The Takai Olefination: Simple Access to E-Alkenyl Halides

**Significance:** In 1986 Takai and co-workers developed a simple procedure for the stereoselective preparation of E-alkenyl halides from various aldehydes by using an excess of CrCl₂ together with a haliform. The selectivity was dependent on the corresponding haloform and decreased in the order Cl > Br > I.

**Comment:** The mild reaction conditions enable highly chemoselective transformations. Thus, the olefination of an aldehyde proceeds smoothly in the presence of ketone moieties. Given the unique chemo- and stereoselectivity, several modifications and improvements of this method have been published over the years.

**Selected examples:**

- **87% yield**
  - **E/Z = 94:6**

- **76% yield**
  - **E/Z = 94:6**

- **78% yield**
  - **E/Z = 89:11**

- **55% yield**
  - **E/Z = 89:11**

- **55% yield**
  - **E/Z = 92:8**

- **73% yield**
  - **E/Z = 81:19**

- **75% yield**
  - **51% yield**

**Competition experiments:**

- **75% yield**
  - **E/Z = 81:19**

- **5% yield**
  - **E/Z = 81:19**