[*Med. Chem. Res.*, **8**, 333-338 (1998)] [Lab. of Pharm. Chemistry]

Aryloxyethylamines as h5-HT$_{1D}$ Serotonin Receptor Ligands.

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Although the β-adrenergic antagonist propranolol binds at rodent 5-HT$_{1B}$ serotonin receptors, it displays low affinity (*Ki* > 10,000 nM) for its species homologue 5-HT$_{1Dβ}$ (*i.e.*, h5-HT$_{1B}$) receptors. The structure of propranolol was systematically modified in an attempt to enhance its affinity for the latter population of receptors. Removal of the alkyl hydroxyl group, shortening of the *O*-alkyl chain from three to two methylene groups, and variation of the terminal amine substituent resulted in compounds, such as *N*-monomethyl-2-(1-naphthyloxy)ethylamine (*Ki* = 26 nM), that displayed significantly higher h5-HT$_{1B}$ affinity than propranolol. The compound was shown to bind equally well at human 5-HT$_{1Dα}$ (h5-HT$_{1D}$) receptors (*Ki* = 34 nM) and was further demonstrated to possess h5-HT$_{1B}$ agonist character in an adenylate cyclase assay. (2,3-Disubstituted)phenoxyethylamines were also prepared and characterized for h5-HT receptors activities. Aryloxyethylamines appeared to represent a novel class of 5-HT$_{1D}$ receptor agonists.

[*Phosphorus, Sulfur, and Silicon*, **138**, 497-500 (1998)] [Lab. of Pharm. Chemistry]

Synthesis of Phenylethynyldibenzoselenophenium Salt and Its Reactions with Nucleophiles

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5-Phenylethynyldibenzoselenophenium triflate was prepared from dibenzoselenophene 5-oxide and phenyltrimethylsilylacetylene in the presence of triflic anhydride. The FAB mass spectrum exhibited an (M^++1) peak at *m/z* 483, and the X-ray crystallographic data showed that two C-Se bonds occupied equatorial positions, and the acetylenic bond and the triflate take an apical array with a bond angle of 172.1°. Namely, the selenonium salt had a distorted trigonal bipyramid structure. Reactions of the selenonium salt with sodium benzenesulfinate in an alcohol gave *Z*-alkoxyvinylsulfone and dibenzoselenophene in moderate yields, whereas the selenonium salt did not react with benzenesulfinic acid.

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Facile Method for the Preparation of 7-Methyl-8-oxoguanosines as an Immunomodulator.

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Reaction of 9-(2,3,5-tri-*O*-acetyl-β-D-ribofuranosyl)-7-methylguaninium iodide with hydrogen peroxide in acetic acid gave the corresponding 7-methyl-8-oxoguanosine derivative in good yield. Deprotection of the 7-methyl-8-oxoguanosine derivative easily gave 7-methyl-8-oxoguanosine, which is well-known as an immunomodulator. Substitution of acetyl group at the N^2-position of guanine ring accelerated the oxidation reaction of 7-methylguaninium iodide.

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Synthesis of 5-Arylthiouridines *via* Electrophilic Substitution of 5-Bromouridines with Diaryl Disulfides.

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Novel synthetic method of 5-arylthiouridine derivatives is described. Treatment of 5-bromo-2',3'-*O*-isopropylideneuridine with diaryl disulfides in the presence of sodium hydride at ambient temperature gave the 5-arylthiouridines in moderate yields. The present method is devised by virtue of a combination of efficient participation of the 5'-hydroxy group onto the uracil ring and the electrophilic nature of diaryl disulfide, which was applied to the synthesis of 5-arylthio-1-β-D-arabinofuranosyluracil.