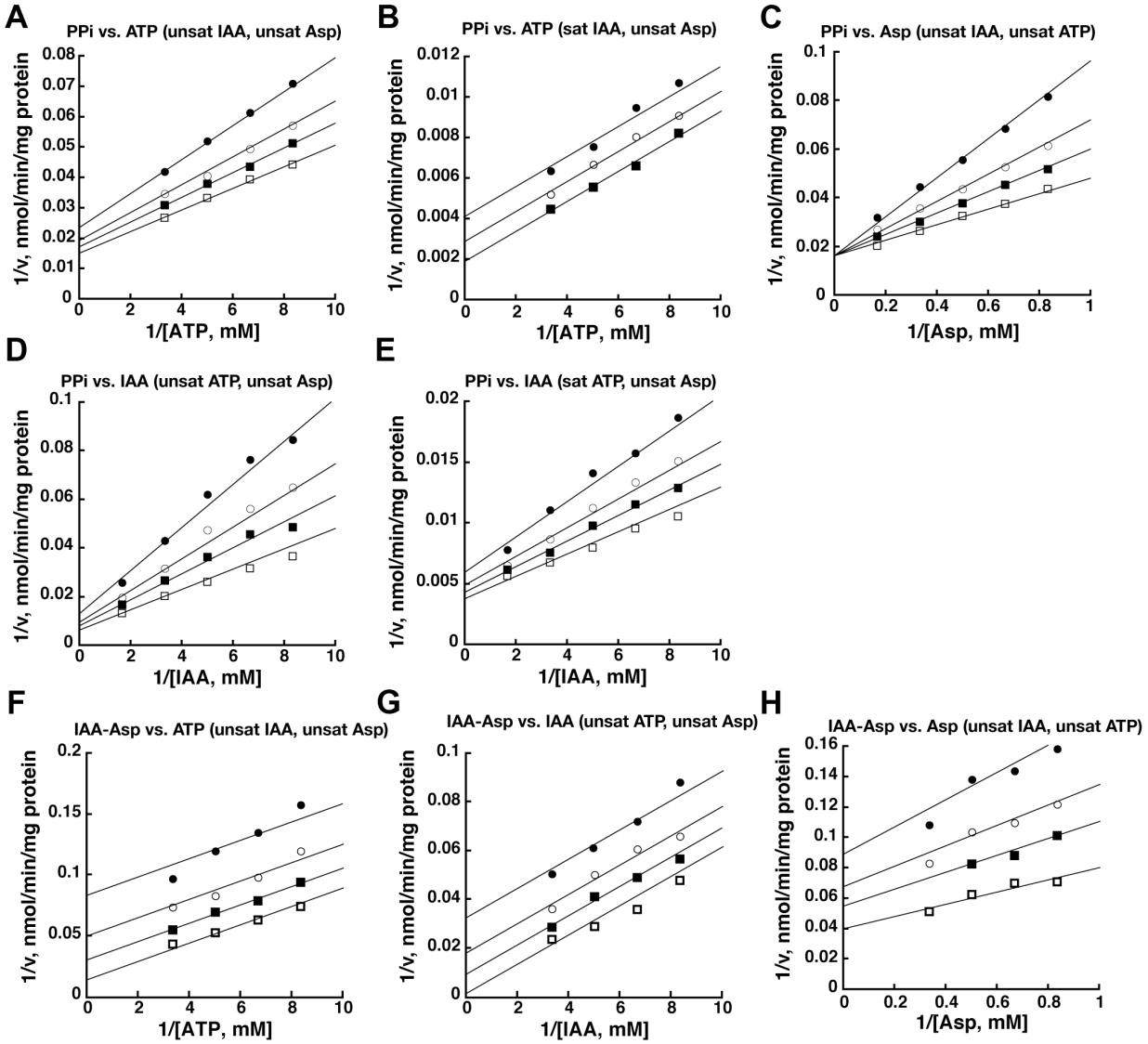
Supporting Information FIGURE 1. **Product inhibition data for OsGH3-8.** Assays were performed as described in the Experimental Procedures. The lines represent fit of the data to one of the three inhibition equations. (A) Double-reciprocal plot of 1/*v* vs 1/[ATP] at unsaturating IAA and aspartate concentrations with 0, 0.05, 0.1, and 0.2 mM $PP_i$ (from bottom to top). (B) Double-reciprocal plot of 1/*v* vs 1/[ATP] at with saturating IAA and unsaturating aspartate concentrations with 0, 0.05, and 0.1 $PP_i$ (from bottom to top). (C) Double-reciprocal plot of 1/*v* vs 1/[IAA] at unsaturating ATP and aspartate concentrations with 0, 0.05, 0.1, and 0.2 mM $PP_i$ (from bottom to top). (D) Double-reciprocal plot of 1/*v* vs 1/[IAA] at saturating ATP and unsaturating aspartate concentrations with 0, 0.05, 0.1, and 0.2 mM $PP_i$ (from bottom to top). (E) Double-reciprocal plot of 1/*v* vs 1/[aspartate] at unsaturating ATP and IAA concentrations with 0, 0.05, 0.1, and 0.2 mM $PP_i$ (from bottom to top). (F) Double-reciprocal plot of 1/*v* vs 1/[ATP] at unsaturating concentrations of IAA and aspartate with 0, 0.05, 0.1, and 0.2 mM IAA-Asp. (G) Double-reciprocal plot of 1/*v* vs 1/[IAA] at unsaturating concentrations of ATP and aspartate with 0, 0.05, 0.1, and 0.2 mM IAA-Asp. (H) Double-reciprocal plot of 1/*v* vs 1/[aspartate] at unsaturating concentrations of IAA and ATP with 0, 0.05, 0.1, and 0.2 mM IAA-Asp.



Supporting Information FIGURE 2. **Mass spectrometric analysis of GH3-8 activity.** ESI-Q-TOF mass spectra of selected mass ranges for the IAA-AMP intermediate [*m/z* 500-509 (right)] and the IAA-Asp product [*m/z* 250-320 (left)] for (A) an assay containing GH3-8, IAA, and ATP in the absence of Asp and (B) an assay containing GH3-8, IAA, and ATP in the presence of Asp. Note the absence of IAA-Asp signal in the left panel of A and the absence of IAA-AMP in the right panel of B.