**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 haloform. 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:**

- **I**
  - 87% yield
  - E/Z = 94:6
- **Cl**
  - 76% yield
  - E/Z = 94:6
- **I**
  - 78% yield
  - E/Z = 89:11
- **Br**
  - 55% yield
  - E/Z = 92:8

**Competition experiments:**

- **Cl**
  - 55% yield
  - E/Z = 92:8
- **Br**
  - 73% yield
  - E/Z = 81:19
- **I**
  - 75% yield
  - E/Z = 81:19
- **n-BuO**
  - 51% yield

**Equation:**

\[
\text{RCHO} + \text{CHX}_3 (2.0 \text{ equiv}), \text{CrCl}_2 (6.0 \text{ equiv}) \rightarrow \text{E-Haloalkenes (RCH:CHX)}
\]

**Conditions:** THF, 0–65 °C, 0.5–21 h

**Yields and Selectivities:**

- Up to 87% yield
- E/Z up to 95:5

**R = Alk, alkenyl, Ar**

**X = Cl, Br, I**