

Supporting Information

Photoinduced Reaction Mechanisms in Prototypical and Bathy Phytochromes

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Content

Figures S1 – S9: RR spectra of various states of Agp1, XccBphP, and Agp2.

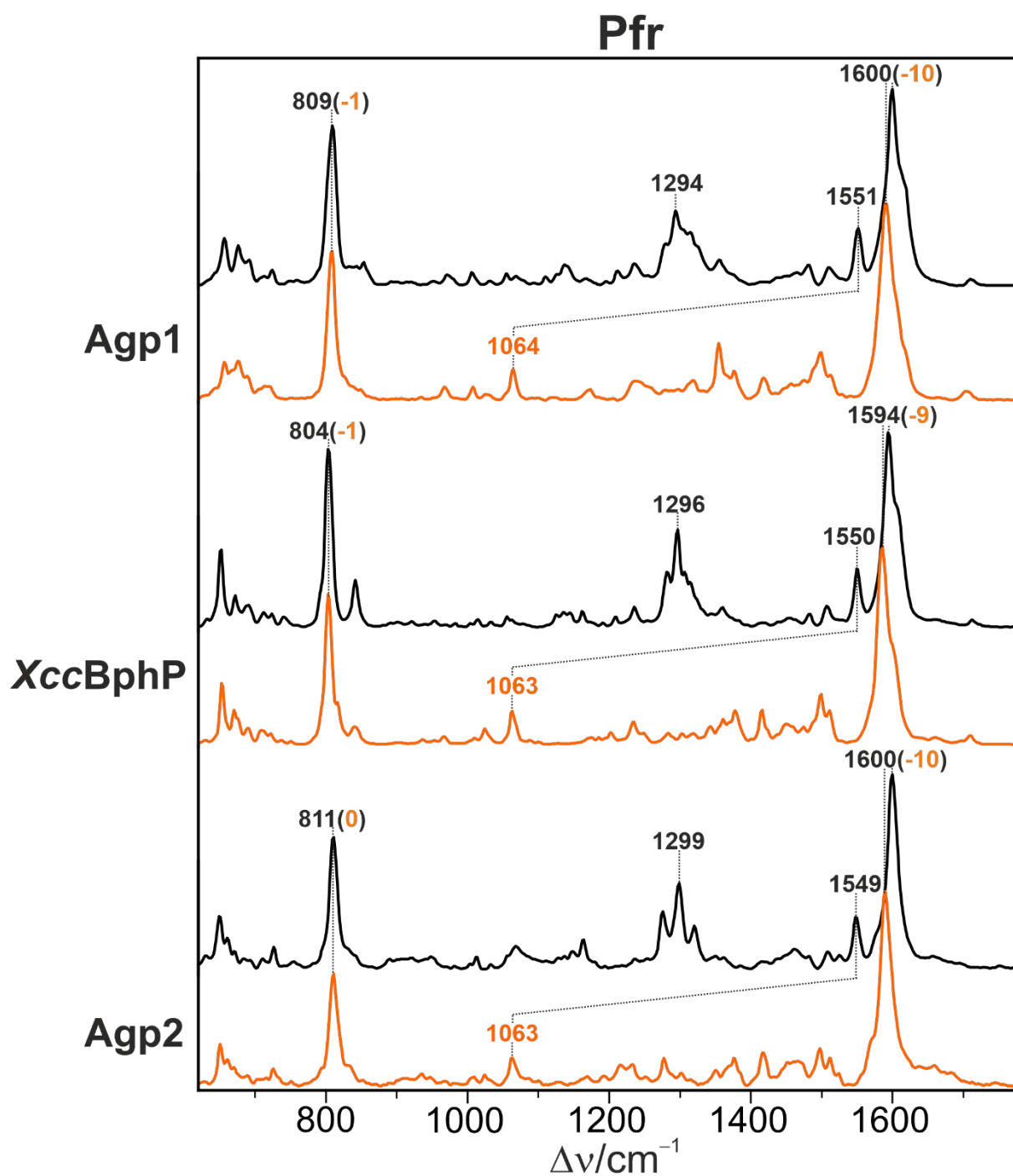


Figure S1. RR spectra of the Pfr state of Agp1, XccBphP, and Agp2 in H₂O (black traces) and D₂O (orange traces). Experimental details are given in the manuscript.

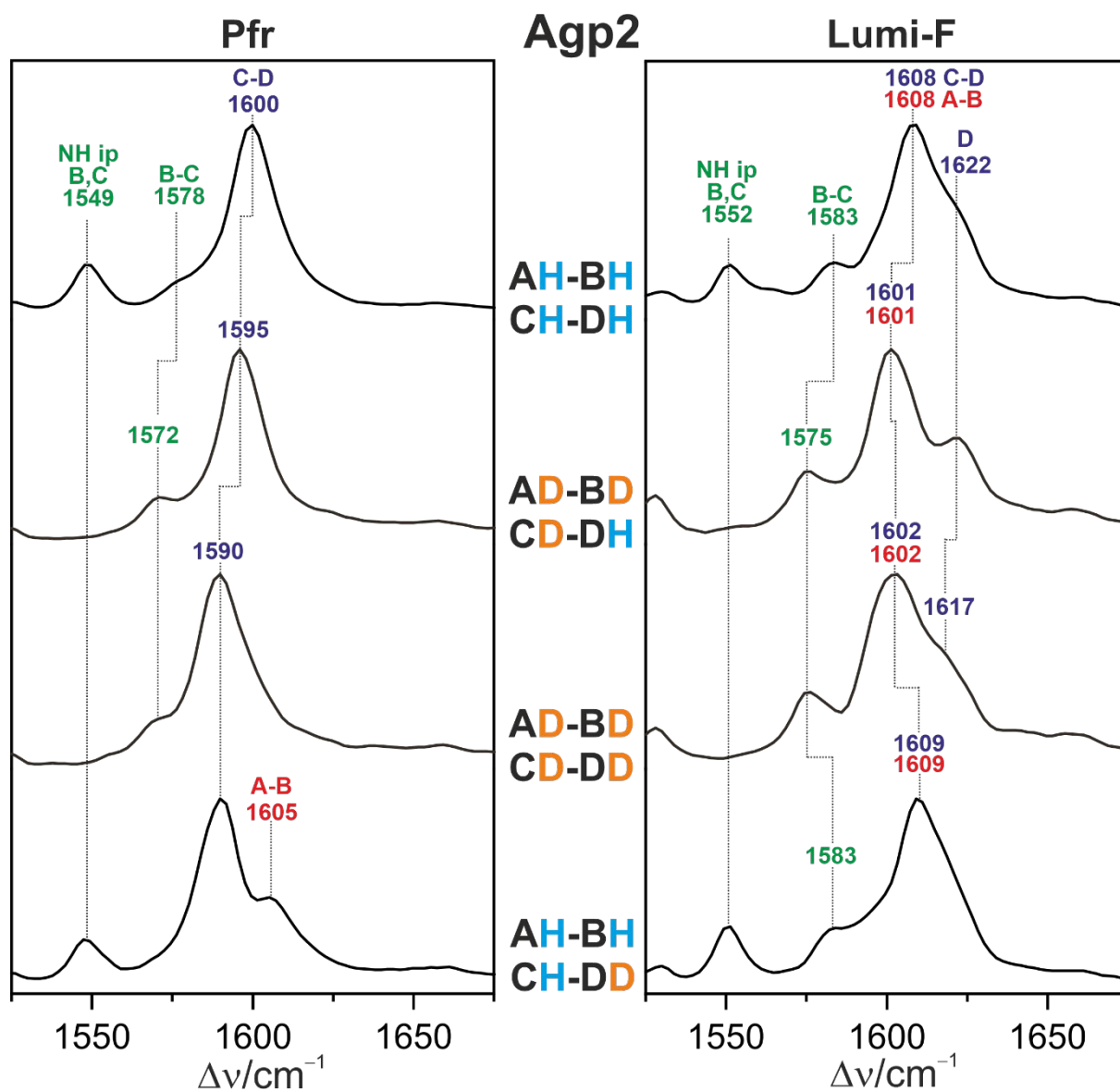


Figure S2. RR spectra of the Pfr and Lumi-F states of Agp2 at different H/D pattern of the four pyrrole rings *A*, *B*, *C*, and *D* as indicated schematically in the center of the figure. The procedure to achieve the selective H/D exchange was described previously.¹

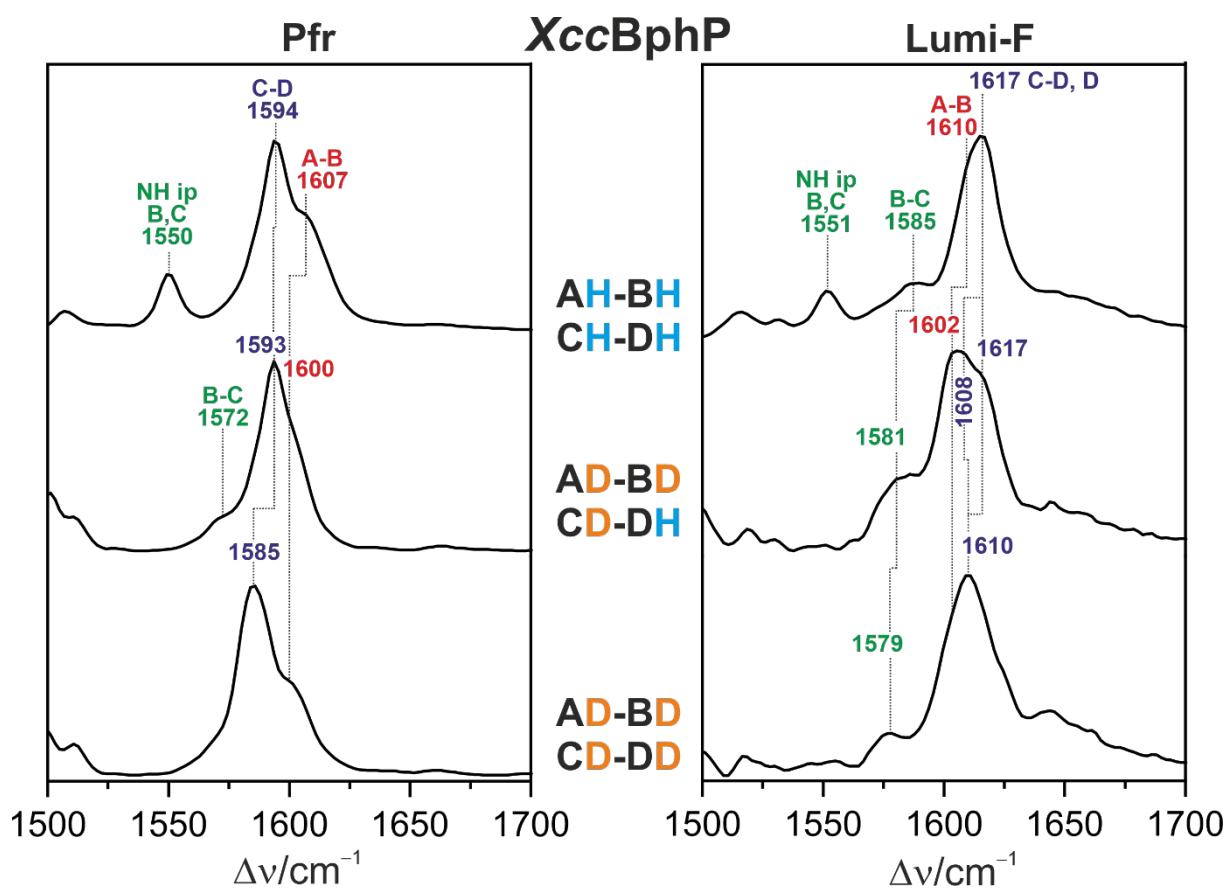


Figure S3. RR spectra of the Pfr and Lumi-F states of XccBphP at different H/D pattern of the four pyrrole rings *A*, *B*, *C*, and *D* as indicated schematically in the center of the figure. The procedure to achieve the selective H/D exchange was described previously.¹

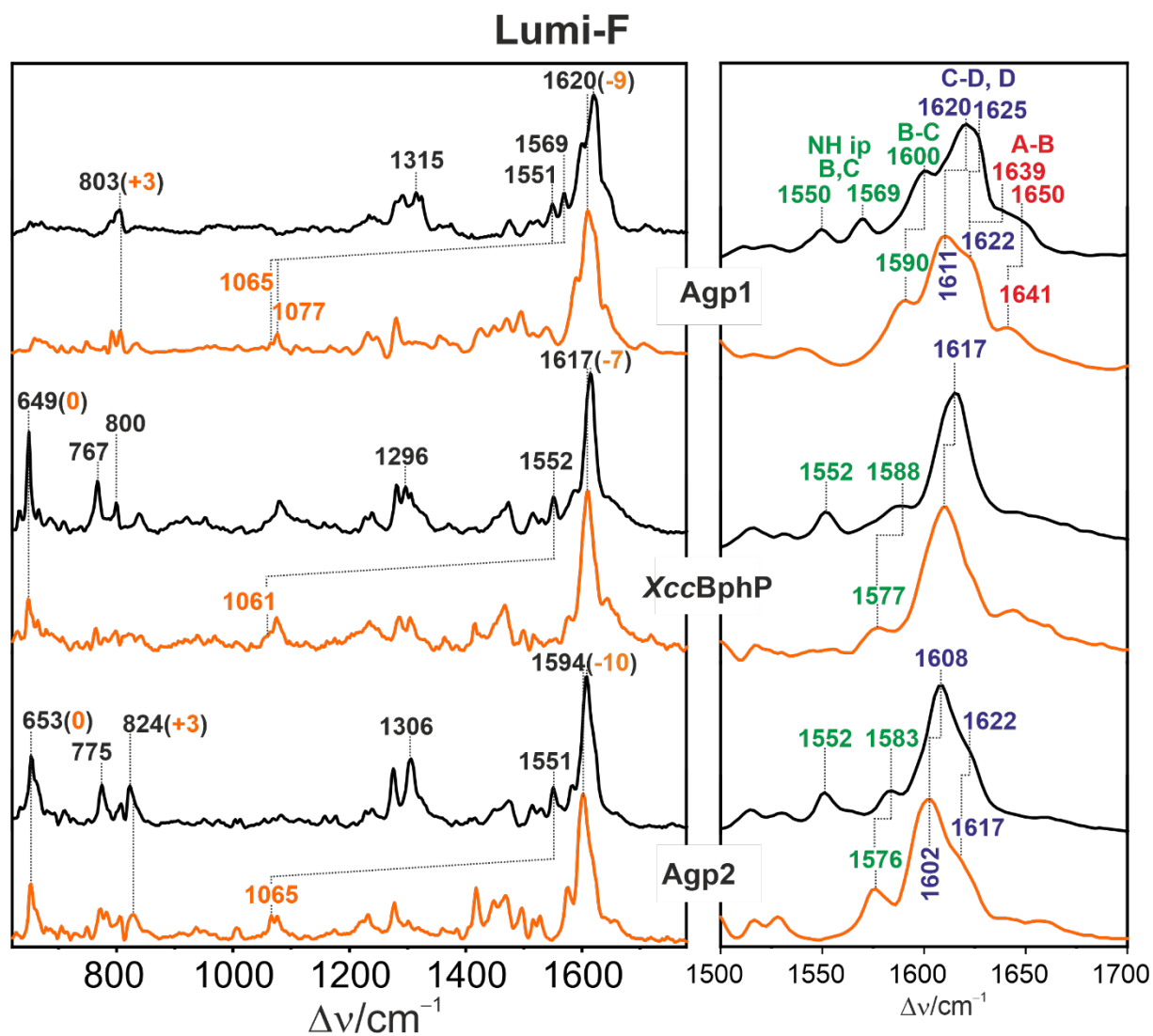


Figure S4. RR spectra of the Lumi-F state of Agp1, *XccBphP*, and Agp2 in H₂O (black traces) and D₂O (orange traces). Experimental details are given in the manuscript. The color code of the peak labels in the right panel refers to Figure 1 in the manuscript.

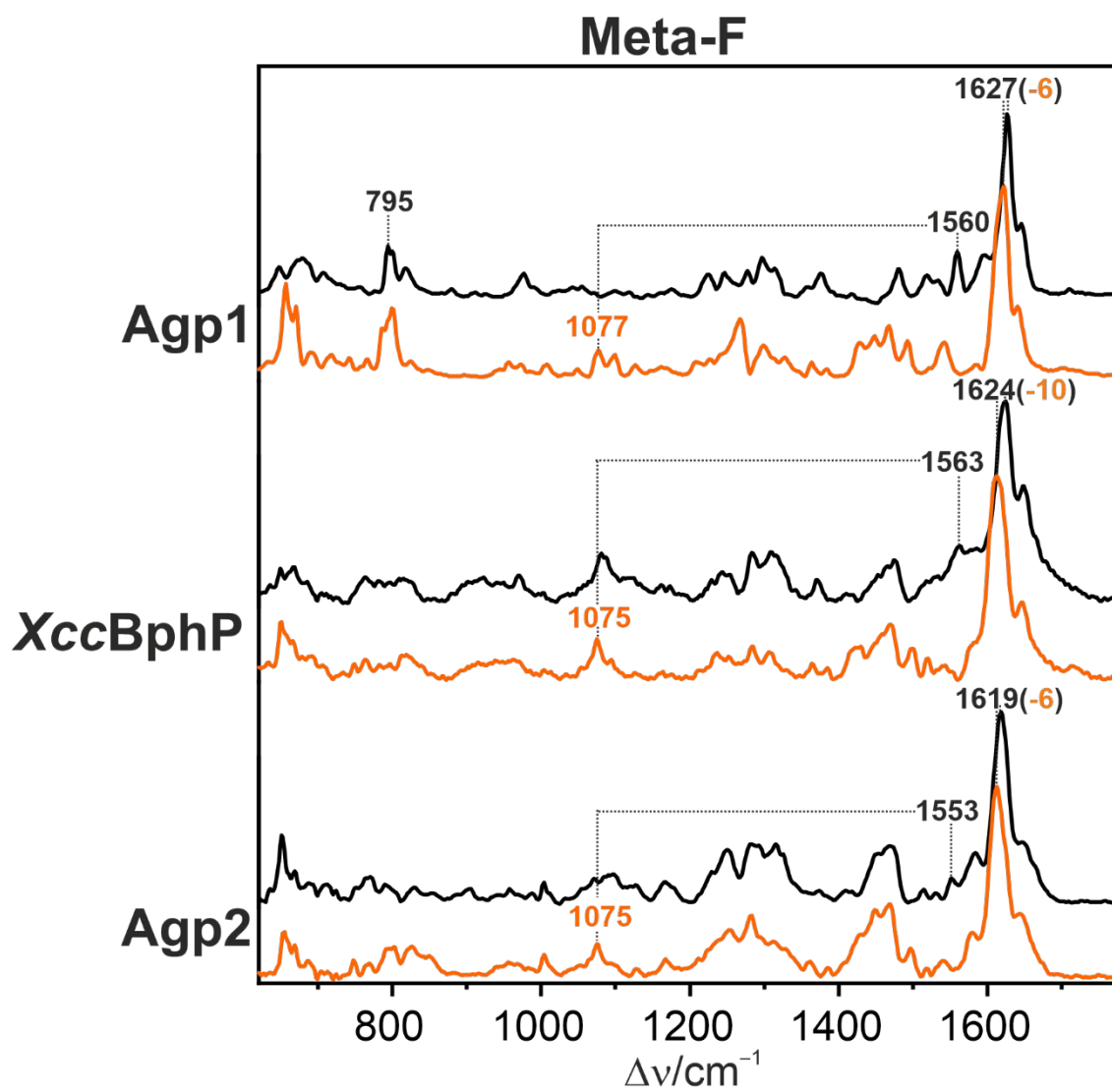


Figure S5. RR spectra of the Meta-F state of Agp1, XccBphP, and Agp2 in H₂O (black traces) and D₂O (orange traces). Experimental details are given in the manuscript.

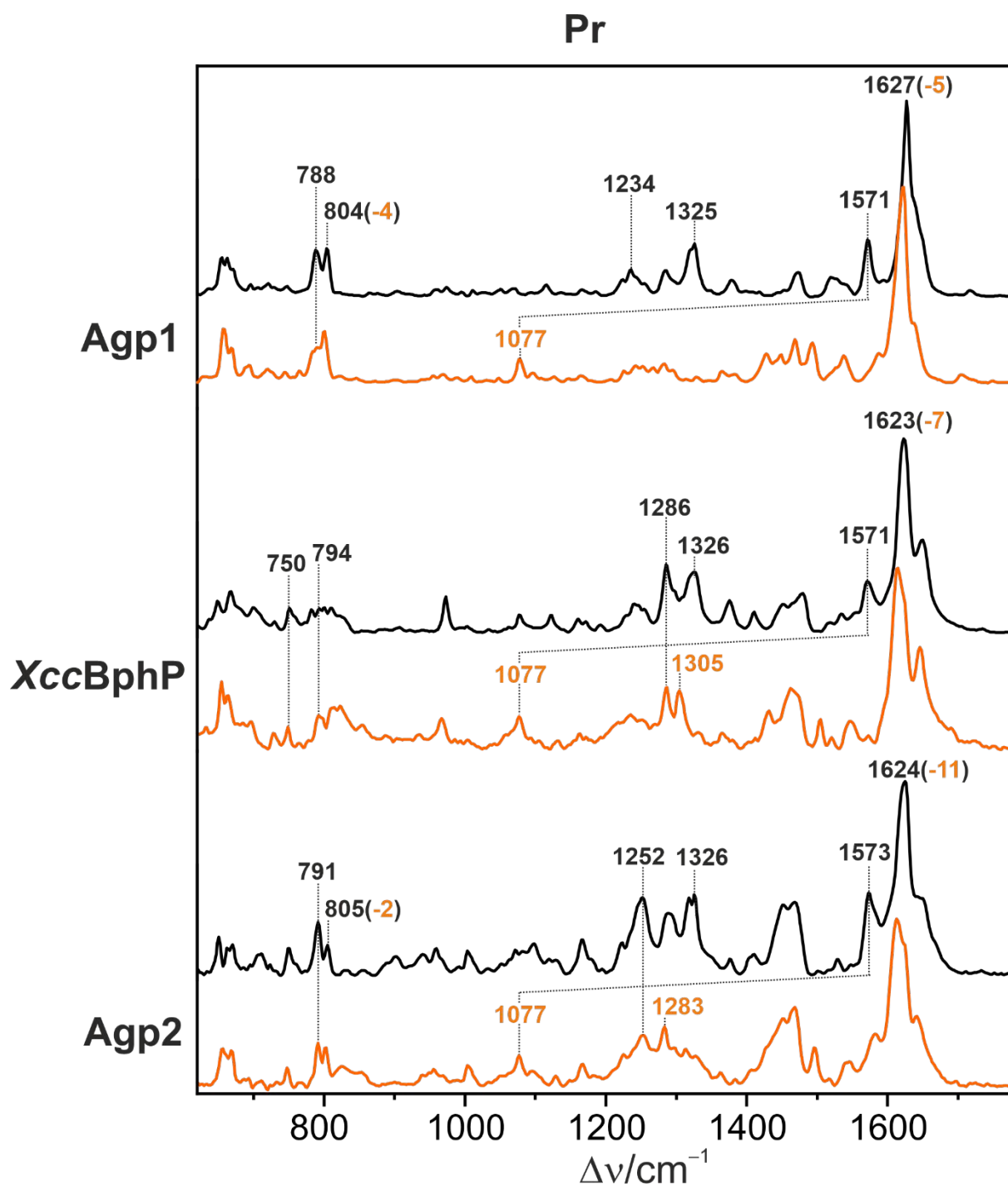


Figure S6. RR spectra of the Pr state of Agp1, *XccBphP*, and Agp2 in H₂O (black traces) and D₂O (orange traces). Experimental details are given in the manuscript.

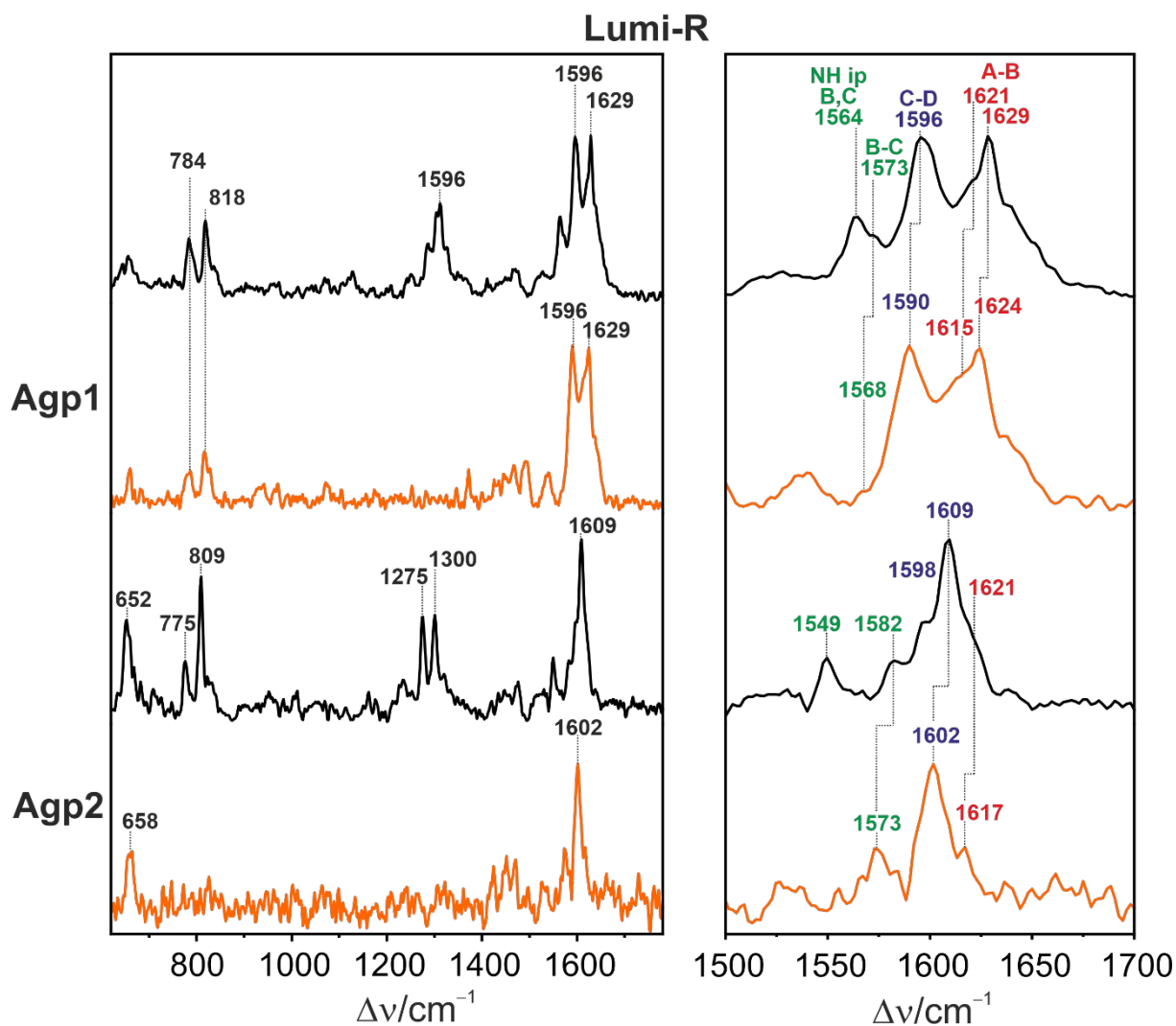


Figure S7. RR spectra of the Lumi-R state of Agp1 and Agp2 in H₂O (black traces) and D₂O (orange traces). Experimental details are given in the manuscript. The color code of the peak labels in the right panel refers to Figure 1 in the manuscript.

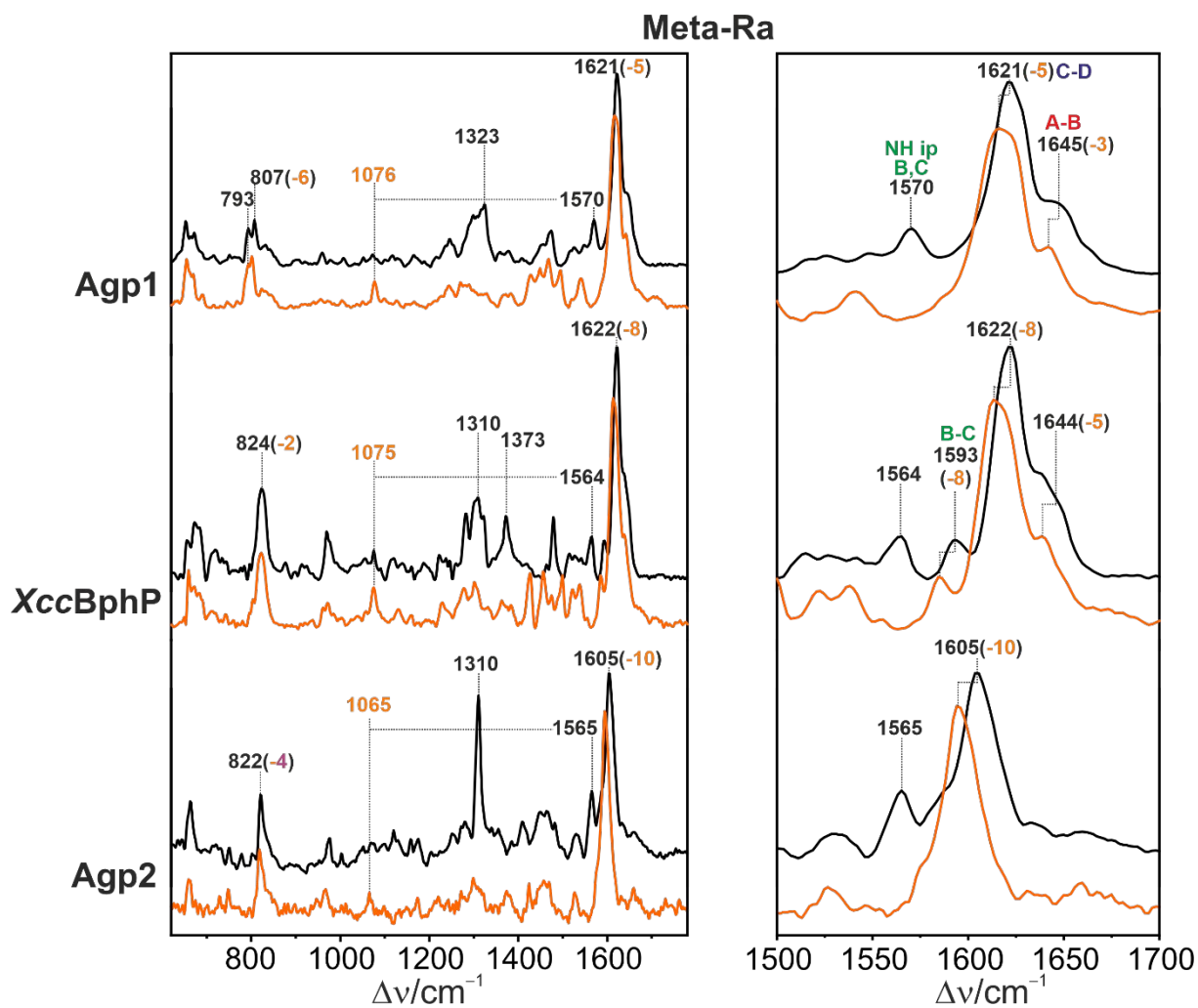


Figure S8. RR spectra of the Meta-Ra state of Agp1, XccBphP, and Agp2 in H₂O (black traces) and D₂O (orange traces). Experimental details are given in the manuscript. The color code of the peak labels in the right panel refers to Figure 1 in the manuscript.

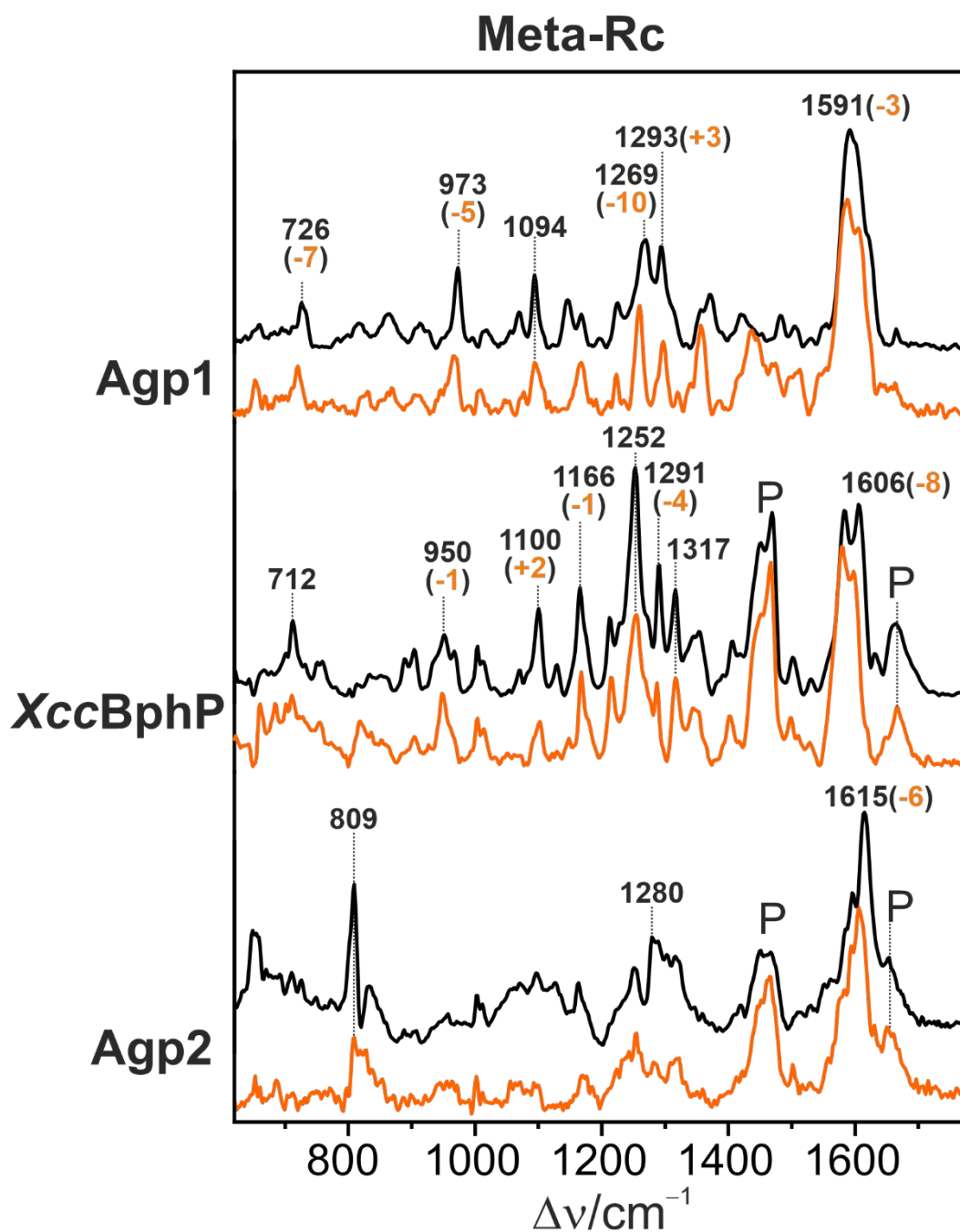


Figure S9. RR spectra of the Meta-Rc state of Agp1, XccBphP, and Agp2 in H₂O (black traces) and D₂O (orange traces). Experimental details are given in the manuscript. “P” denotes Raman bands of the protein.

References

- 1 F. Velazquez Escobar, P. Piwowarski, J. Salewski, N. Michael, M. Fernandez Lopez, A. Rupp, M. B. Qureshi, P. Scheerer, F. Bartl, N. Frankenberg-Dinkel, F. Siebert, M. A. Mroginski and P. Hildebrandt, A protonation-coupled feedback mechanism controls the signalling process in bathy phytochromes, *Nat. Chem.*, 2015, **7**, 423–430.