

Supporting Information 2, the underlying raw images of all  
electrophoresis and the raw WB imaging data for

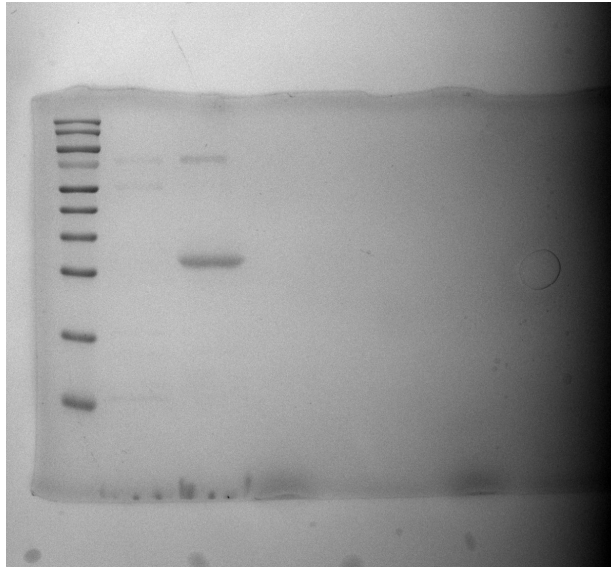
**Design of 365 nm-Light-triggered Fluorogenic Crosslinking via  
a Genetically Encoded 3-CF<sub>3</sub>-*p*-phenylenediamine-Lysine  
Featuring Red-shifted Photo-defluorination**

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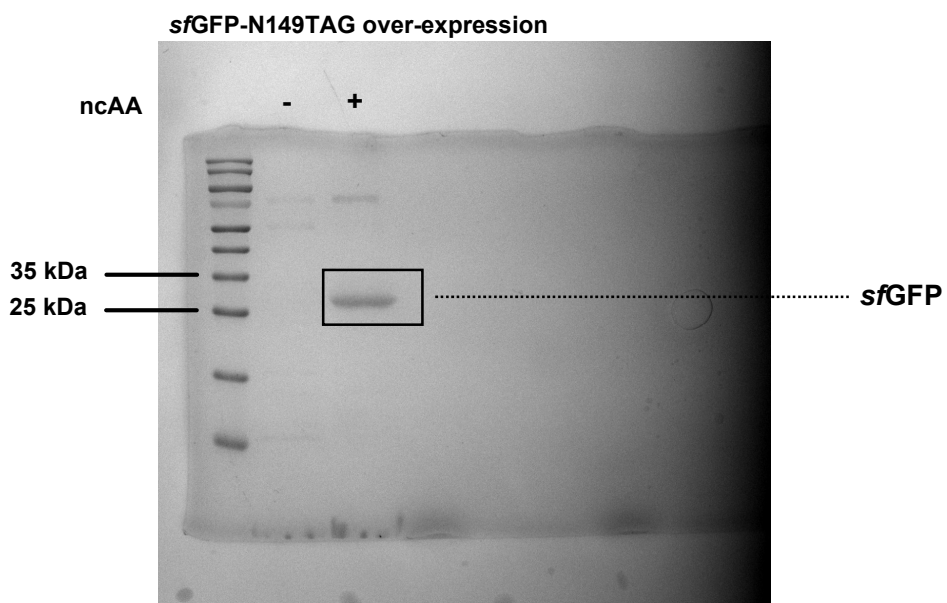
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The RAW SDS-PGE image

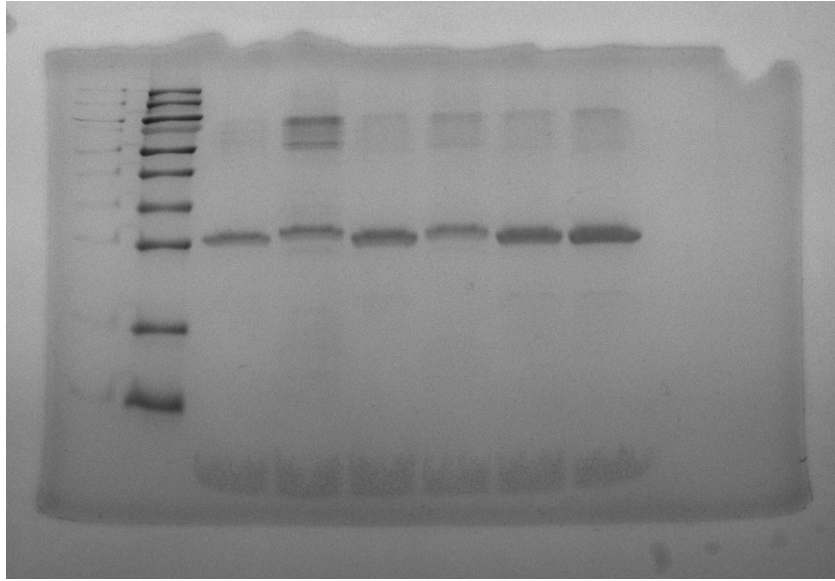


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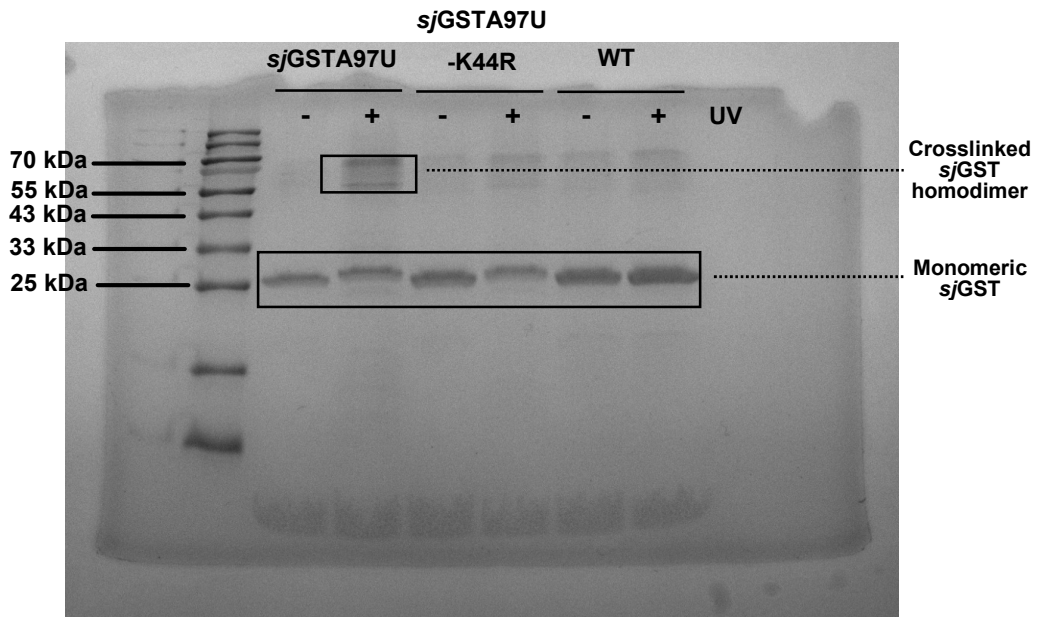


**Figure 2c.** The raw image for the SDS-PAGE analysis of the purified sfGFP-N149U expressed with *MmPylRS* (Y306A, C348A) in *E. coil*. Conditions: 2.0 mM ncAA, followed by Coomassie blue staining. ncAA = U = **3-CF<sub>3</sub>-PDAK**

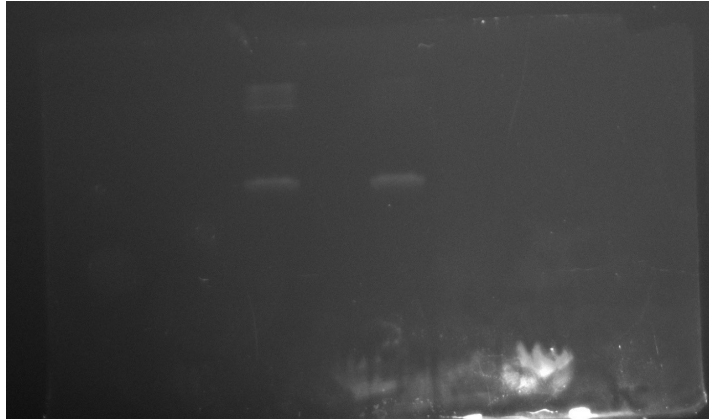
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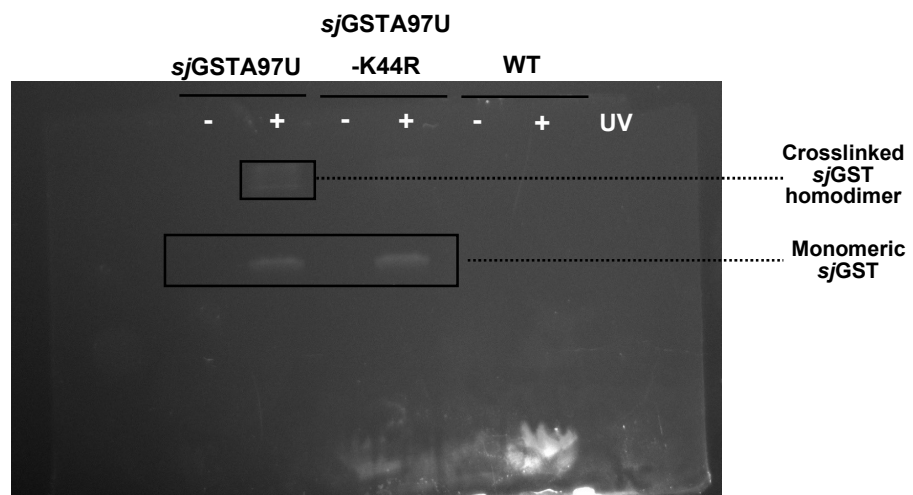
The labelled SDS-PGE image



The RAW SDS-PGE image

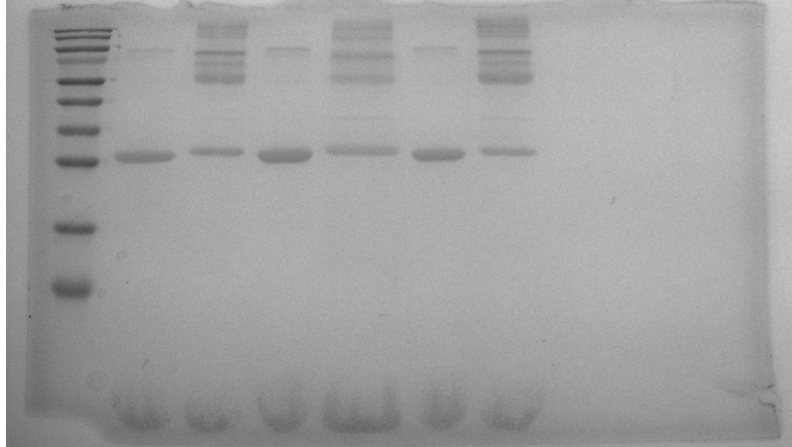


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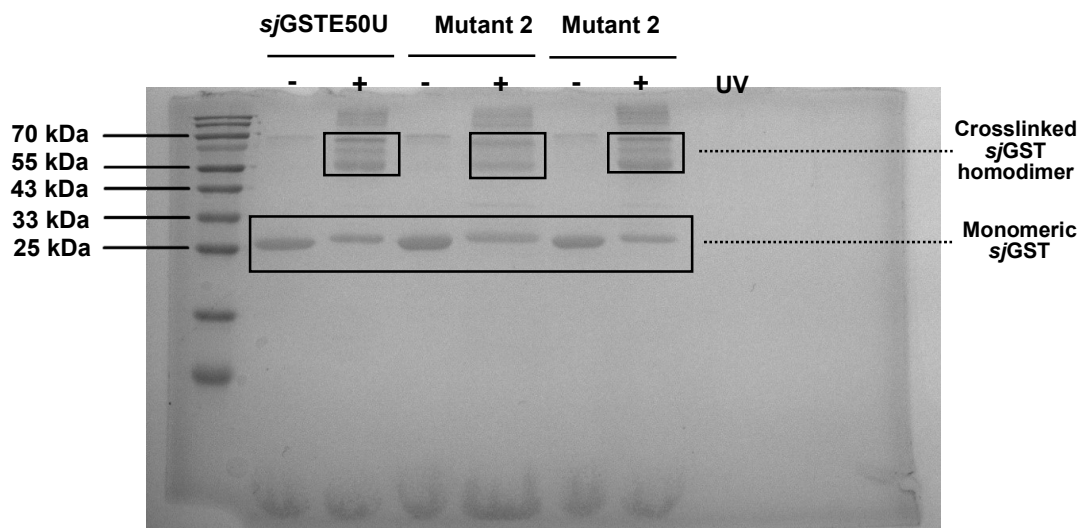


**Figure 3f.** The raw images for the SDS-PAGE analysis and in-gel fluorescence of the purified *sjGST-A97U*, *sjGST-A97U-K44R*, and *sjGST<sub>wt</sub>*. Conditions: with and without UV light (365 nm for 20 s), followed by Coomassie brilliant blue staining. U = **3-CF<sub>3</sub>-PDAK**

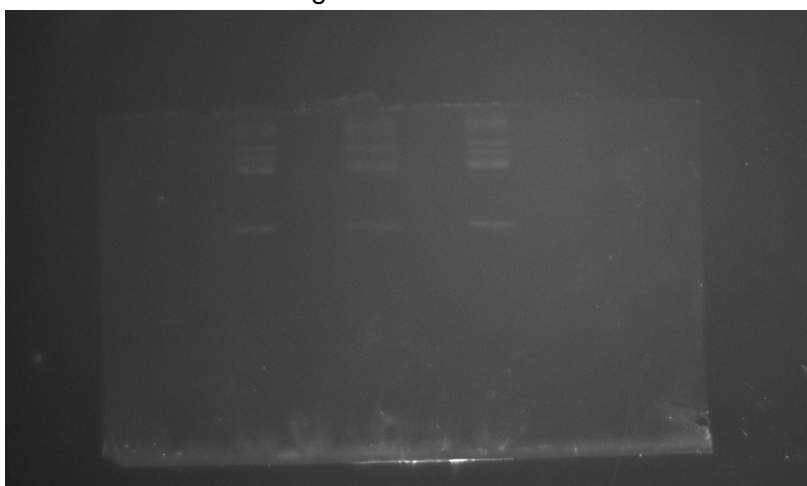
The RAW SDS-PGE image



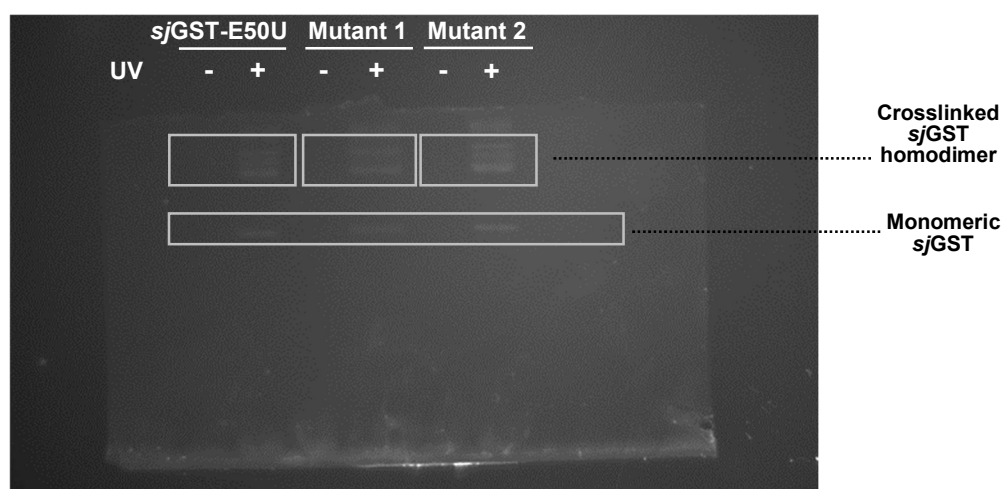
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The RAW SDS-PGE image

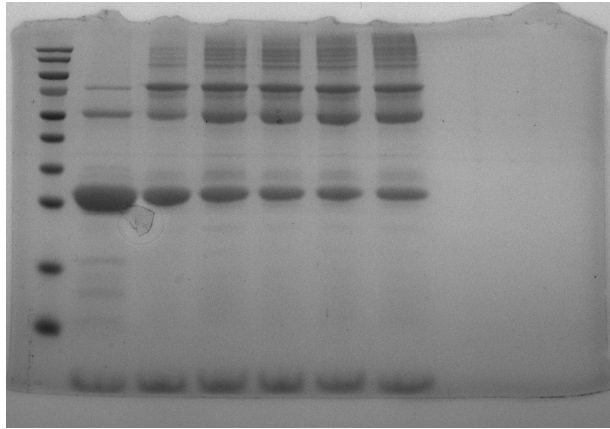


The labelled SDS-PGE image

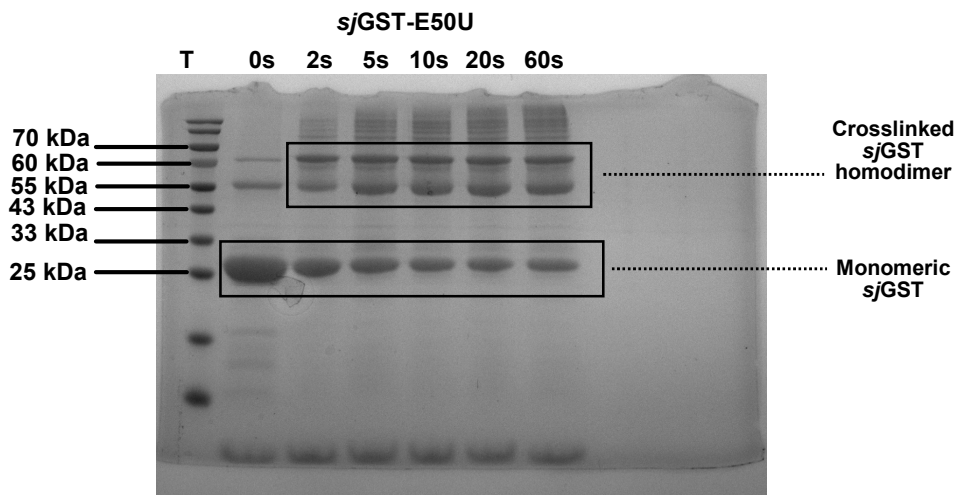


**Figure S17.** The raw images for the SDS-PAGE analysis and in-gel fluorescence of the purified *sj*GST-E50U and mutant 1 and mutant 2. Conditions: with and without UV light (365 nm for 20 s), followed by Coomassie brilliant blue staining. Mutant 1 refers to *sj*GST carrying the E50U/K43R/K44R/K64R mutations. Mutant 2 refers to *sj*GST carrying the E50U/K86R/K124R/K130R/K139R mutations. U = **3-CF<sub>3</sub>-PDAK**.

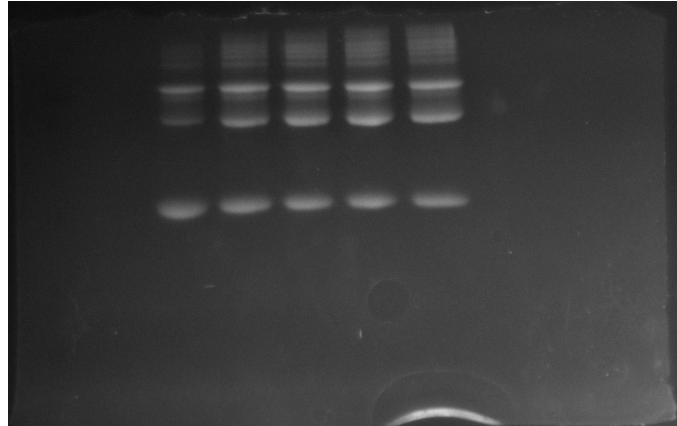
The RAW SDS-PGE image



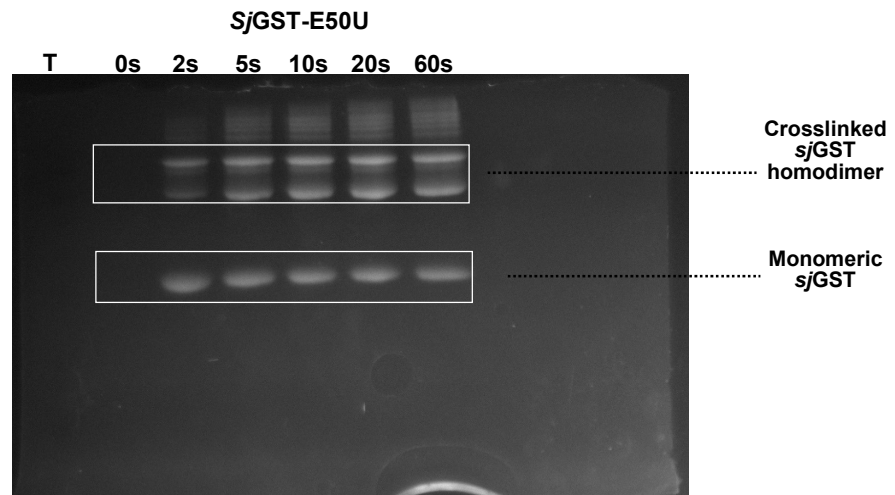
The labelled SDS-PGE image



The RAW SDS-PGE image

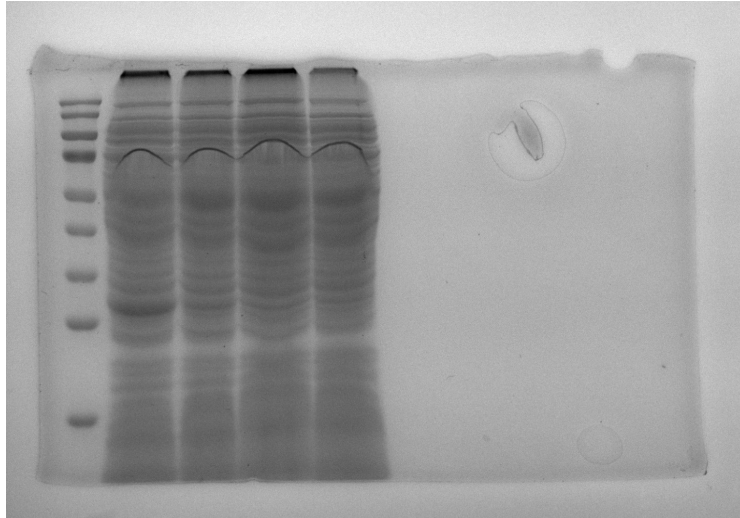


The labelled SDS-PGE image



**Figure 3a.** The raw images for the SDS-PAGE analysis and in-gel fluorescence of time-dependent photo-crosslinking of the purified *sj*GST-E50U, followed by Coomassie brilliant blue staining. U = **3-CF<sub>3</sub>-PDAK**.

The RAW SDS-PGE image

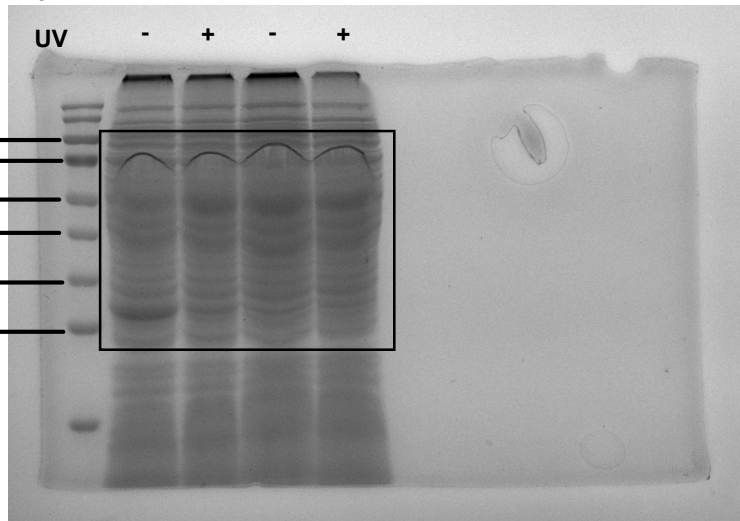


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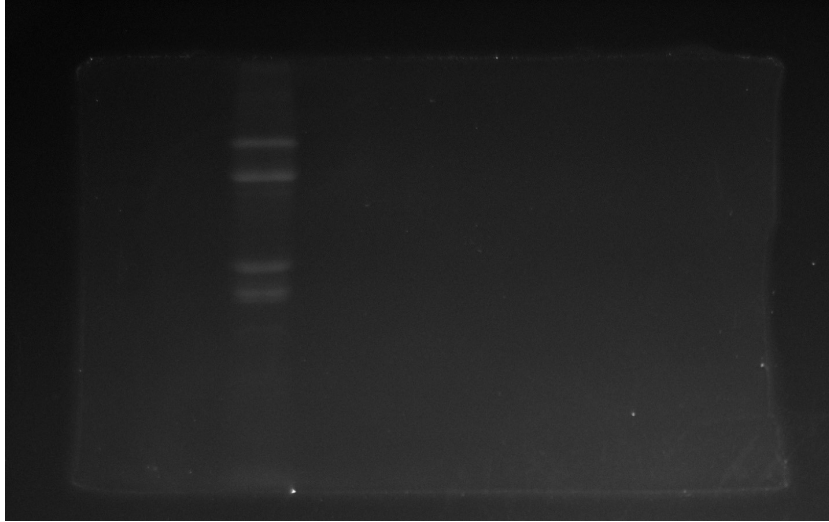
Living BL21(DE3) cells expressing *sjGST-E50TAG*

ncAA	+	+	-	-
UV	-	+	-	+

70 kDa —  
60 kDa —  
55 kDa —  
43 kDa —  
33 kDa —  
25 kDa —



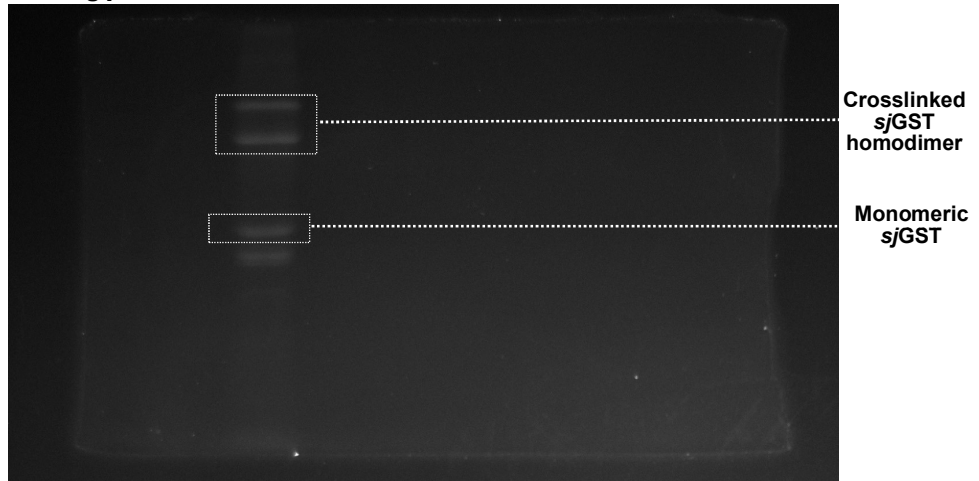
The RAW SDS-PGE image



The labelled SDS-PGE image

Living BL21(DE3) cells expressing *sjGST-E50TAG*

ncAA	+	+	-	-
UV	-	+	-	+



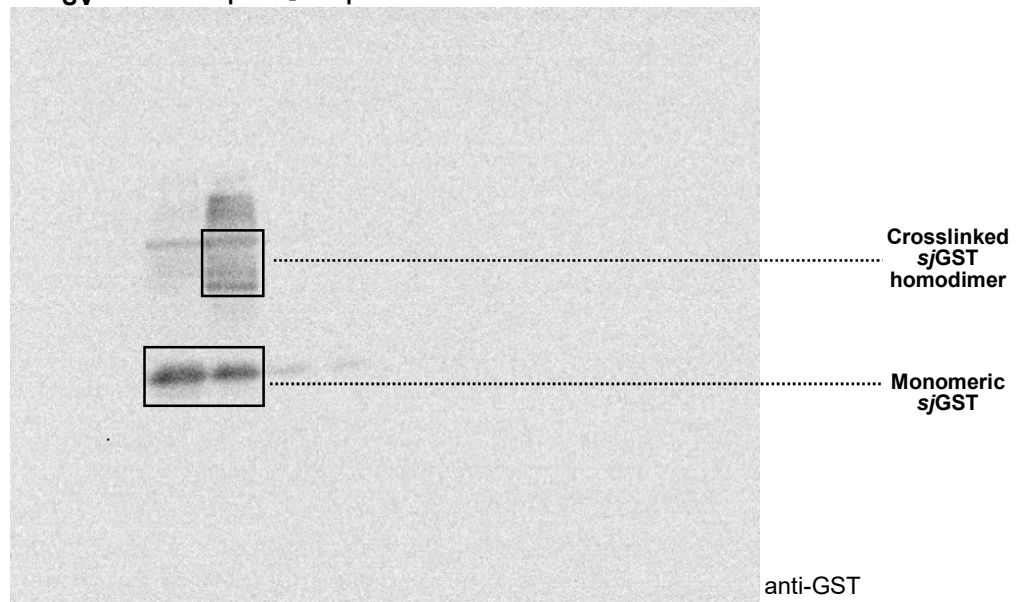
The RAW image of the PVDF membrane for WB analysis



The labelled RAW image of the PVDF membrane for WB analysis

Living BL21(DE3) cells expressing *sjGST-E50TAG*

ncAA	+	+	-	-
UV	-	+	-	+



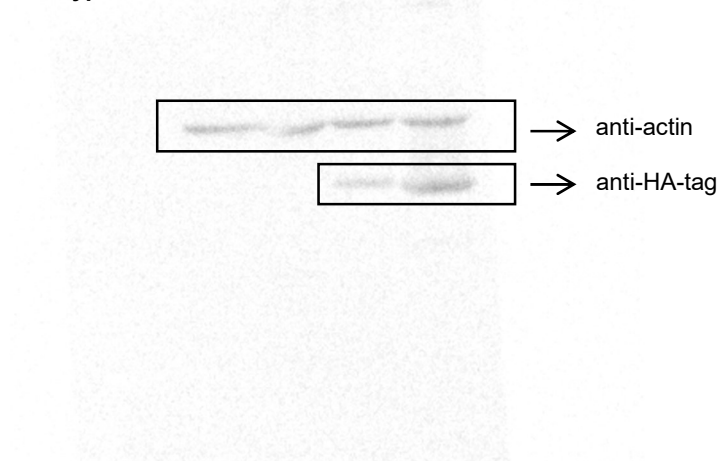
**Figure 3b.** The raw images for the SDS-PAGE, in-gel fluorescence and western blot (on PVDF membrane) analysis for the in photo-crosslinking of *sjGST*E50U in living BL21(DE3) cells. U = **3-CF<sub>3</sub>-PDAK**.

The RAW image of the PVDF membrane for WB analysis



The labelled RAW image of the PVDF membrane for WB analysis

<b>ncAARS</b>	-	+	+	-
<b>ncAA</b>	-	-	+	-
<b>wild type</b>	-	-	-	+



**Figure S18.** The raw image for the western blot (on PVDF membrane) analysis to verify the full-length expression of EGFP-N149TAG-HA in HEK293T. Protein samples were lysed from the HEK293T cells transfected with or without plasmid, and with adding of 2.0 mM **3-CF<sub>3</sub>-PDAK** or not. The PVDF membrane was incubated with anti-HA-tag mouse monoclonal antibody (1:500) and anti- $\beta$ -actin mouse monoclonal antibody (1:1000), followed by washing and incubating with HRP-labelled Goat anti-Mouse IgG (H+L) secondary antibody (1:1000), which was further incubated with ECL substrate for chemiluminescence imaging.