

Enantioselective Hydroamination with Chiral Ligands

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Catalysis of hydroamination using chiral ligands can produce a product with an enantiomeric excess (ee). Previous research with amino alcohol ligands have resulted in ee's up to 16%. This summer I synthesized sulfonamide ligands (Figure 1) with increasing electron withdrawing character to investigate the effect of this trend on rate and ee of the reaction. If the rate increases with increased electron withdrawing character the temperature may be reduced which could improve ee. The data from the hydroamination reactions of each of the ligands at 135 °C and of the most electron withdrawing ligand at 110 °C are presented in Table 1 below.

Ligand	EE
Sulfonamide A	5
Sulfonamide B	5
Sulfonamide C	5
Sulfonamide C at 110 °C	No reaction

Table 1 – Hydroamination Data

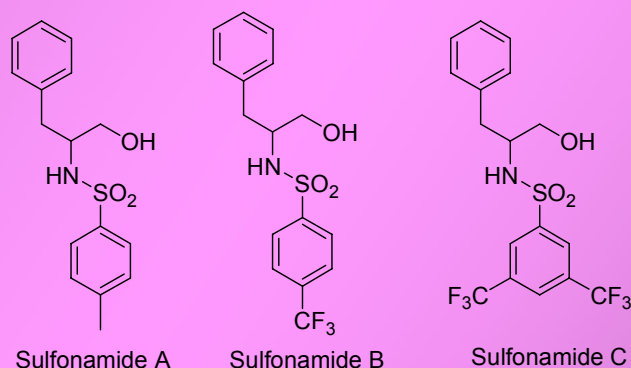


Figure 1 – Sulfonamide Ligands

Conclusions—The sulfonamide ligands all successfully catalyzed the hydroamination of aminoallenes. No increase of ee is seen from simply increasing the electron withdrawing character and based upon the second trial of sulfonamide C at a lower temperature the increase in electron withdrawing character does not produce a significant enough rate increase to allow the reaction to proceed at a lower temperature.

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