

### III. Group Replacement Reactions

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Since the reaction pictured in Scheme 1 depends upon  $R\cdot$  adding to a molecule of the starting ester, one way to change the course of this reaction is to introduce a compound that will react more rapidly with  $R\cdot$  than does the ester. Thiols meet this requirement.<sup>8,19–25</sup> Hydrogen-atom abstraction by a carbon-centered radical from a thiol is rapid enough ( $k_H = 1.4 \times 10^8 \text{ M}^{-1}\text{s}^{-1}$  at 25 °C for abstraction from  $\text{C}_6\text{H}_5\text{SH}$  by  $\text{Bu}\cdot$ )<sup>26</sup> to occur in preference to radical reaction with the starting ester.

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