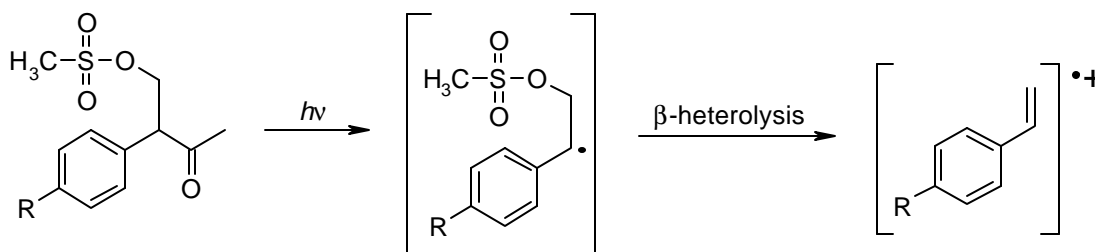


## $\beta$ -Heterolysis: Analyzing a Pathway of Radical Cation Formation

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$\beta$ -Heterolysis is increasingly relevant in our daily lives since radicals are generated in our DNA strand<sup>1</sup> and  $\beta$ -heterolysis is a mechanism by which the DNA strand might potentially cleave. Here, the dynamics of  $\beta$ -heterolysis is studied using benzylic radicals with a mesylate leaving group at the  $\beta$ -position.



The radicals, generated using laser flash photolysis, undergo  $\beta$ -heterolysis to form styrene type radical cations. The rate constants for the formation of these radical cations are determined in solvents with varying ionizing abilities, namely: 1,1,1,3,3,3-Hexafluoroisopropanol (HFIP), 2,2,2-Trifluoroethanol (TFE), and Acetonitrile (AcN). The effect of substituents on the phenyl ring on the  $\beta$ -heterolysis reaction is also investigated by changing the substituent at the para-position.

1) Giese, B; Beyrich-Graf, X; Burger, J; Kesselheim, C; Senn, M; Schäfer, T *Angew. Chem. Int. Ed. Engl.* **1993**, 32, 1742 - 1743