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Extremely high fluorescence permits easy detection at concentrations as low as 10^{-8} M.

The potential utility of these highly fluorescent compounds as a probe in enzymic mechanism and structure is indicated by their long fluorescent lifetime (close to 20 nsec), detectability at low concentration, and relatively long wavelength of excitation. *Science* 177:279, 1972, and *Science* 175:646, 1972

MANY NOVEL APPLICATIONS ARE POSSIBLE:

- 1,N⁶-Ethenoadenosine-3':5'-Monophosphate has been found to be a highly acceptable substitute for Adenosine-3':5'-Monophosphate in protein kinase systems. *Science* 177:279, 1972
- 1,N⁶-Ethenoadenosine-5'-Triphosphate is reported to show considerable substrate activity as a replacement for Adenosine-5'-Triphosphate with adenylate kinase, hexokinase and phosphofructokinase. *Biochemistry* 11:3499, 1972
- 1,N⁶-Ethenoadenosine-5'-Diphosphate has proved to be an excellent substitute for Adenosine-5'-Diphosphate in the pyruvate kinase system, affording a facile assay for a wide variety of kinases. *Biochemistry* 11:3499, 1972
- Nicotinamide-1,N⁶-Ethenoadenine Dinucleotide, a fluorescent analog of Nicotinamide Adenine Dinucleotide, is reported to show reasonable substrate activity in the Yeast or Horse-Liver Alcohol Dehydrogenase, Glyceraldehyde-3-Phosphate Dehydrogenase and Lactic Acid Dehydrogenase systems. *Proc Nat Acad Sci* 69:2039, 1972
- Nicotinamide-1,N⁶-Ethenoadenine Dinucleotide Phosphate, a fluorescent analog of Nicotinamide Adenine Dinucleotide Phosphate, shows considerable substrate activity with Glucose-6-Phosphate Dehydrogenase, but is essentially inactive with Isocitric Dehydrogenase from pig heart. *Sigma Chemical Company, unpublished*

These Etheno compounds are already available from Sigma:

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	Sodium salt. Approx. 98%	100 mg	46.02		Sodium salt. Approx. 98%	100 mg	97.40
E 3505	3,N ⁴ -ETHENOCYTIDINE	1 mg	1.95	E 4003	1,N ⁶ -ETHENO-2'-	1 mg	3.17
	5'-MONOPHOSPHATE	10 mg	10.96		DEOXYADENOSINE	10 mg	17.53
	Sodium salt. Approx. 98%	100 mg	60.87		5'-MONOPHOSPHORIC ACID	100 mg	97.40
					Sodium salt. Approx. 98%		
E 3628	3,N ⁴ -ETHENOCYTIDINE	1 mg	3.17	E 4128	1,N ⁶ -ETHENO-2'-	1 mg	3.17
	5'-DIPHOSPHATE	10 mg	17.53		DEOXYADENOSINE	10 mg	17.53
	Sodium salt.	100 mg	97.40		5'-TRIPHOSPHATE	100 mg	97.40
					Sodium salt.		
N 3630	NICOTINAMIDE 1,N ⁶ -ETHENOADENINE DINUCLEOTIDE PHOSPHATE					1 mg	£ 5.84
	Grade II. Sodium salt. Approx. 90%					10 mg	31.65
						100 mg	175.32

Previously announced Ethenos:

E 2378 1,N ⁶ -ETHENOADENOSINE	E 3003 1,N ⁶ -ETHENOADENOSINE-5'-TRIPHOSPHATE
E 2253 1,N ⁶ -ETHENOADENOSINE-3':5'-CYCLIC MONOPHOSPHORIC ACID	E 2878 3,N ⁴ -ETHENOCYTIDINE HYDROCHLORIDE
E 8262 1,N ⁶ -ETHENOADENOSINE HYDROCHLORIDE	N 2630 NICOTINAMIDE-1,N ⁶ -ETHENOADENINE DINUCLEOTIDE
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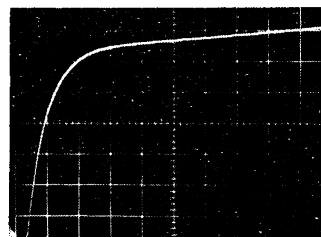
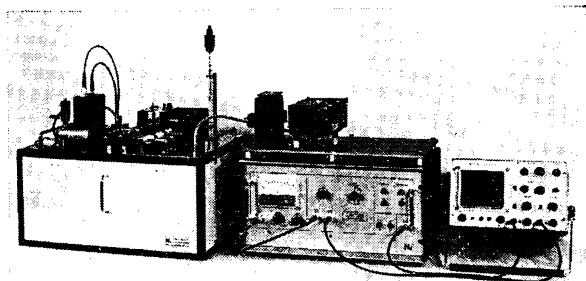
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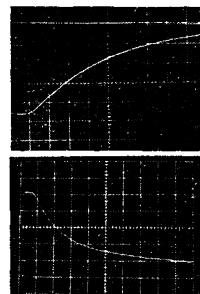
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References:

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2. R. G. Yount, et al., Biochemistry, **10**, No.13, 2484-2489, (1971).
3. S. L. Howell and Margaret Whitfield., J. Histochem, Cytochem., **20** (11), 873-879, (1972).

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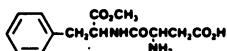
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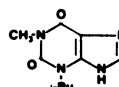
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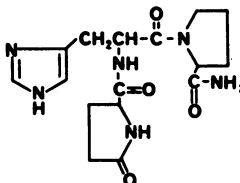
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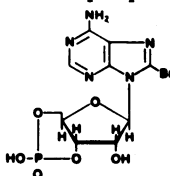
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- 1) *Tetrahedron Lett.*, 2379 (1972).
- 2) *J. Chem. Soc., D*, 1621 (1971).
- 3) *Bioorg. Chem.*, 1, 424 (1971).
- 4) *Ibid.*, 1, 140 (1971).
- 5) *Biochem. Biophys. Res. Commun.*, 51, 666 (1973).

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- 1) *Proc. Nat. Acad. Sci. U.S.*,
70, 447 (1973).
- 2) *Biochemistry*, 10, 3785 (1971).

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G.A. Robinson, R.W. Butcher
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