BIORGANOMETALLIC CHEMISTRY OF MERCURY AND APPROACHES TO DETOXIFICATION. Gerard Parkin, Department of Chemistry, Columbia University, 3000 Broadway, New York, NY 10027 USA.

The extreme toxicity of organomercury compounds that are found in the environment has focused attention on the mechanisms of action of bacterial remediating enzymes. Here we describe the use of the *tris*(2-mercapto-1-t-butylimidazolyl)hydroborato ligand, $[Tm^{But}]$, which features three sulfur donors, to achieve facile room temperature protolytic cleavage of the Hg–C bond in mercury alkyl compounds that emulate the structure and function of the organomercurial lyase, MerB. Facile access to a higher coordinate species is proposed to account for the exceptional reactivity of $[Tm^{But}]HgR$ compared to that of other 2-coordinate mercury alkyl compounds. Another reason for the toxic effects of mercury has been attributed to its influence on the biochemical roles of selenium and investigation of a series of chalcogenolate compounds $[Tm^{But}]MEPh$ (M = Zn, Cd, Hg; E = S, Se, Te) indicates that the chalcogenophilicity of mercury increases in the sequence S < Se < Te.