When ring opening of 1,1,2-trihalocyclopropanes are carried out under a variety of basic conditions, acetylenic ketals and acetals are formed. Under appropriate conditions regiospecific reactions take place, and either acetylene can be furnished in good to excellent yield.

One of the compounds reacted was 1,1-dibromo-2-chloro-2-ethoxycyclopropane, which gives 3,3,4,4-tetraethoxy-1-butyne (denoted TEB, shown below) in very good yield when exposed to sodium hydroxide and ethanol under phase-transfer conditions. This acetylene is a densely functionalized molecule, and it appears to be a flexible and excellent starting material for the synthesis of a variety of chemical entities, including carbohydrate analogues and furan derivatives. In the seminar an overview of the studies we are currently performing in my research group will be presented.