This work is devoted to the A-sequence characterization of the Riordan arrays with type-I B-sequences and the Z-sequence characterization of the Riordan arrays with type-II B-sequences. The construction schemes of two type B-sequences based on the characterization are given. An application of $B$-sequences to the second structure RNA matrices is discussed. Some subgroups characterized by A-sequences are presented. Finally, we investigate the sequence characterization of centralizers of the Riordan group, reverse sets of Riordan arrays, pseudo Riordan involutions, and the Pascal like matrices. (Received July 14, 2019)