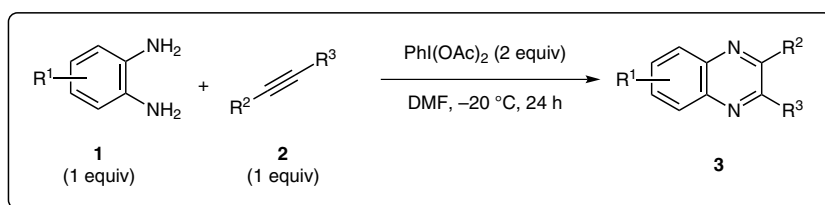
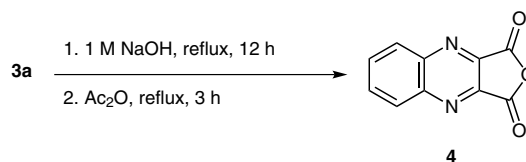
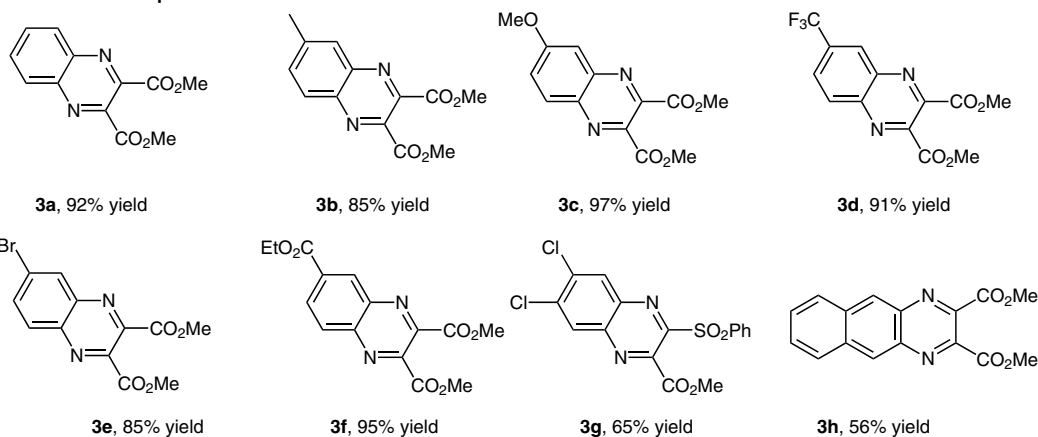


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Hypervalent Iodine(III)-Induced Oxidative [4+2] Annulation of *o*-Phenylenediamines and Electron-Deficient Alkynes: Direct Synthesis of Quinoxalines from Alkyne Substrates under Metal-Free Conditions  
*Chem. Commun.* **2013**, *49*, 9266–9268.

## Quinoxalines Directly from Electron-Deficient Alkynes



### Selected examples:



**Significance:** The authors report the metal-free oxidative [4+2] annulation of electron-deficient alkynes and *ortho*-phenylenediamines to synthesize quinoxalines, which are most commonly prepared by condensing diamines with  $\alpha$ -diketones. The reactions with electron-rich, -neutral, and -poor substrates all proceed with high yield. The synthesis of anhydride **4** demonstrates the utility of this method, as such electron-deficient quinoxalines are challenging to prepare by traditional methods.

**Comment:** Initial results with *tert*-butyl hypoiodite predominately yielded the dearomatized *cis,cis*-mucononitrile. Phenyl iodine diacetate (PIDA) proved to be crucial, despite attempts with several other hypervalent iodine reagents. The reaction is also highly solvent-dependent, proceeding more effectively with increasing solvent polarity.

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