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Optogenetic control project
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Cell cycle genes used with the TULIPs system

Gene	Arrest	Method/Hypothesis	Citation
RRP14	M	**Dimerization** to SSF1 so it can't function at budding sites.	1
RPT1	G2 metaphase	**Dimerization** to Rpn1 to inhibit functionality.	2
RPT6	G2 metaphase	**Dimerization** to Rpn1 to inhibit functionality.	2
FAR1 (FAR1p-22)	Start	**Split** protein, activates upon dimerization.	3
Whi5	G1	**Split** protein so that its exportation from nucleus is disrupted. Both halves may still retain functionality, but it is **relocalized** to the nucleus	4
Whi3/cdc28/cln3	G1	**Split** Whi3, or treat Whi3 and Cdc28 as two halves. Dimerization of Whi3 halves, or dimerization of Whi3 to Cdc28 arrests the cell cycle by inhibiting Cdc28's entry into the nucleus, thus **localizing** them to the cytosol	5
Cdc14	Late anaphase	Bind to Net1, so that it is **relocalized** to the nucleolus, and kept inactivated.	6
Clf1	G2/M	**Localize away**, interrupting the APC.	7
Bub1	M	**Split** mutant version of the protein that can't be phosphorylated, and is therefore resistant to degradation and persists when dimerized.	8
Cdc15	M	**Localize** to plasma membrane (away from nucleus)	9

Chk1	G2/M	**Split** and mutated to a more persistent variant of the protein that prolongs the checkpoint. Dimerization activates this protein	10
Tub1/2	M	**Localize** away, preventing spindle assembly	11
Tub4/Spc97/Spc98	M	**Localize** Tub4 to the nucleus	12
Kap95	G2/M	**Localize** to the nuclear membrane	13
Swe1	G2	**Split** protein, activates upon dimerization and looks like overexpression	14
Tel1	G2/M	**Split** protein, activates upon dimerization and looks like overexpression	15

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