**Figure S1.** Spectrum corresponding to the quantification of phosphorylation of Thr-31 for eIF2β. Inset in upper right corner is a zoom in view of the reporter TMT (tandem mass tag) ions.
Figure S2. Spectrum corresponding to the quantification of phosphorylation of Ser-67 for eIF2β. Inset in upper right corner is a zoom in view of the reporter TMT ions.

ITMS2 ($m/z = 1104.0$, $z = 2$)
eIF2β
Ser-67
**Figure S3.** Spectrum corresponding to the quantification of phosphorylation of Ser-105 and Thr-111 for eIF2β. Inset in upper right corner is a zoom in view of the reporter TMT ions.

ITMS2 ($m/z = 1469.2, z = 2$)

*eIF2β*

Ser-105

Thr-111
Figure S4. Spectrum corresponding to the quantification of phosphorylation of Ser-158 for eIF2β. Inset in upper right corner is a zoom in view of the reporter TMT ions.

\[ ^{15}D\text{O}G\text{I}^{\text{S}}\text{F}^{\text{S}}\text{N}^{\text{O}}\text{T}^{\text{G}}\text{P-A\text{N}}^{\text{A}}\text{G-S}\text{E-R} \]

ITMS2 \((m/z = 1110.5, z = 2)\)  
eIF2β  
Ser-158
Figure S5. Spectrum corresponding to the quantification of phosphorylation of Ser-55 and Thr-56 for eIF2γ. Inset in upper right corner is a zoom in view of the reporter TMT ions.

ITMS2 (m/z = 1403.8, z = 2)

eIF2γ
Ser-55
Thr-56
Figure S6. Spectrum corresponding to the quantification of phosphorylation of Thr-109 for eIF2γ. Inset in upper right corner is a zoom in view of the reporter TMT ions.
**Figure S7.** Spectrum corresponding to the quantification of phosphorylation of Ser-412 and Thr-413 for eIF2γ. Inset in upper right corner is a zoom in view of the reporter TMT ions.
**Figure S8.** Spectrum corresponding to the quantification of phosphorylation of Ser-418 for eIF2γ. Inset in upper right corner is a zoom in view of the reporter TMT ions.
Figure S9. Spectrum corresponding to the quantification of phosphorylation of Thr-435 for eIF2γ. Inset in upper right corner is a zoom in view of the reporter TMT ions.
**Figure S10.** Spectrum corresponding to the quantification of phosphorylation of Ser-881 for eIF3a. Inset in upper right corner is a zoom in view of the reporter TMT ions.
Figure S11. Spectrum corresponding to the quantification of phosphorylation of Ser-1364 for eIF3a. Inset in upper right corner is a zoom in view of the reporter TMT ions.
Figure S12. Spectrum corresponding to the quantification of phosphorylation of Ser-83 and Ser-85 for eIF3b. Inset in upper right corner is a zoom in view of the reporter TMT ions.

ITMS2 \( (m/z = 937.4, \ z = 5) \)

```
68
THPPLAEASACKAASGP-SPS-PS-PA-ELPQSNHAEIPVTEAIQCPGEQAAR
```

eIF3b
Ser-83
Ser-85
Figure S13. Spectrum corresponding to the quantification of phosphorylation of Ser-125 for eIF3b. Inset in upper right corner is a zoom in view of the reporter TMT ions.
**Figure S14.** Spectrum corresponding to the quantification of phosphorylation of Thr-524 for eIF3c. Inset in upper right corner is a zoom in view of the reporter TMT ions.

\[ \text{ITMS2 (m/z = 747.4, z = 2)} \]

**eIF3c**

Thr-524
Figure S15. Spectrum corresponding to the quantification of phosphorylation of Thr-41 and Ser-42 for eIF3g. Inset in upper right corner is a zoom in view of the reporter TMT ions.

ITMS2 (m/z = 1457.8, z = 2)

eIF3g
Thr-41
Ser-42
Figure S16. Spectrum corresponding to the quantification of phosphorylation of Ser-183 for eIF3h. Inset in upper right corner is a zoom in view of the reporter TMT ions.
Figure S17. Spectrum corresponding to the quantification of phosphorylation of Thr-109 for eIF3j. Inset in upper right corner is a zoom in view of the reporter TMT ions.

\[ \text{eIF3j } \]  
\[ \text{Thr-109} \]  
\[ \text{ITMS2 (m/z = 847.0, z = 2)} \]
Figure S18. Spectrum corresponding to the quantification of phosphorylation of Thr-647 for eIF4G. Inset in upper right corner is a zoom in view of the reporter TMT ions.
**Figure S19.** Spectrum corresponding to the quantification of phosphorylation of Ser-1028 for eIF4G. Inset in upper right corner is a zoom in view of the reporter TMT ions.
Figure S20. Spectrum corresponding to the quantification of phosphorylation of Ser-1144 and Ser-1147 for eIF4G. Inset in upper right corner is a zoom in view of the reporter TMT ions.
Figure S21. Spectrum corresponding to the quantification of phosphorylation of Ser-1185 and Ser-1187 for eIF4G. Inset in upper right corner is a zoom in view of the reporter TMT ions.

\[
\begin{align*}
\text{eIF4G} & \\
\text{Ser-1185} & \\
\text{Ser-1187} & \\
\end{align*}
\]

\[
\begin{align*}
\text{ITMS2 (} m/z = 459.8, z = 2 \text{)} & \\
\end{align*}
\]
Figure S22. Spectrum corresponding to the quantification of phosphorylation of Ser-1209 and Thr-1211 for eIF4G. Inset in upper right corner is a zoom in view of the reporter TMT ions.

ITMS2 (m/z = 544.3, z = 2)

eIF4G
Ser-1209
Thr-1211
**Figure S23.** Spectrum corresponding to the quantification of phosphorylation of Ser-1231 for eIF4G. Inset in upper right corner is a zoom in view of the reporter TMT ions.
Figure S24. Spectrum corresponding to the quantification of phosphorylation of Thr-1425 and Ser-1430 for eIF4G. Inset in upper right corner is a zoom in view of the reporter TMT ions.
Figure S25. Spectrum corresponding to the quantification of phosphorylation of Ser-1596 for eIF4G. Inset in upper right corner is a zoom in view of the reporter TMT ions.