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Electrophilic *Ips*o-Substitution of 5-Bromouridines with Diaryl Disulfides. Novel Synthesis of 5-Arylthiouridines

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Reaction of 5-bromo-2',3'-isopropylideneuridine (1) with diaryl disulfides in the presence of sodium hydride in dimethylformamide induced an electrophilic *ip*so-substitution to give the corresponding 5-arylthiouridine derivatives, which were hydrolyzed with ease to 2',3'-unprotected 5-arylthiouridines in high yields. This reaction was applicable to diphenyl diselenide to give 5-phenylselenouridine. The present reaction involves the efficient participation of the 5'-hydroxyl group of (1) and the heterotic cleavage of diaryl disulfides, and provides a novel method for the synthesis of 5-arylthiouridines.

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New Chemical Modification of the Ribosyl Moiety in Uridines. Synthesis of Novel Types of 3', 5'-Epithio Uridine Derivatives

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A simple procedure of novel type of 3', 5'-epithiouridine derivatives fused with a thiethane ring in the sugar moiety was accomplished using 2', 5'-dichloro-2', 5'-dideoxyuridines (1) easily prepared from uridines. Reaction of (1) with thioacetic acid in the presence of triethylamine in dimethylformamide gave 5'-S-acetyl-2', 2'-anhydro-5'-thio-1- β -D-arabinofuransyluracils, which were refluxed in methanolic sodium methoxide to give 3', 5'-epithio-3', 5'-dideoxy-1- β -D-xylofuranosyluracils in good yields. The present result provides a new methodology for the chemical modification of uridine derivatives.

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Regulation of Nerve Growth Factor Synthesis/Secretion by Catecholamine in Cultured Mouse Astroglial Cells.

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The nerve growth factor synthesis/secretion by cultured mouse astroglial cells was modulated by catecholamine. In quiescent cells, epinephrine (EN) and dopamine (DA) markedly increased in nerve growth factor content in the conditioned medium (CM). Conversely, EN, DA, and norepinephrine (NE) decreased the nerve growth factor content in growing cells. Cholinergic agonists, metacholine and carbamylcholine, slightly increased the nerve growth factor content in quiescent cells, but showed no effects on growing cells. Other neurotransmitters tested has no effects on either growing or quiescent cells. These results suggest that catecholamine is one of the molecules responsible for regulation of nerve growth factor synthesis/secretion in the mouse brain.