

## IV. Summary

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Reactions of carbohydrate selenides with tin-centered and silicon-centered radicals produce carbon-centered, carbohydrate radicals. These radicals can undergo hydrogen-atom abstraction, intra- and intermolecular addition, group migration, radical-cation formation, and radical combination. Reduction and radical cyclization are the two most common of these reactions. Reduction is involved in the synthesis of 2-deoxy sugars and 2'-deoxy disaccharides and nucleosides. Cyclization, which is characterized by the formation of compounds with a variety of ring sizes, is the central reaction in a general procedure for converting monosaccharides into C-disaccharides. In this procedure glycosyl phenyl selenides are chosen to generate pyranos-1-yl and furanos-1-yl radicals because a carbohydrate with a selenophenyl group at C-1 is thermally more stable than other substituents usually used for radical generation at this position. Carbohydrate tellurides are relatively unstable compounds that form carbohydrate radicals upon absorption of light or reaction with methyl radicals.

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