13⁺ YKU70⁺ exo1∆ pif1∆
yku70∆ CDC13⁺ + pURA3[CDC13]	DLY6524	•••••	🕒 🕲 🏶 🎋 📜	🕒 🕘 🔮 🏶 😘 🍕	CDC13⁺ yku70∆
yku70∆ CDC13⁺ + pURA3[CDC13]	DLY6525	•••	🔮 🏟 🏘 Polisi se	🔍 🕘 🏶 🏶 👻 🗧	CDC13⁺ yku70∆
pif1 Δ exo1 Δ yku70 Δ CDC13 $^{+}$ + pURA3[CDC13]	DLY6526		O CONTRACTOR OF THE	• • • • • •	CDC13⁺ yku70∆ exo1∆ pif1∆
pif1 Δ exo1 Δ yku70 Δ CDC13 ⁺ + pURA3[CDC13]	DLY6527	0000	🧶 😵 🤅 👘	♥●● ♦ ₩ '/	CDC13 $^{+}$ yku70 Δ exo1 Δ pif1 Δ
YKU70⁺ cdc13∆ + pURA3[CDC13]	DLY6528		• • • • • *	0	N/A
YKU70 ⁺ cdc13 Δ + pURA3[CDC13]	DLY6529	••••	• • • • • • *		N/A
$pif1\Delta exo1\Delta YKU70^{+} cdc13\Delta + pURA3[CDC13]$	DLY6530	🔵 🕘 🌒 🏶 🤄 🔸	🕒 🕘 🚳 🍪 🏕 🖓	🐠 🤹 🤤 👘	cdc13∆ YKU70 * exo1∆ pif1∆
$pif1\Delta exo1\Delta YKU70^{+} cdc13\Delta + pURA3[CDC13]$	DLY6531			🎒 🐼 🖄 🔹 🔸	cdc13 Δ YKU70⁺ exo1 Δ pif1 Δ
yku70 Δ cdc13 Δ + pURA3[CDC13]	DLY6532	•••*	🔍 🌒 🏶 🏶 🕵 👟		N/A
yku70 Δ cdc13 Δ + pURA3[CDC13]	DLY6533	••• * : :		0	N/A
pif1 Δ exo1 Δ yku70 Δ cdc13 Δ + pURA3[CDC13]	DLY6534	● ● <i>● ● </i> < · .	• • • • • :	0	N/A
$pif1\Delta exo1\Delta yku70\Delta cdc13\Delta + pURA3[CDC13]$	DLY6535	🗶 🏶 🎯 🏶 🔹 🗸	• • • • •		N/A

YEPD

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FOA

ed Strains				Identity of FOA ^R Colonies
DLY6552			••••	CDC13+ RAD52+
DLY6553	••••	🔵 🕘 🕘 🍪 🐺 🐺	🗣 🚳 🔮 🖓 📣	CDC13+ RAD52+
DLY6554		🌒 🌒 🍘 🏶 🌜 🦂		CDC13 $^{+}$ RAD52 $^{+}$ exo1 Δ pif1 Δ
DLY6555	🔘 🌒 🌒 🍈 🌍 44		• • • •	CDC13 $^{+}$ RAD52 $^{+}$ exo1 Δ pif1 Δ
DLY6556	🔘 🛞 🌸 🕂 🕐	🌑 🚳 🚓 😤 🖉	🜒 🤪 🐉 🐨	CDC13⁺ rad52∆
DLY6557	🔘 🍥 🌸 🖧 🗉	🌒 🚳 😤 😓 Son 🤞	🜒 🕲 🤹 🖓 👘	CDC13⁺ rad52∆
DLY6558	🎯 🛞 🍥 🚸 😒	🎯 🍩 💿 ² .	🐵 🚳 🦓 🖓 👘	CDC13⁺ rad52∆ exo1∆ pif1∆
DLY6559	🗶 🕘 🏟 👌 🔗 🍃		Q @ &	CDC13 * rad52 Δ exo1 Δ pif1 Δ
DLY6560				N/A
DLY6561		🔹 🔿 🔿 🤗 🍪 🐇		N/A
DLY6562	🕘 🕘 🌼 🦛 🕷	🔵 🕘 🎯 🏶 🗧 🕘	🏟 🦀 🦂 🖞 👘	cdc13∆ RAD52⁺ exo1∆ pif1∆
DLY6563	. 4 0 0 0	🕒 🎃 🌒 🏶 😣 💉	🏶 👍 😳	cdc13∆ RAD52⁺ exo1∆ pif1∆
DLY6564	🔵 🕘 🍪 🛸 👶 👘	🍯 🗶 🕸 🖓 🖓	0	N/A
DLY6565	🔘 🌒 🛞 🔥 😓 👘	🍥 🌒 🖓 🖓 🖓 👘	0.000	N/A
DLY6566	🕘 🎯 🧐 S	🎯 🐵 🤃 terrer	8 . · · · · · · · · · · · · · · · · · ·	N/A
DLY6567				N/A
DLY6456	* \$ \$ \$ \$ \$		🌘 🌒 🌒 🔅 🕓	CDC13+ POL32+
DLY6457		🔵 🔘 🎯 🧶 🦥	🔵 🕘 🏶 🏟 😒 👉	CDC13+ POL32+
DLY6458	O O O O O S S	🕘 🚳 🍪 🌔	🕘 🧶 🏶 😓 🔬 🕚	CDC13+ POL32+ $exo1\Delta pif1\Delta$
DLY6459	• • • • •	🕒 🔘 🕼 🎕 🦑 👘	🍥 🍯 🎕 🖽 Ng Na	CDC13⁺ POL32⁺ exo1∆ pif1∆
DLY6460	🔘 🌒 🌒 🚜 😚 👘	🕘 : 🕲 🦛 👘 👘 👘		CDC13⁺ pol32∆
DLY6461	🔘 🕘 🛞 🚓 🐇 🦂	🌒 🎯 🖓 🖓 Argana 👘	🔿 🔿 🔅	CDC13⁺ pol32∆
DLY6462	ې چې کې کې کې		🍥 🏶 👌 👘	CDC13⁺ pol32∆ exo1∆ pif1∆
DLY6463	🌘 🕘 🎕 🧒 🖓 🤘	X 8 8 8 9 7		CDC13 * pol32 Δ exo1 Δ pif1 Δ
DLY6464		🌔 🌒 🌒 🌒 🚸 📲	0.0	N/A
DLY6465	• • • • • •	• • • • •	0.0	N/A
DLY6466	🔘 🗶 📽 🎄 💈	🕒 🕘 🕲 🍪 🚳 🕚		cdc13∆ POL32⁺ exo1∆ pif1∆
DLY6467	🔘 🖉 🎲 🎲 🌾	🕘. 🎯 🎯 🛞 🏦 🔅	🏶 🚳 AS 🦾 Subara	cdc13∆ POL32 * exo1∆ pif1∆
DLY6468	• • • • • •	🔵 🧶 🏶 🌾 😁	0 0	N/A
DLY6469	🔘 🌒 🏶 🤮 🤌 🤸	单 🖗 🎂 🔅 😵	0	CDC13 ⁺ pol32∆ (Contamination)
DLY6470	🕒 🌒 🌒 🍕 🎋	🔵 🗶 🏶 🏶 🕘	🌒 - O.,	cdc13 Δ pol32 Δ exo1 Δ pif1 Δ
DLY6471		🗶 🌢 🏶 🕉 🏑		cdc13 Δ pol32 Δ exo1 Δ pif1 Δ
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Plate

r late
RAD52⁺ CDC13⁺ + pURA3[CDC13]
RAD52⁺ CDC13⁺ + pURA3[CDC13]
pif1∆ exo1∆ RAD52⁺ CDC13⁺ + pURA3[CDC13]
pif1∆ exo1∆ RAD52⁺ CDC13⁺ + pURA3[CDC13]
rad52∆ CDC13⁺ + pURA3[CDC13]
rad52∆ CDC13⁺ + pURA3[CDC13]
pif1∆ exo1∆ rad52∆ CDC13⁺ + pURA3[CDC13]
pif1 Δ exo1 Δ rad52 Δ CDC13 $^+$ + pURA3[CDC13]
RAD52⁺ cdc13∆ + pURA3[CDC13]
$RAD52^{+} cdc13\Delta + pURA3[CDC13]$
pif1 Δ exo1 Δ RAD52 ⁺ cdc13 Δ + pURA3[CDC13]
pif1 Δ exo1 Δ RAD52 ⁺ cdc13 Δ + pURA3[CDC13]
rad52∆ cdc13∆ + pURA3[CDC13]
rad52∆ cdc13∆ + pURA3[CDC13]
pif1 Δ exo1 Δ rad52 Δ cdc13 Δ + pURA3[CDC13]
pif1 Δ exo1 Δ rad52 Δ cdc13 Δ + pURA3[CDC13]
POL32+ CDC13+ + pURA3[CDC13]
POL32+ CDC13+ + pURA3[CDC13]
pif1∆ exo1∆ POL32+ CDC13+ + pURA3[CDC13]
pif1∆ exo1∆ POL32⁺ CDC13⁺ + pURA3[CDC13]
pol32∆ CDC13⁺ + pURA3[CDC13]
pol32∆ CDC13⁺ + pURA3[CDC13]
pif1∆ exo1∆ pol32∆ CDC13+ + pURA3[CDC13]
pif1∆ exo1∆ pol32∆ CDC13⁺ + pURA3[CDC13]
POL32⁺ cdc13∆ + pURA3[CDC13]
POL32⁺ cdc13∆ + pURA3[CDC13]
pif1 Δ exo1 Δ POL32 * cdc13 Δ + pURA3[CDC13]
pif1 Δ exo1 Δ POL32 [*] cdc13 Δ + pURA3[CDC13]
pol32∆ cdc13∆ + pURA3[CDC13]
pol32∆ cdc13∆ + pURA3[CDC13]
pif1 Δ exo1 Δ pol32 Δ cdc13 Δ + pURA3[CDC13]
$pif1\Delta exo1\Delta pol32\Delta cdc13\Delta + pURA3[CDC13]$







Diploid I	Spores Dissected	EXO1 ⁺ CDC13 ⁺ colonies (expected)	EXO1 ⁺ CDC13 ⁺ colonies (observed)	<i>ptj1</i> Δ <i>exo1</i> Δ <i>CDC13</i> ⁺ colonies (observed)	<i>ptj1∆</i> <i>exo1∆ cdc13∆</i> colonies (observed)	<i>cdc13∆/CDC13</i> ⁺ viability (%)
DDY340	176	22	17	13	12	92
DDY341	176	22	23	19	16	84

Supplementary Table I