We concentrate on the development of reactions and functions featuring elements-based characteristics, in particular, based on main group elements or non-toxic, abundant metal elements. Among our recent research, the development of some borylation reactions and direct hydroxylation/amination of aromatic compounds, and cross-coupling reaction and molecular functions based on monocarba-closo-dodecaborate ([CB_{11}H_{12}]^–, “C1-carborane anion”) will be discussed.