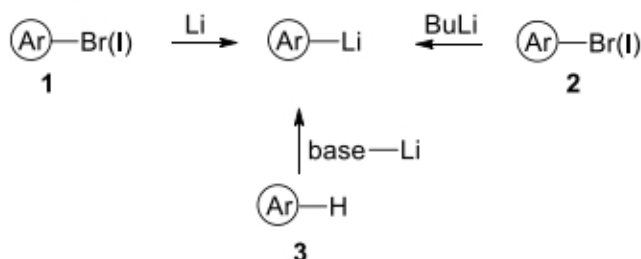
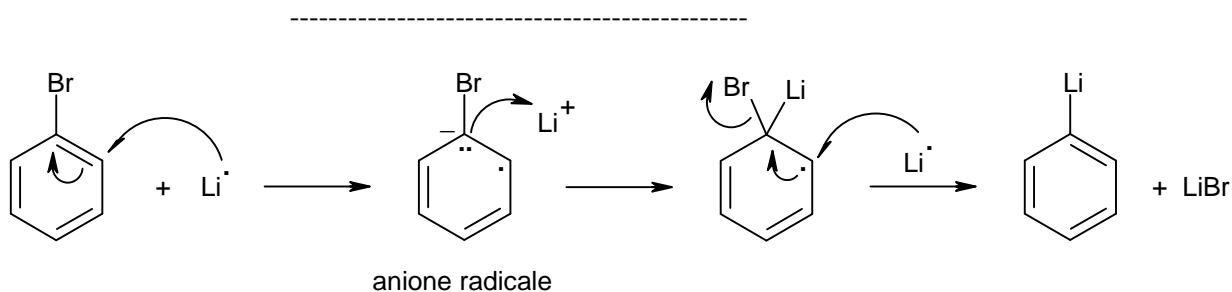


Problem 22. Where is lithium?

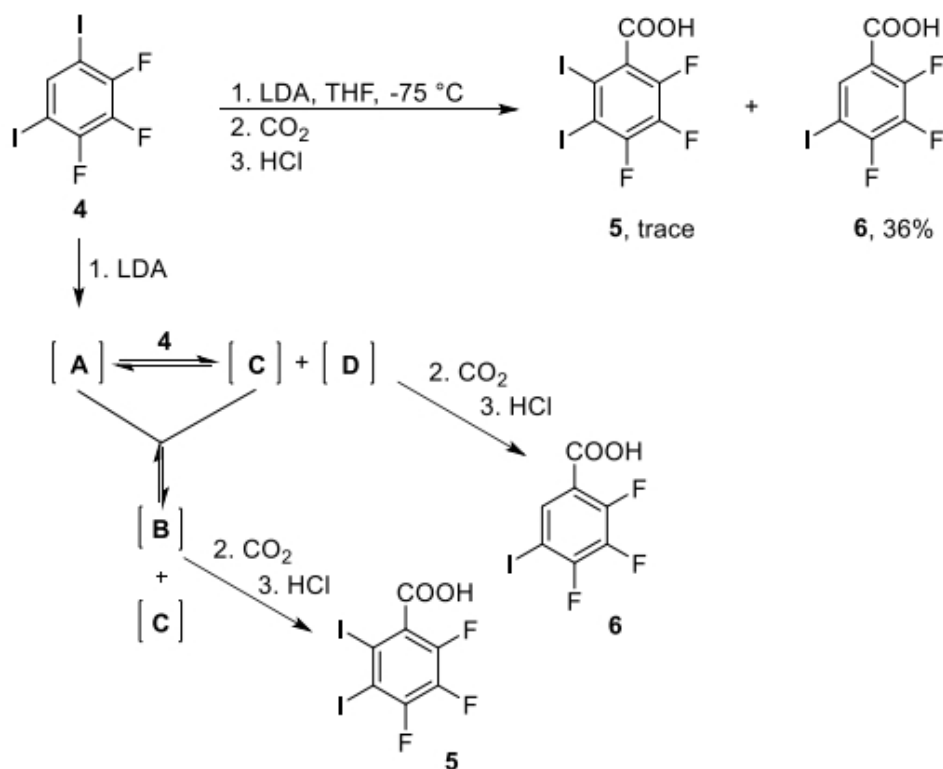
Aryllithium reagents are key intermediates in the synthesis of a vast number of substances. The preparation of such reagents can be achieved by the reaction of aryl halides with lithium or butyllithium. Another possibility involves an acid-base reaction of aromatic/heteroaromatic compounds with a strong base.



22.1 Draw the mechanism for the reaction of general aryl halide **1** with lithium.



The reaction of substituted iodobenzene **4** with lithium diisopropylamide (LDA) is an example of an aromatic carboxylic acid synthesis via an acid-base reaction known as the halogen dance reaction. In this case, the reaction affords acid **6** as the major product along with trace amount of acid **5**.



22.2 Draw the structures of intermediates **A**, **B**, **C**, and **D** that explain the mechanism of formation of acids **5** and **6**.

