

Supporting Information

| Systematic name | Gene Name | Systematic name | Gene Name | Systematic name | Gene Name | Systematic name | Gene Name |
|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|
| YMR120C | ADE17 | YER023W | PRO3 | YIL052C | RPL34B | YIL069C | RPS24B |
| YMR300C | ADE4 | YGL062W | PYC1 | YDL191W | RPL35A | YGR027C | RPS25A |
| YGR061C | ADE6 | YBR218C | PYC2 | YDL136W | RPL35B | YLR333C | RPS25B |
| YMR169C | ALD3 | YLR075W | RPL10 | YLR325C | RPL38 | YGL189C | RPS26A |
| YPR145W | ASN1 | YPR102C | RPL11A | YPR043W | RPL43A | YER131W | RPS26B |
| YGR124W | ASN2 | YGR085C | RPL11B | YBR031W | RPL4A | YOR167C | RPS28A |
| YDR168W | CDC37 | YDL082W | RPL13A | YDR012W | RPL4B | YLR264W | RPS28B |
| YCR005C | CIT2 | YMR142C | RPL13B | YML073C | RPL6A | YJR145C | RPS4A |
| YLR216C | CPR6 | YKL006W | RPL14A | YLR448W | RPL6B | YHR203C | RPS4B |
| YML070W | DAK1 | YHL001W | RPL14B | YGL076C | RPL7A | YPL090C | RPS6A |
| YHR068W | DYS1 | YIL133C | RPL16A | YHL033C | RPL8A | YBR181C | RPS6B |
| YPL037C | EGD1 | YKL180W | RPL17A | YLL045C | RPL8B | YNL096C | RPS7B |
| YMR250W | GAD1 | YJL177W | RPL17B | YGL147C | RPL9A | YBL072C | RPS8A |
| YDL215C | GDH2 | YNL301C | RPL18B | YDL130W | RPP1B | YER102W | RPS8B |
| YPR160W | GPH1 | YBL027W | RPL19B | YOL039W | RPP2A | YPL081W | RPS9A |
| YKL152C | GPM1 | YPL220W | RPL1A | YMR230W | RPS10B | YBR189W | RPS9B |
| YLR192C | HCR1 | YGL135W | RPL1B | YDR025W | RPS11A | YOR007C | SGT2 |
| YCL030C | HIS4 | YMR242C | RPL20A | YBR048W | RPS11B | YAL005C | SSA1 |
| YLL026W | HSP104 | YOR312C | RPL20B | YMR143W | RPS16A | YNL209W | SSB2 |
| YPL240C | HSP82 | YBR191W | RPL21A | YDL083C | RPS16B | YLR150W | STM1 |
| YFR053C | HXK1 | YPL079W | RPL21B | YML024W | RPS17A | YBR126C | TPS1 |
| YBL076C | ILS1 | YLR061W | RPL22A | YDR447C | RPS17B | YML100W | TSL1 |
| YLR432W | IMD3 | YGL031C | RPL24A | YDR450W | RPS18A | YJR103W | URA8 |
| YML056C | IMD4 | YGR148C | RPL24B | YML026C | RPS18B | YJR014W | YJR014W |
| YOR232W | MGE1 | YLR344W | RPL26A | YML063W | RPS1B | YOR251C | YOR251C |
| YJL042W | MHP1 | YGR034W | RPL26B | YKR057W | RPS21A | YPL009C | YPL009C |
| YER165W | PAB1 | YDR471W | RPL27B | YJL136C | RPS21B | YNL241C | ZWF1 |
| YGR087C | PDC6 | YOR063W | RPL3 | YGR118W | RPS23A | | |
| YGR240C | PFK1 | YLR406C | RPL31B | YPR132W | RPS23B | | |
| YMR205C | PFK2 | YOR234C | RPL33B | YER074W | RPS24A | | |

Supplemental Table 1. Roughly a third of detectable exclusively cytoplasmic proteins (117/395) became significantly more insoluble following a two hour heat stress at 42°C (95% confidence level, Z-score ≥ 1.96).

| Systematic Name | Gene Name |
|-----------------|-----------|
| YGL234W | ADE5,7 |
| YOR335C | ALA1 |
| YGL105W | ARC1 |
| YDR127W | ARO1 |
| YGR155W | CYS4 |
| YPR035W | GLN1 |
| YCL030C | HIS4 |
| YMR186W | HSC82 |
| YDR171W | HSP42 |
| YPL240C | HSP82 |
| YER165W | PAB1 |
| YDR450W | RPS18A |
| YHL034C | SBP1 |
| YAL005C | SSA1 |
| YDL229W | SSB1 |
| YNL209W | SSB2 |
| YKL081W | TEF4 |
| YIL078W | THS1 |
| YJL130C | URA2 |
| YGR094W | VAS1 |
| YGR234W | YHB1 |

Supplemental Table 2. Among the 50 cytoplasmic proteins that co-immunoprecipitate with Hsp82-GFP, a significant number (21) are also known to form intracellular foci (hypergeometric $p \leq 10^{-3}$ for proteins identified at the 97.7% confidence level, Z-score ≥ 2).