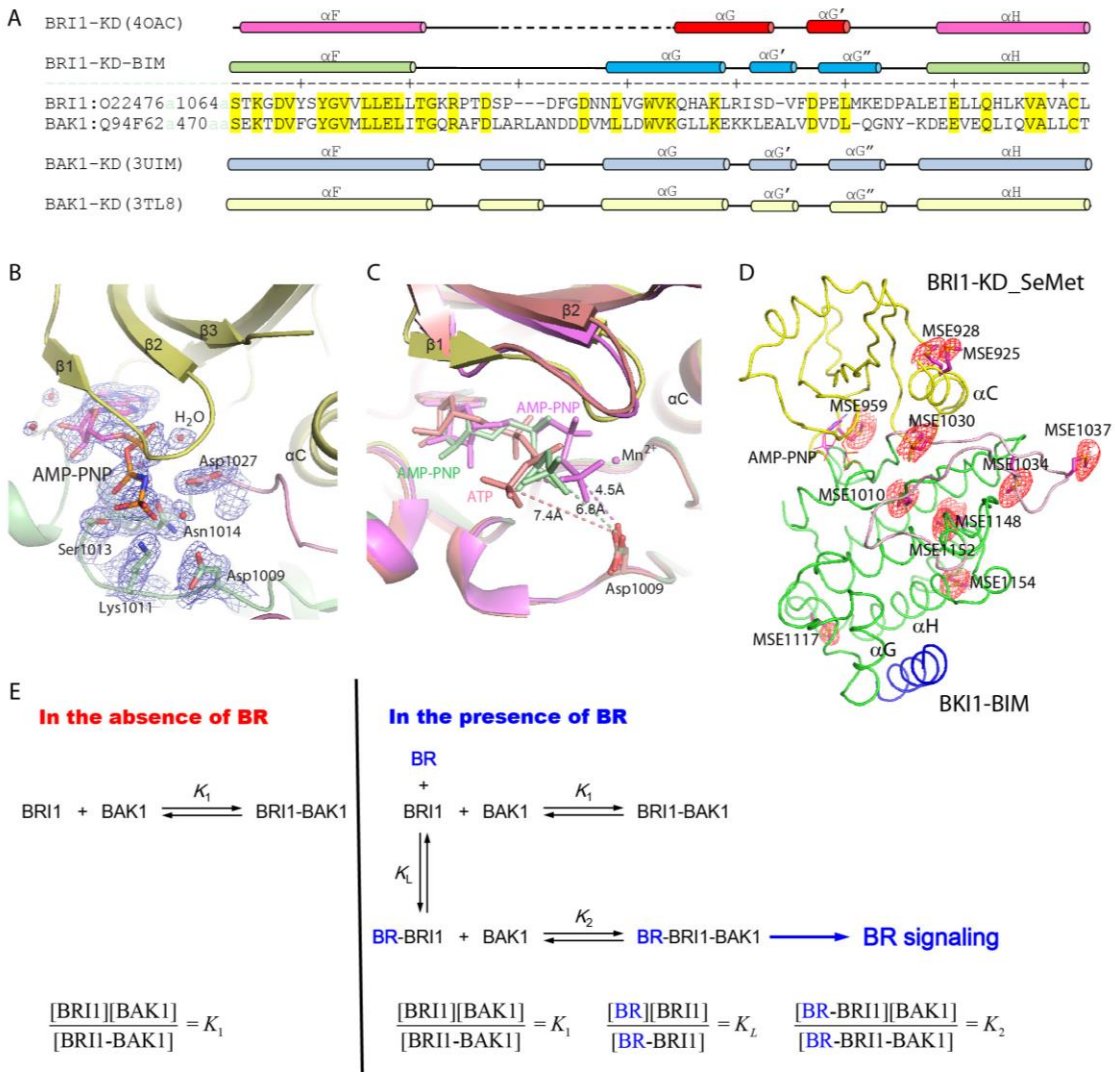

Supplementary information, Figure S3 Comparison of our BRI1-KD-BIM complex with the recently reported BRI1-KD structures. Related to Figure 6.

(A) Sequence alignment of BRI1 and BAK1 fragments containing helices αF, αG and αH with conserved residues highlighted in yellow. Secondary structural elements of the BRI1-KD-BIM complex (green and marine blue) and the reported BRI1-KD structure (4OAC, pink and red) are shown above the alignment, and that of two reported BAK1-KD structures (PDB IDs: 3UIM and 3TL8) are shown in light blue and light yellow below the alignment, respectively.

(B) Electron density map for the ATP binding site in our BRI1-KD-BIM complex. The $2F_o$-F_c electron density map (contoured at 1.5 σ) is shown in blue mesh. The AMP-PNP molecule and residues interacting with the γ-phosphate are highlighted in sticks, while water molecules are shown as red spheres.

(C) Comparison of the γ-phosphate orientation in three nucleotide-bound BRI1-KD structures. The reported structures of BRI1-KD/ATP complex (4OAB) and BRI1-KD/AMP-PNP/Mn^{2+} complex (4OA9) are colored in salmon and violet, respectively, and our BRI1-KD-BIM/AMP-PNP complex follows the color scheme in Figure 2B except that the bound AMP-PNP molecule is shown in pale green. Distance between the γ-phosphate and catalytic Asp1009 in respective structure is indicated.

(D) Crystal structure of SeMet-labelled BRI1-KD-BIM complex. The anomalous difference Fourier map of the SeMet derivative (contoured at 3.0 σ) is shown in red mesh. Notably, residue Met1117 is indubitably located on helix αG".

(E) Model for BR signaling with preformed BRI1-BAK1 heterooligomers. In the absence of ligand, approximate 7% of BRI1 on the plasma membrane of live Arabidopsis root epidermal cells constitutively heterodimerizes with BAK1 (Bucherl et al., 2013). Upon ligand binding, the formation of BR-BRI1-BAK1 ternary complex results in transphosphorylation of BRI1 and BAK1, enabling downstream signaling. When $K_1 > K_2$, the total concentration of complexed BRI1 in the presence of BR ([BRI1-BAK1] plus [BR-BRI1-BAK1]) is greater than that of [BRI1-BAK1] in the absence of BR, and when $K_1 = K_2$, the total concentrations of the BR-dependent hetero-oligomers will be similar to that of the preformed BRI1-BAK1 dimer in the absence of BR.