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A White-Light-Emitting Molecule: Frustrated Energy Transfer between Constituent Emitting Centers

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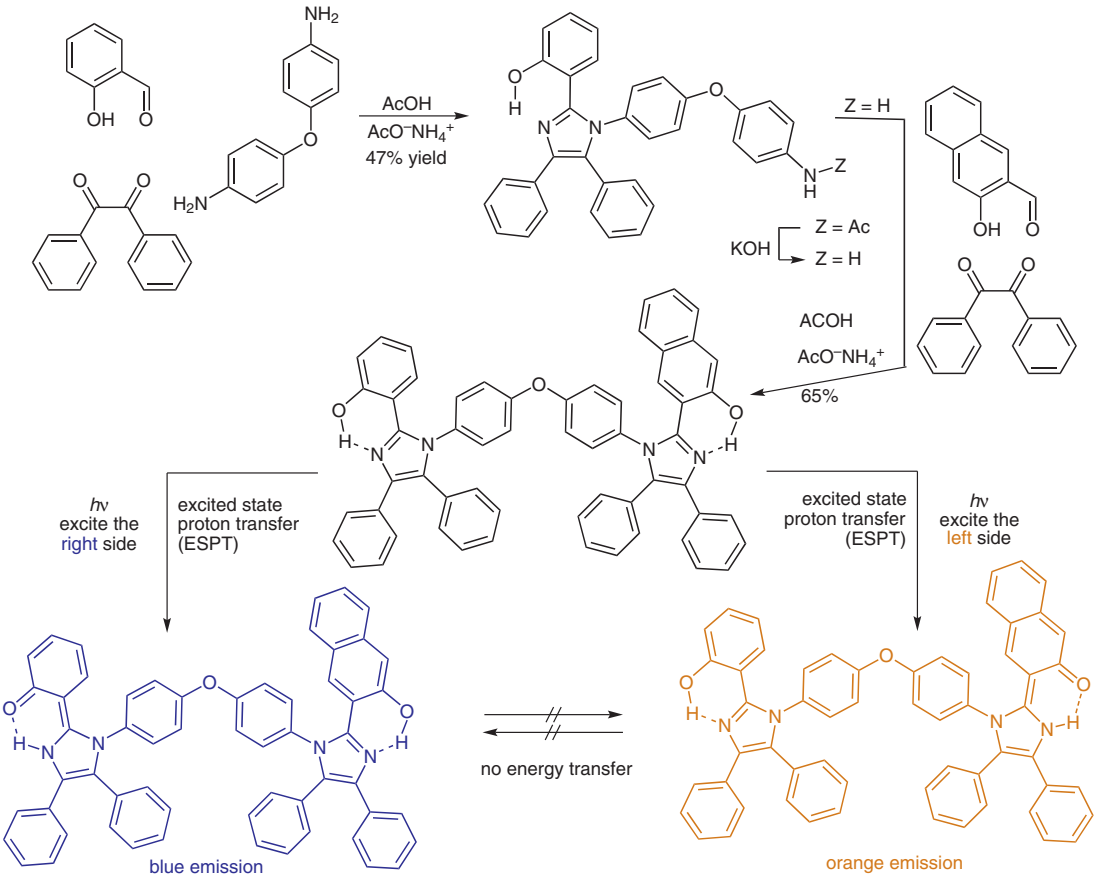
# And "Then There Was White"




**Significance:** Efficient generation of white light from a single molecule has been very challenging. The only previous systems that have approximated a white light emission are aggregate chromophores with a very broad excimer emission and a low quantum yield. The molecules shown create highly efficient white light emission from excited-state proton transfer (ESPT) and frustrated energy transfer. Efficient organic light-emitting devices are needed for room lighting applications and generating white light from single molecules is desirable to maintain color balance.

**Comment:** This system uses ESPT to prevent energy transfer from the high-energy chromophore to the low-energy chromophore. Ordinary, in small molecules energy will transfer to the lowest excited state. However, after exciting the left chromophore, ESPT gives a blue-emitting state that is of lower energy than the energy required exciting the right chromophore. Direct excitation of the right chromophore gives ESPT and an orange emission. The combination of blue and orange emission gives white.

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