

Table S1. Previously reported synthetic effects with *pif1Δ*

| Gene | Synthetic Effect | Experiment Type |
|--------------|------------------|---|
| <i>TOP3</i> | Lethal | Manually Curated(WAGNER <i>et al.</i> 2006) |
| <i>CCR4</i> | Growth Defect | High Throughput(PAN <i>et al.</i> 2006)* |
| <i>DIA2</i> | Growth Defect | Manually Curated(BLAKE <i>et al.</i> 2006) & High Throughput(PAN <i>et al.</i> 2006)* |
| <i>EAF3</i> | Growth Defect | High Throughput(LIN <i>et al.</i> 2008)* |
| <i>EAF6</i> | Growth Defect | High Throughput(LIN <i>et al.</i> 2008)* |
| <i>LTE1</i> | Growth Defect | High Throughput(YE <i>et al.</i> 2005)* |
| <i>MMS22</i> | Growth Defect | High Throughput(PAN <i>et al.</i> 2006)* |
| <i>PHB1</i> | Growth Defect | High Throughput(OSMAN <i>et al.</i> 2009) |
| <i>POP2</i> | Growth Defect | High Throughput(PAN <i>et al.</i> 2006)* |
| <i>RAD27</i> | Growth Defect | High Throughput(PAN <i>et al.</i> 2006)* |
| <i>RAD3</i> | Growth Defect | Manually Curated(MORIEL-CARRETERO and AGUILERA 2010) |
| <i>RAD53</i> | Growth Defect | High Throughput(PAN <i>et al.</i> 2006)* |
| <i>RRD1</i> | Growth Defect | Manually Curated(ZHANG and DUROCHER 2010) |
| <i>SGS1</i> | Growth Defect | High Throughput(PAN <i>et al.</i> 2004) & Manually Curated(WAGNER <i>et al.</i> 2006) |
| <i>TLC1</i> | Growth Defect | Manually Curated(DEWAR and LYDALL 2010) |
| <i>YKU70</i> | Growth Defect | Manually Curated(ZHANG and DUROCHER 2010) |

*Indicates that a hit from a high throughput screen was verified through random spore analysis, tetrad dissection or both.