SYNTHETIC STUDIES OF SOME USEFUL BUILDING BLOCKS FOR PREPARATION OF THE NOVEL TERTIARY ALKYL FLUORIDES

Y. Takeuchi,* A. Kanada, S. Kawahara, and T. Koizumi

Faculty of Pharmaceutical Sciences, Toyama Medical & Pharmaceutical University, Sugitani 2630, Toyama 930-01 (JAPAN)

Some synthetic routes to the novel structure of tertiary alkyl fluorides **10** have been developed utilizing the three key compounds, **1**, **2**, and **9**.

Alkylation of **1** or **2** with Bu_3SnR^2, active olefin / Bu_3SnH, or R'CHO / Zn produced the dialkylated fluoroester **3**. Reduction of **3** with $LiAlH_4$ gave β-fluoro-alcohol **4**. Halogenation of **4** was accomplished with Ph_3P / CX_4 to afford β-fluoro halide **5** which can be transformed to the target structure **10**. Saponification of **3** with NaOH yielded the acid **6**, which was converted to the corresponding chloride **7** by treatment with $(COCl)_2$. Coupling of **7** with Grignard reagent successfully produced the tertiary fluoride **10**. The chloride **7** could be also converted (NHTP / $BrCCl_3$) to α-bromofluoroalkane **8**, which was alkylated with Bu_3SnR^3 to give **10**.

Direct introduction of the third alkyl group (R^3) was also attempted. α-Fluoro-nitroalkane **9** was obtained from **1** by dealkoxycarbonylation ($NaBH_4$ or NaOH) followed by alkylation with active olefin. Denitrative alkylation of **9** was achieved with active olefin / Bu_3SnH to afford the target structure **10**, although in low yield.