Lidocaine.

Please refer to my little talk in the lab

The product inside the green box is the product you got after “Lidocaine I”. Please observe that we used acetic acid because acetate is a better base to pull the proton of the nitrogen (better than the chloride ion).
The product inside the yellow box is lidocaine (you got it after Lidocaine II). Then you performed an acid-base extraction to isolate it.

**Lidocaine mnemonics (Retro synthetic)**

1.- First look at where the amide bond is. That bond comes from an amine \( R_3N \) (where \( R \) can be anything, including H) and an acyl chloride \( RCOCI \).

2.- Secondly, take in consideration that the acyl chloride molecule has two moieties; one is the acyl chloride which you just figured and the other is an alkyl chloride. The alkyl chloride moiety used to be where the C-N bond is now.

3.- Get the pieces of the puzzle and put them together. The first part is an amine (or aniline if one of the R's is a benzene ring). It has the same backbone all the way until you find the first amide bond (break that bond and fill it with hydrogen(s)). The second part is the acyl-alkyl chloride. The chloride part is where the amide bond is and the and it goes all the way until you find the C-N bond. Put Chlorines at both ends. The third part is the other amine. Follow the same rules as the first one.

So, in this case you can break it as follows:
So, the synthetic route is

\[
\begin{align*}
\text{CH}_3 & \quad + \quad \text{CH}_3 \\
\text{CH}_3 & \quad \text{Cl} \\
\text{NH}_2 & \quad \text{Cl} \\
\text{C} & \quad \text{C} \\
\text{H}_2 & \quad \text{H}_2 \\
\text{C} & \quad \text{C} \\
\text{Cl} & \quad \text{Cl} \\
\text{CH}_3 & \quad \text{CH}_3 \\
\text{CH}_3 & \quad \text{H}_2 \\
\text{N} & \quad \text{H} \\
\text{C} & \quad \text{C} \\
\text{P} & \quad \text{P}
\end{align*}
\]

Lidocaine mnemonics (Synthetic)

Now, the synthetic part is easier. If you have an amine (or aniline) and an acyl chloride proceed to form the amide bond. And if you have an amine and an alkyl chloride proceed to do the S_N2 reaction.