Hypervalent Iodine for $\alpha,\alpha$-Dihalogenation

**Significance:** Functionalization at the $\alpha$-position of carbonyls represents one of the most versatile and useful types of transformations in organic chemistry. In this paper, the authors describe the use of a hypervalent iodine species to doubly halogenate the $\alpha$-position of esters with either chlorine or fluorine.

**Comment:** While the chlorination procedure was shown to be broadly functional group tolerant, the need for BF$_3$·OEt$_2$ in the case of fluorination limits the possible functionality in the starting material. The authors report that substrates with labile moieties such as OMe or NHAc decompose upon heating with BF$_3$·OEt$_2$. 

**Selected examples:**

- **Chlorination:**
  - $\text{Br} - \text{Cl} - \text{Cl}$, 87% yield
  - $\text{O}_2\text{N} - \text{Cl} - \text{Cl}$, 67% yield
  - $\text{TsO} - \text{Cl} - \text{Cl}$, 89% yield

- **Fluorination:**
  - $\text{Br} - \text{F} - \text{F}$, 66% yield
  - $\text{O}_2\text{N} - \text{F} - \text{F}$, 79% yield
  - $\text{TsO} - \text{F} - \text{F}$, 74% yield

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