

## 3 Step Synthesis of Benzocaine

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Benzocaine is a local anesthetic from the ester family. The drug benzocaine is normally used as a topical pain reliever or as a common ingredient in cough drops. Benzocaine is used in multiple forms including lotion, gel, liquid, lozenges, and sprays. When Benzocaine is applied in any form it temporarily numbs or blocks the nerve endings, which leads to a decrease in the amount of pain. A three-step synthesis is used to create benzocaine. First p-aminobenzoic acid is produced from taking p-acetotoluidide and oxidizing it with magnesium sulfate. Then to create an amino acid, p-aminobenzoic acid is then heated with hydrochloric acid. To esterify the amino acid and produce benzocaine ethanol must be added in the last step of the synthesis. To make this experiment greener we used hydrochloric acid in the last step instead of sulfuric acid.