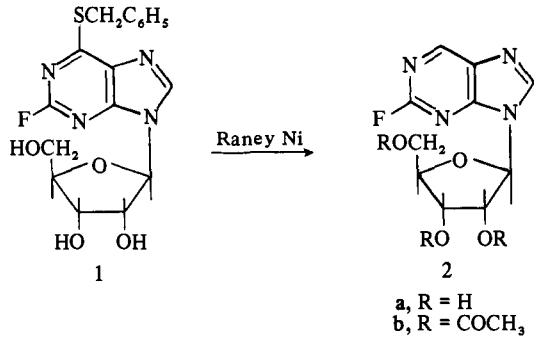

1

2

a, R = H
b, R = $COCH_3$

Experimental Section†

2-Fluoro-9-(β-D-ribofuranosyl)purine (2a). To a boiling soln of 1.64 g (4 mmoles) of 1 · H_2O in 30 ml of EtOH was added a suspension of 14 g of Raney Ni in 60 ml of EtOH. The mixt was refluxed for 40 min with stirring. The catalyst was removed by filtration with a Celite pad and washed thoroughly with boiling EtOH. The combined filtrate and washings were concd to *ca.* 10 ml *in vacuo*. The undissolved material was removed by filtration with charcoal and the filtrate was evapd to dryness *in vacuo* to give 590 mg (55%) of crude **2a** as a foam. The product was chromatogd on a silica gel column with EtOAc–EtOH (95:5, v/v). Evapn of the solvents gave a colorless foam, which was crystd from EtOAc contg a small amt of MeOH: mp 144.5–146°; $[\alpha]^{25}D$ −32.3° (*c* 1, H_2O); uv $\lambda_{max}^{pH\ 1}$ 263 nm (ε 8000), $\lambda_{max}^{pH\ 11}$ 264 (7500), λ_{max}^{MeOH} 264 (8000); nmr (DMSO-d_6–D_2O) δ 6.00 (d, $J_{1',2'}$ = 5.4 Hz, 1 H, $H_{1'}$), 8.83 (s, 1 H, H_8), 9.06 (d, J_{H_6F} = 1.2 Hz, 1 H, H_6); nmr for F (DMSO-d_6) −24.8 ppm. *Anal.* Calcd for $C_{10}H_{11}FN_4O_4$: C, H, N.

9-(2,3,5-Tri-*O*-acetyl-β-D-ribofuranosyl)-2-fluoropurine (2b). To a stirred soln of 50 ml of 48–50% HBF_4 was added 3.9 g (0.01 mole) of 9-(2,3,5-tri-*O*-acetyl-β-D-ribofuranosyl)-2-aminopurine[9] at −20 to −25°. To this mixt was added a soln of 2.1 g (0.03 mole) of $NaNO_2$ in 4 ml of H_2O over a period of 10 min. The reaction mixt was stirred at the same temp for another 15 min and 50 ml of EtOH (precooled below −20°) was then added. The mixt was neutralized with *ca.* 26 ml of concd NH_4OH to pH 6 below −15°. The resulting ppt was removed by filtration and washed with 50 ml of cold EtOH. The combined filtrate and washings were concd to *ca.* 50 ml at 30–35° *in vacuo*, and the soln was extd with two 150-ml portions of CH_2Cl_2. The exts were washed with, successively, 50 ml of H_2O, 50 ml of 1% $NaHCO_3$, and two 50-ml portions of H_2O, and then dried ($MgSO_4$). Evapn of the solvents gave 2.9 g (73%) of crude **2b** as a gummy material. This product was chromatogd on a silica gel column (130 g, 4 × 30 cm) using EtOAc–heptane (7:3, v/v), and 250-ml fractions were collected. Fractions 26–35 contd 960 mg (24%) of 2b, which was contaminated with a trace of impurity. Fractions 36–67 were combined and evapn of the solvents gave 1.07 g (27%) of analytically pure **2b** as a glass: $[\alpha]^{25}D$ −3.5° (*c* 2.88, $CHCl_3$); uv $\lambda_{max}^{pH\ 1}$ 264 nm (ε 7300), $\lambda_{max}^{pH\ 11}$ 265 (7200), nmr (DMSO-d_6) δ 6.33 (d, $J_{1',2'}$ = 4.8 Hz, 1 H, $H_{1'}$), 8.83 (s, 1 H, H_8), 9.13 (d, J_{H_6F} = 1.2 Hz, 1 H, H_6); nmr for F (DMSO-d_6) −27.7 ppm. *Anal.* Calcd for $C_{16}H_{17}FN_4O_7$: C, H, N.

Attempts to remove the Ac blocking groups of **2b** with EtOH–NH_3 at 4° occurred with concommitant displacement of the F at and formation of 9-β-D-ribofuranosyl-2-aminopurine.

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†Melting points were taken on a Thomas-Hoover capillary melting point apparatus and are uncorr. Microanalyses were performed by Heterocyclic Chemical Corp., Harrisonville, Mo. Where analyses are indicated only by symbols of the elements, analytical results obtained for those elements were within ±0.4% of the theoretical values. The F nmr spectra were run with 1% CF_3COOH as an external standard.

4-[(Aminooxy)methyl]thiazole Dihydrochloride

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Received August 27, 1971

Recent reports showing the title compound (I) to possess potent *in vitro* and *in vivo* inhibition of specific histidine decarboxylase[1] and to markedly lower rat brain histamine,[2,3] prompt me to report its synthesis. By literature methods,[4-6] alkylation of *N*-hydroxyphthalimide with 4-chloromethylthiazole, followed by hydrazinolysis, gave I.

Experimental Section†

***N*-(4-Thiazolylmethoxy)phthalimide (II).** To a soln of 34.9 g (0.214 mole) of *N*-hydroxyphthalimide in 250 ml of MeCN and 43.3 g (0.428 mole) of Et_3N was added 36.3 g (0.214 mole) of 4-chloromethylthiazole hydrochloride[7] and refluxed for 6 hr. After cooling, the cryst ppt was filtered, washed with a little MeCN and thoroughly with H_2O, and dried, to yield 24 g (43%) of cryst product, mp 158–159° (EtOH). *Anal.* ($C_{12}H_8N_2O_3S$) C, H, N.

4-[(Aminooxy)methyl]thiazole Dihydrochloride (I). II (13 g, 0.05 mole) was refluxed for 2 hr with 2.5 g (0.05 mole) of hydrazine hydrate, 99–100%, in 150 ml of anhyd EtOH. After cooling and removal by filtration of pptd phthalhydrazide, ethanolic HCl was added to the filtrate, and the cryst solid was filtered off and dried. Recrystn from EtOH–Et_2O gave 8.5 g (83%) of white solid, mp 176–177° dec. *Anal.* ($C_4H_6N_2OS$ · 2HCl) C, H, N.

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†Melting points were detd with a Fisher-Johns app and are uncorr. Ir spectra (Nujol mull) were measured on a Perkin-Elmer infracord 137 spectrometer. Absorption bands were as expected. Elemental anal. were performed by Elek Microanalytical Laboratories, Torrance, Calif. Where analyses are indicated only by symbols of the elements, analytical results obtained for those elements were within ±0.4% of the theoretical values.