

**Table S7: Selected SQ/TQ phosphopeptides**

red: S/TQ phosphopeptides

| Protein | SwissProt | SGD                          | Sequence  | Variable modifications<br>([position] description) | site found<br>by Chen et<br>al., 2010 | pRS site<br>probability | log2 Ratio              |                                  |                                   | T-test          |                          |             | Normalized abundance           |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       |                       | m/z      | Charge   | Best peptide<br>match/<br>Score |                       |       |
|---------|-----------|------------------------------|---|--|---------------------------------------|-------------------------|-------------------------|----------------------------------|-----------------------------------|-----------------|--------------------------|-------------|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------|----------|---------------------------------|-----------------------|-------|
|         |           |                              |   |  |                                       |                         | mutant vs WT            |                                  |                                   | mutant vs WT    |                          |             | wt                             |                       |                       | rad53                 |                       |                       | mec1-100-tel1         |                       |                       | mec1-100-tel1-pph3    |                       |                       |          |          |                                 |                       |       |
|         |           |                              |   |  |                                       |                         | rad53 vs.<br>100 vs. WT | tel1 mec1-<br>100 pph3 vs.<br>WT | tel1 mec1-<br>100 pph3 vs.<br>100 | rad53 vs.<br>WT | tel1 mec1-<br>100 vs. WT | pph3 vs. WT | rad53 vs.<br>tel1 mec1-<br>100 | 131114_198<br>1-1_3ul | 131114_198<br>1-2_3ul | 131114_198<br>1-3_3ul | 131115_737<br>3-1_3ul | 131115_737<br>3-2_3ul | 131115_737<br>3-3_3ul | 131116_691<br>3-1_3ul | 131116_691<br>3-2_3ul | 131116_691<br>3-3_3ul | 131115_773<br>4-1_3ul | 131115_773<br>4-2_3ul |          |          |                                 | 131115_773<br>4-3_3ul |       |
| BCD1    | YHR040W   | FIDMARREEAEEDSQPTPEPVK       | [15] Phospho (ST)                                   | +  | 100.0                                 |                         | 1.01                    | -1.44                            | -1.16                             | 2.45            | 0.001                    | 0.004       | 0.006                          | 0.00                  | 6.13E+04              | 4.76E+04              | 7.41E+04              | 1.29E+05              | 1.22E+05              | 1.17E+05              | 2.30E+04              | 2.10E+04              | 2.34E+04              | 2.56E+04              | 2.55E+04 | 3.05E+04 | 962.407596                      | 3                     | 53.88 |
| BDP1    | YLR399C   | ALSQEQRSR                    | [3] Phospho (ST)                                    | +  | 100.0                                 |                         | 0.83                    | -0.72                            | -1.79                             | 1.55            | 0.107                    | 0.255       | 0.109                          | 0.01                  | 5.56E+03              | 5.32E+02              | 7.50E+03              | 8.33E+03              | 5.86E+03              | 1.01E+04              | 1.79E+03              | 3.21E+03              | 3.23E+03              | 2.81E+03              | 8.02E+02 | 2.92E+02 | 564.24118                       | 2                     | 31.66 |
| CBF1    | YLR060W   | DQGLLSQESNDGNDISALLSEGATLK   | [6] Phospho (ST)[9] Phospho                         | +  | 100.0, 100.0                          |                         | 0.14                    | -0.95                            | -2.11                             | 1.09            | 0.377                    | 0.057       | 0.103                          | 0.03                  | 9.11E+04              | 7.60E+04              | 3.93E+04              | 6.27E+04              | 1.05E+05              | 5.98E+04              | 2.70E+04              | 4.71E+04              | 3.25E+04              | 1.64E+04              | 1.31E+04 | 1.84E+04 | 945.750341                      | 3                     | 38.85 |
| CBF5    | YLR175W   | EYVPLDNGAESSTSSQETK          | [18] Phospho (ST)                                   | +  | 99.4                                  |                         | 2.19                    | 0.04                             | -0.62                             | 2.16            | 0.001                    | 0.413       | 0.003                          | 0.00                  | 2.68E+05              | 2.18E+05              | 2.52E+05              | 1.36E+06              | 1.11E+06              | 9.00E+05              | 2.14E+05              | 2.91E+05              | 2.52E+05              | 1.68E+05              | 1.45E+05 | 1.67E+05 | 1096.96527                      | 2                     | 38.96 |
| CD33    | YLR014W   | KGESQNTIEEK                  | [4] Phospho (ST)                                    | -  | 99.9                                  |                         | 1.84                    | 0.45                             | 0.72                              | 1.39            | 0.005                    | 0.071       | 0.084                          | 0.01                  | 2.18E+03              | 1.98E+03              | 3.55E+03              | 6.78E+03              | 9.49E+03              | 1.14E+04              | 3.28E+03              | 3.47E+03              | 3.78E+03              | 5.94E+03              | 3.04E+03 | 3.77E+03 | 728.339427                      | 2                     | 34.55 |
| CD33    | YLR314C   | DYEEELANDQEEEGGQEGGHENSOEQER | [24] Phospho (ST)                                   | -  | 100.0                                 |                         | 1.05                    | -0.25                            | -0.40                             | 1.30            | 0.015                    | 0.254       | 0.108                          | 0.01                  | 1.11E+05              | 6.65E+04              | 8.54E+04              | 1.11E+05              | 1.11E+05              | 1.39E+05              | 4.82E+04              | 9.70E+04              | 7.61E+04              | 7.77E+04              | 5.51E+04 | 6.64E+04 | 1129.43366                      | 3                     | 20.36 |
| DEP1    | YAL013W   | SQQTPESEQTAK                 | [N-term] Acetyl (Protein N-ter)                     | -  | 100.0                                 |                         | 0.45                    | -0.82                            | -1.32                             | 1.27            | 0.167                    | 0.111       | 0.053                          | 0.02                  | 2.01E+04              | 7.81E+03              | 2.15E+04              | 2.91E+04              | 2.04E+04              | 1.81E+04              | 4.56E+03              | 1.19E+04              | 1.15E+04              | 1.01E+04              | 3.58E+03 | 6.07E+03 | 842.856673                      | 2                     | 18.28 |
| ERG6    | YML008C   | KPENAEPTSQSQEATQ             | [16] Phospho (ST)                                   | -  | 100.0                                 |                         | 3.33                    | 0.08                             | -0.64                             | 3.25            | 0.001                    | 0.460       | 0.262                          | 0.00                  | 4.46E+02              | 1.60E+02              | 8.33E+02              | 6.09E+03              | 4.23E+03              | 4.50E+03              | 6.47E+02              | 1.72E+02              | 7.04E+02              | 0.00E+00              | 3.91E+02 | 5.24E+02 | 963.410982                      | 2                     | 38.02 |
| GOS1    | YHL031C   | SQFHSGNVLNTANNK              | [1] Phospho (ST)                                    | -  | 100.0                                 |                         | 0.47                    | -0.75                            | -0.07                             | 1.12            | 0.101                    | 0.111       | 0.386                          | 0.04                  | 1.48E+04              | 1.59E+04              | 2.08E+04              | 1.74E+04              | 2.24E+04              | 2.70E+04              | 1.45E+04              | 1.49E+04              | 1.35E+03              | 1.53E+04              | 1.43E+04 | 1.97E+04 | 934.918784                      | 2                     | 62.36 |
| HIF1    | YLD022C   | PLGDFNLDLQVVK                | [9] Phospho (ST)                                    | -  | 100.0                                 |                         | 0.37                    | 1.20                             | 0.90                              | 3.26            | 0.024                    | 0.132       | 0.255                          | 0.03                  | 1.33E+02              | 2.62E+02              | 0.00E+00              | 2.47E+03              | 5.27E+03              | 1.74E+03              | 5.41E+02              | 1.16E+02              | 2.99E+02              | 5.37E+02              | 2.32E+02 | 0.00E+00 | 763.369769                      | 2                     | 23.07 |
| HIF1    | YLD022C   | RPLSQPTTSQGFPALEK            | [4] Phospho   | -  | 97.9                                  |                         | 2.23                    | 0.66                             | -0.03                             | 1.57            | 0.000                    | 0.093       | 0.476                          | 0.00                  | 7.90E+03              | 1.49E+04              | 6.83E+03              | 4.72E+04              | 4.92E+04              | 4.30E+04              | 2.08E+04              | 1.33E+04              | 1.28E+04              | 1.39E+04              | 1.02E+04 | 4.74E+03 | 641.332418                      | 3                     | 24.38 |
| HPR1    | YDR138W   | INSAQTEGDELK                 | [5] Phospho (ST)                                    | +  | 100.0                                 |                         | 2.78                    | -0.11                            | -1.04                             | 2.89            | 0.000                    | 0.332       | 0.042                          | 0.00                  | 6.93E+03              | 7.24E+03              | 1.04E+04              | 6.08E+04              | 4.88E+04              | 6.00E+04              | 6.85E+03              | 7.39E+03              | 8.60E+03              | 6.87E+03              | 2.25E+03 | 2.83E+03 | 736.319049                      | 2                     | 66.79 |
| HSP12   | YFL014W   | ASEALKPDSQKSYAEQKK           | [9] Phospho (ST)[13] Phospho                        | +  | 85.3, 85.4                            |                         | 4.55                    | -1.74                            | -0.46                             | 6.28            | 0.000                    | 0.173       | 0.357                          | 0.00                  | 1.64E+03              | 3.94E+02              | 1.18E+02              | 1.58E+04              | 1.85E+04              | 1.68E+04              | 2.33E+02              | 3.43E+02              | 4.74E+01              | 3.36E+02              | 3.26E+02 | 8.92E+02 | 699.636034                      | 3                     | 16.24 |
| HSP12   | YFL014W   | ASEALKPPDSQK                 | [9] Phospho (ST)                                    | +  | 100.0                                 |                         | 4.92                    | -0.36                            | -1.40                             | 5.29            | 0.002                    | 0.224       | 0.031                          | 0.00                  | 1.10E+04              | 5.62E+03              | 5.96E+03              | 2.41E+05              | 1.60E+05              | 2.85E+05              | 7.01E+03              | 3.90E+03              | 6.65E+03              | 3.85E+03              | 2.53E+03 | 2.19E+03 | 627.292143                      | 2                     | 42.09 |
| HTA2    | YBL007C   | TAKASQEL                     | [5] Phospho (ST)                                    | -  | 100.0                                 |                         | 3.94                    | -0.63                            | 1.29                              | 3.97            | 0.002                    | 0.153       | 0.050                          | 0.00                  | 7.89E+04              | 2.49E+04              | 5.56E+04              | 6.85E+05              | 4.65E+05              | 4.61E+05              | 2.68E+04              | 3.95E+04              | 3.63E+04              | 1.95E+05              | 9.44E+04 | 1.00E+05 | 464.212801                      | 2                     | 28.54 |
| HXT1    | YHR094C   | NESFHNLNSESQVQAVAPPNTGK      | [11] Phospho (ST)                                   | -  | 97.3                                  |                         | -0.23                   | -1.10                            | -0.44                             | 0.88            | 0.295                    | 0.013       | 0.081                          | 0.07                  | 3.87E+04              | 2.38E+04              | 3.56E+04              | 3.38E+04              | 1.47E+04              | 3.54E+04              | 1.21E+04              | 1.92E+04              | 1.43E+04              | 2.57E+04              | 2.02E+04 | 2.16E+04 | 662.301924                      | 4                     | 22.72 |
| IES4    | YDR189W   | SQESSVLNSEQQLANNPK           | [N-term] Acetyl (Protein N-ter different resc:47.9) | -  | 60.9                                  |                         | -0.69                   | -1.04                            | -2.30                             | 0.36            | 0.100                    | 0.005       | 0.000                          | 0.20                  | 4.46E+04              | 4.83E+04              | 4.51E+04              | 2.59E+04              | 3.74E+04              | 2.24E+04              | 1.38E+04              | 3.08E+04              | 2.24E+04              | 8.63E+03              | 7.84E+03 | 6.66E+03 | 1098.98687                      | 2                     | 73.35 |
| IOC2    | YLR095C   | SPQHTLSQR                    | [7] Phospho (ST)                                    | +  | 90.1                                  |                         | 2.39                    | -1.62                            | -2.92                             | 4.00            | 0.004                    | 0.120       | 0.072                          | 0.00                  | 2.66E+03              | 7.72E+02              | 6.39E+02              | 7.31E+03              | 5.38E+03              | 8.74E+03              | 4.83E+02              | 1.80E+02              | 6.44E+02              | 2.22E+02              | 1.69E+02 | 1.21E+02 | 567.258309                      | 2                     | 25.02 |
| ISW2    | YOR304W   | EDTPLQNESTR                  | [3] Phospho (ST)                                    | +  | 100.0                                 |                         | 2.79                    | 0.56                             | -0.14                             | 2.16            | 0.001                    | 0.116       | 0.384                          | 0.00                  | 1.82E+03              | 2.50E+03              | 4.37E+03              | 2.13E+04              | 1.54E+04              | 2.07E+04              | 5.41E+03              | 3.34E+03              | 4.06E+03              | 1.99E+03              | 2.65E+03 | 3.25E+03 | 728.800293                      | 2                     | 18.36 |
| ISW2    | YOR304W   | TSATREDTPLSQNESTR            | [11] Phospho (ST)                                   | +  | 100.0                                 |                         | 2.20                    | 0.20                             | -0.36                             | 2.00            | 0.003                    | 0.129       | 0.128                          | 0.00                  | 3.38E+03              | 4.53E+03              | 3.66E+03              | 2.28E+04              | 1.51E+04              | 1.53E+04              | 4.10E+03              | 4.92E+03              | 4.24E+03              | 3.98E+03              | 2.91E+03 | 2.13E+03 | 658.291707                      | 3                     | 32.65 |
| KIN2    | YLR096W   | RISQSQSQHPTR                 | [2] Phospho (ST)                                    | -  | 99.7                                  |                         | 1.35                    | -0.65                            | -0.13                             | 2.00            | 0.075                    | 0.310       | 0.438                          | 0.04                  | 1.32E+03              | 5.49E+03              | 1.36E+03              | 6.96E+03              | 3.59E+03              | 1.03E+04              | 4.20E+03              | 5.53E+02              | 4.26E+02              | 2.64E+03              | 1.70E+03 | 3.11E+03 | 781.365439                      | 2                     | 36.37 |
| LEO1    | YDR123C   | KQSQILR                      | [3] Phospho (ST)                                    | -  | 100.0                                 |                         | 1.40                    | -1.15                            | -0.69                             | 2.55            | 0.002                    | 0.007       | 0.013                          | 0.00                  | 3.37E+03              | 2.32E+03              | 3.05E+03              | 4.77E+03              | 6.59E+03              | 9.06E+03              | 1.69E+03              | 1.35E+03              | 8.74E+02              | 1.95E+03              | 1.65E+03 | 1.80E+03 | 476.751944                      | 2                     | 41.17 |
| MEC1    | YBR136W   | KVPTDPSSSQEYAK               | [9] Phospho (ST)                                    | +  | 33.3                                  |                         | 3.82                    | 2.79                             | 1.28                              | 1.03            | 0.001                    | 0.014       | 0.121                          | 0.02                  | 5.27E+00              | 7.15E+02              | 3.46E+02              | 7.47E+03              | 6.26E+03              | 4.48E+03              | 3.12E+03              | 1.32E+03              | 3.07E+03              | 4.39E+02              | 6.62E+02 | 1.51E+03 | 808.863415                      | 2                     | 26.89 |
| MLH1    | YMR167W   | VTVNHSQGEAK                  | [7] Phospho (ST)                                    | -  | 100.0                                 |                         | 3.38                    | 0.69                             | -1.19                             | 2.68            | 0.029                    | 0.043       | 0.033                          | 0.03                  | 1.35E+02              | 2.79E+02              | 1.75E+02              | 2.31E+03              | 7.89E+02              | 3.33E+03              | 3.86E+02              | 2.58E+02              | 3.31E+02              | 6.55E+01              | 1.14E+02 | 6.28E+01 | 704.8087                        | 2                     | 21.95 |
| MSH6    | YDR097C   | STTTDEDLSSQSR                | [11] Phospho (ST)                                   | +  | 98.8                                  |                         | 0.05                    | -1.32                            | -1.34                             | 1.37            | 0.457                    | 0.066       | 0.064                          | 0.01                  | 1.02E+04              | 3.20E+03              | 6.44E+03              | 8.41E+03              | 7.05E+03              | 5.19E+03              | 1.59E+03              | 3.26E+03              | 3.10E+03              | 3.63E+03              | 2.18E+03 | 2.03E+03 | 797.318456                      | 2                     | 25.65 |
| MSH6    | YDR097C   | STTTDEDLSSQSR                | [11] Phospho (ST)                                   | +  | 89.3                                  |                         | 0.49                    | -1.11                            | -0.85                             | 1.60            | 0.055                    | 0.019       | 0.053                          | 0.00                  | 2.82E+04              | 1.61E+04              | 1.90E+04              | 3.27E+04              | 2.59E+04              | 3.02E+04              | 9.84E+03              | 8.37E+03              | 1.10E+04              | 1.67E+04              | 7.41E+03 | 1.09E+04 | 875.368281                      | 2                     | 26.73 |
| NOP13   | YNL175C   | GSAIIVPSQK                   | [8] Phospho (ST)                                    | -  | 100.0                                 |                         | -0.15                   | -1.34                            | -0.91                             | 1.19            | 0.425                    | 0.152       | 0.213                          | 0.02                  | 5.91E+03              | 1.59E+03              | 1.47E+03              | 2.45E+03              | 2.85E+03              | 2.78E+03              | 4.66E+02              | 9.41E+02              | 2.12E+03              | 6.57E+02              | 1.34E+03 | 2.77E+03 | 547.762929                      | 2                     | 19.47 |
| NUP2    | YLR335W   | EESTTEATGNESQDATK            | [4] Phospho (ST)                                    | -  | 100.0                                 |                         | 2.21                    | -0.18                            | 0.29                              | 2.39            | 0.001                    | 0.375       | 0.345                          | 0.00                  | 8.98E+03              | 2.56E+03              | 5.28E+03              | 2.74E+04              | 2.82E+04              | 2.24E+04              | 4.11E+03              | 4.75E+03              | 5.98E+03              | 1.13E+04              | 4.54E+03 | 4.73E+03 | 939.368346                      | 2                     | 27.74 |
| PDS1    | YDR113C   | KLSQISR                      | [3] Phospho (ST)                                    | -  | 100.0                                 |                         | 0.47                    | -1.17                            | -0.79                             | 1.63            | 0.127                    | 0.026       | 0.112                          | 0.02                  | 1.28E+04              | 9.90E+03              | 8.37E+03              | 1.96E+04              | 1.10E+04              | 1.23E+04              | 2.72E+03              | 3.16E+03              | 7.93E+03              | 2.41E+03              | 4.05E+03 | 1.14E+04 | 456.238946                      | 2                     | 21.02 |
| PRP19   | YLD036C   | SSQQAIVTR                    | [2] Phospho (ST)                                    | +  | 92.5                                  |                         | 0.95                    | -0.15                            | -0.34                             | 1.09            | 0.001                    | 0.280       | 0.086                          | 0.00                  | 8.58E+04              | 7.19E+04              | 9.84E+04              | 1.78E+05              | 1.52E+05              | 1.63E+05              | 9.77E+04              | 7.02E+04              | 6.35E+04              | 7.31E+04              | 5.28E+04 | 7.70E+04 | 510.77413                       | 2                     | 49.98 |
| RFA1    | YAR007C   | FANFNPSQK                    | [8] Phospho (ST)                                    | +  | 100.0                                 |                         | 2.79                    | -0.08                            | 1.41                              | 2.87            | 0.010                    | 0.468       | 0.049                          | 0.01                  | 4.03E+04              | 1.12E+04              | 9.94E+03              | 1.99E+05              | 9.25E+04              | 1.33E+05              | 3.49E+04              | 1.20E+04              | 1.13E+04              | 7.20E+04              | 3.10E+04 | 6.03E+04 | 614.753219                      | 2                     | 25.38 |
| RFA2    | YNL312W   | GYGQVAQDFEIGYVK              | [4] Phospho (ST)                                    | +  | 91.8                                  |                         | 0.99                    | 1.54                             | 0.90                              | -0.55           | 0.056                    | 0.017       | 0.075                          | 0.11                  | 3.02E+04              | 7.24E+04              | 2.94E+04              | 1.07E+05              | 9.84E+04              | 5.59E+04              | 1.56E+05              | 1.43E+05              | 8.34E+04              | 8.26E+04              | 1.09E+05 |          |                                 |                       |       |