Supporting Information:


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Fluorohydrin (cis and trans)

Figure S1: $^1$H NMR spectrum of the mixture (cis and trans) fluorohydrin in CDCl$_3$ acquired at 600 MHz.

Fluorohydrin (cis and trans)

Figure S2: Expansion of $^1$H NMR spectrum of fluorohydrin. Signals related to Hydrogens H2 and H3 of both diastereoisomers.
**Figure S3:** $^1$H Sub-spectra with the assignment for fluorohydrin: a) *trans* isomer; b) *cis* isomer acquired through selective TOCSY experiment and c) a normal $^1$H NMR spectrum for the *cis* and *trans* mixture.

**Figure S4:** $^1$H NMR spectrum of the mixture (*cis* and *trans*) chlorohydrin in CDCl$_3$ acquired at 600 MHz.
Figure S5: Expansion of $^1$H NMR spectrum of chlorohydrin. Signals related to Hydrogens H2 and H3 of both diastereoisomers.

Figure S6: $^1$H Sub-spectra with the assignment for chlorohydrin: a) trans isomer; b) cis isomer acquired through selective TOCSY experiment and c) a normal $^1$H NMR spectrum for the cis and trans mixture.
Figure S7: $^1$H NMR spectrum of the mixture (cis and trans) bromohydrin in CDCl$_3$ acquired at 600 MHz.

Figure S8: Expansion of $^1$H NMR spectrum of bromohydrin. Signals related to Hydrogens H2 and H3 of both diastereoisomers.
Figure S9: $^1$H Sub-spectra with the assignment for bromohydrin: a) *trans* isomer; b) *cis* isomer acquired through selective TOCSY experiment and c) a normal $^1$H NMR spectrum for the *cis* and *trans* mixture.

Figure S10: $^1$H NMR spectrum of the mixture (*cis* and *trans*) iodohydrin in CDCl$_3$ acquired at 600 MHz.
Figure S11: Expansion of $^1$H NMR spectrum of iodohydrin. Signals related to Hydrogens H2 and H3 of both diastereoisomers.

Figure S12: $^1$H Sub-spectra with the assignment for iodohydrin: a) trans isomer; b) cis isomer acquired through selective TOCSY experiment and c) a normal $^1$H NMR spectrum for the cis and trans mixture.