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This manuscript reports multiple simultaneous lithiation of brominated poly(alkyl aryl ether) dendrimers, toward functionalizing the dendrimers using the lithiation chemistry. The efficiencies of the lithiation reactions have not been studied in detail in dendrimer chemistry in general, excepting for the polysilane based dendrimers. Within the polysilane dendrimers, only the lower generation, with a maximum of 16 lithiation sites have been explored so far. In spite of the versatility of the lithiation reactions in organic synthesis and polymer synthesis, such reactions open up new avenues for emerging dendrimer chemistry. The halide-containing dendrimer precursors for the preparation of the lithium derivatives are prepared and the dendritic lithium derivatives are then subjected to reaction with electrophiles, leading to the formation of dendritic deuterium and carboxylic acid containing dendrimers.