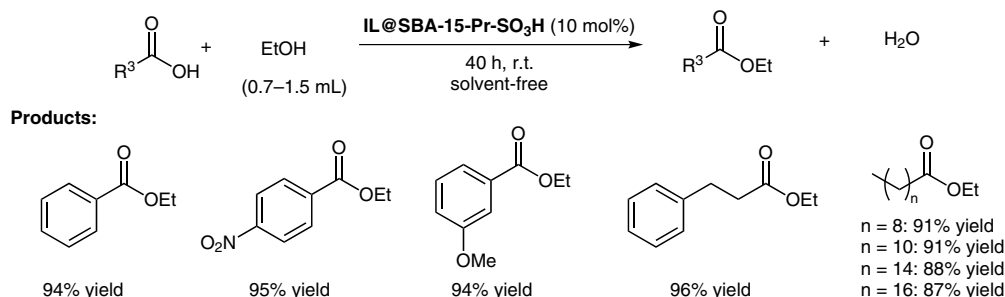
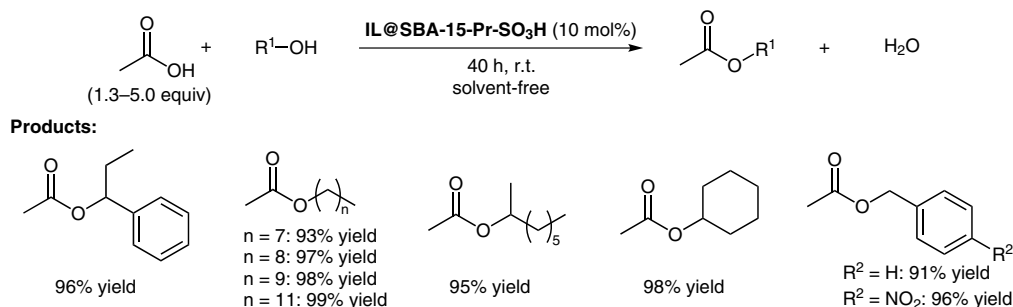
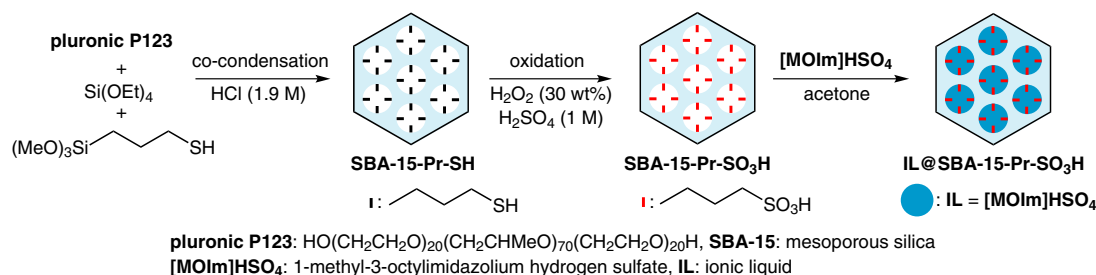


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SBA-15-Functionalized Sulfonic Acid Confined Acidic Ionic Liquid: A Powerful and Water-Tolerant Catalyst for Solvent-Free Esterifications

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## SBA-15-SO<sub>3</sub>H-Confined Acidic Ionic Liquid



**Significance:** Esterification of carboxylic acids with alcohols using an acidic ionic liquid confined to SBA-15-SO<sub>3</sub>H (IL@SBA-15-Pr-SO<sub>3</sub>H) as a catalyst was described. IL@SBA-15-Pr-SO<sub>3</sub>H consists of ordered mesoporous silica SBA-15-SO<sub>3</sub>H where an ionic liquid [MOIm]HSO<sub>4</sub> (1-methyl-3-octylimidazolium hydrogen sulfate) was charged. The catalyst promoted the esterification of various carboxylic acids and alcohols at room temperature under solvent-free conditions to give the corresponding esters in 87–99% yield.

**Comment:** IL@SBA-15-Pr-SO<sub>3</sub>H was recovered and reused three times in the direct esterification of acetic acid with 1-octanol (GC yield: 1<sup>st</sup> use: 100%, 2<sup>nd</sup> use: 94%, 3<sup>rd</sup> use: 90%, 4<sup>th</sup> use: 89%). Both N<sub>2</sub> adsorption–desorption and elemental microanalysis demonstrated that catalyst loss of ≈7% occurred after the 4<sup>th</sup> run. SBA-15-Pr-SO<sub>3</sub>H, [MOIm]HSO<sub>4</sub> (IL), IL@SBA-15, H<sub>2</sub>SO<sub>4</sub>, and SBA-15 showed lower catalytic activity in the esterification of acetic acid with 1-octanol under similar conditions.

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