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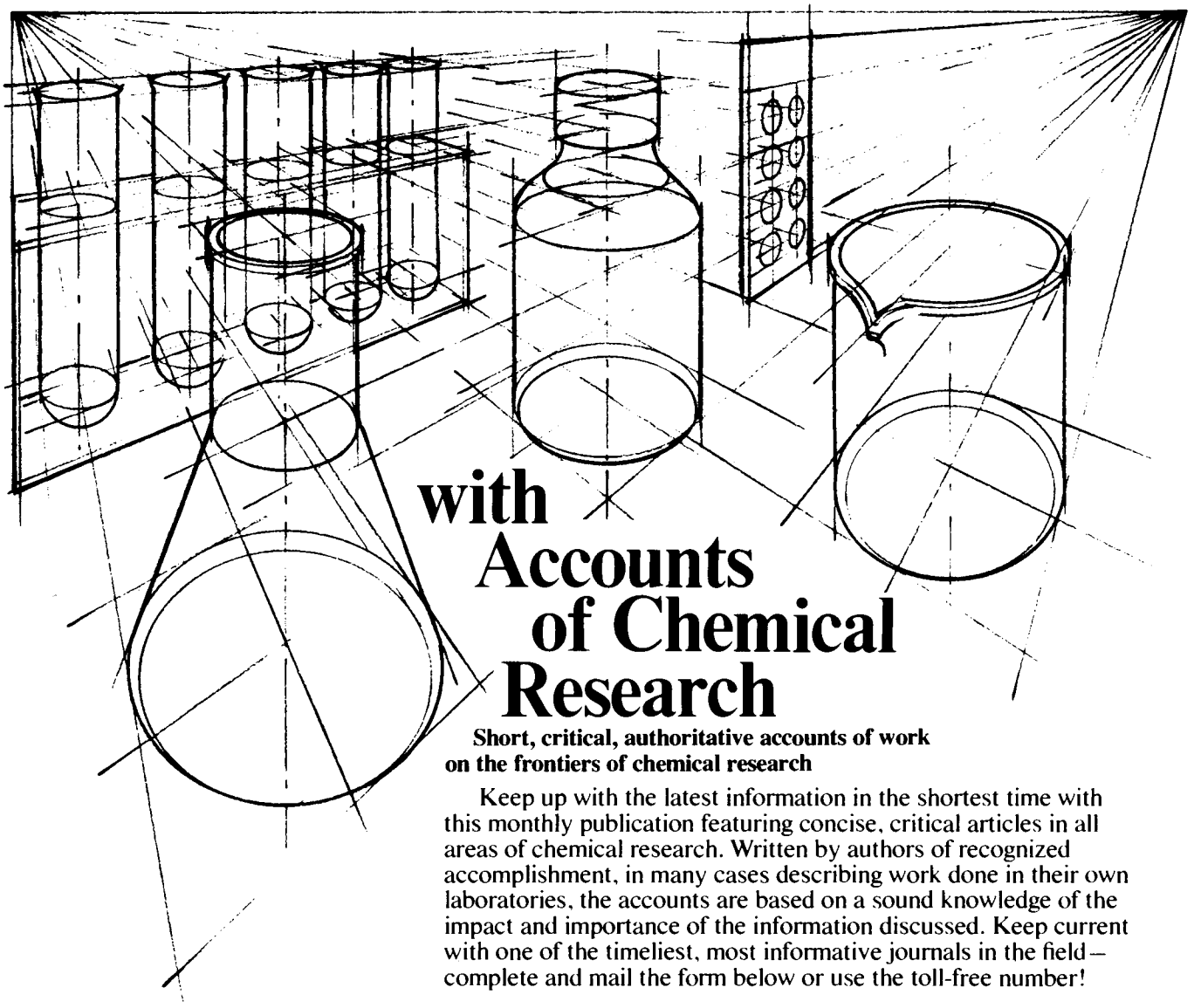

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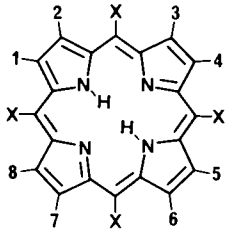
More Porphyrins

Hardly any compound found in nature can rival the porphyrins in importance and diversity of biological functions.[1,2] All forms of life rely on the unique redox and electron-transfer abilities of chlorophylls and iron-porphyrin (heme)-containing cytochromes in converting light to chemical energy. The dioxygen produced in photosynthesis serves as the terminal electron acceptor for all aerobic respiration.



Coproporphyrin I:
X = H; 1,3,5,7 = Me;
2,4,6,8 = $CH_2CH_2CO_2H$
Coproporphyrin III:
X = H; 1,3,5,8 = Me;
2,4,6,7 = $CH_2CH_2CO_2H$
Mesoporphyrin IX:
X = H; 1,3,5,8 = Me;
2,4, = Et; 6,7 = $CH_2CH_2CO_2H$
Deuteroporphyrin IX:
X = H; 1,3,5,8 = Me; 2,4 = H;
6,7 = $CH_2CH_2CO_2H$

In the biological world, dioxygen transportation, storage, reduction, and activation are frequently mediated by heme enzymes. In the plant kingdom, hemes derived from reduced porphyrins (chlorin and isobacteriochlorin) are also found to be responsible for the binding and reduction of soil nitrite to ammonia.[3]

Such transformations involve either a valence change at the metal center or an altering of the redox state of the porphyrin ring or both. It is apparently the unusual flexibility of the porphyrin π-system to accommodate extreme redox changes, coupled with the convenient coordination and electron-transfer ability of the metal center that makes the metalloporphyrins such versatile catalysts. Applications include the cathodic reduction of oxygen (by heat-treated metalloporphyrins), generation of dioxygen species in chemical and photochemical reactions, and oxidation-reduction of a wide variety of organic substrates.

The fact that porphyrins can be used in combination with almost any "metal" in the periodic table to achieve a surprisingly wide range of electronic, spectral or even structural properties has attracted many inorganic, organic, physical, and biochemists to study porphyrins. The application of porphyrinic macrocycles to the study of molecular or "organic" metals, focusing on the relationship between molecular characteristics and solid-state properties, has been reviewed recently.[4]

While protoporphyrins isolated from blood provide a convenient source of many biologically active porphyrins carrying propionic acid and other functional groups, totally synthetic tetraphenylporphine (TPP), octaethylporphyrin (OEP), and etioporphyrins have found wide use in studies of molecular symmetry, solubility, and crystal structure.

Aldrich now offers a new line of porphyrins and metalloporphyrins featuring a variety of ring substituents. Looking for a reliable sample of coproporphyrin III or a porphyrin monopropionic acid to build enzyme models? Aldrich can supply them at *affordable* prices. Let Aldrich help you become a porphyrinologist.

References:

1) Dolphin, D., Ed. "The Porphyrins"; Academic Press: New York, 1978-79; Vols. I-VII.
2) Smith, K.M., Ed. "Porphyrins and Metalloporphyrins"; Elsevier: New York, 1975.
3) Losada, M. *J. Mol. Catal.* **1976**, *1*, 245.
4) Hoffman, B.M.; Ibers, J.A. *Acc. Chem. Res.* **1983**, *16*, 15.

25,240-9 Octaethylporphyrin (1-8 = Et; X = H)
100mg $19.00; 1g $150.00; 5g $590.00

Metal complexes of octaethylporphyrin:

Cr(III) Cl: 25,756-7 50mg $11.00; 250mg $36.00
Co(II): 25,760-5 100mg $19.00; 500mg $63.75
Cu(II): 25,754-0 100mg $19.00; 500mg $63.75
Fe(III) Cl: 25,753-2 100mg $17.00; 500mg $57.00
Mg: 25,755-9 50mg $12.50; 250mg $41.25
Mn(III) Cl: 25,757-5 50mg $11.00; 250mg $36.00
Zn: 25,842-3 100mg $19.00; 500mg $63.75

16,099-7 Tetraphenylporphine (1-8 = H, X = Ph)
1g $12.00; 5g $39.35; 25g $117.25; 100g $290.00

24,736-7 Tetraphenylporphine, GOLD LABEL (< 0.1% corres. chlorin) **250mg $20.00; 1g $60.00**

Metal complexes of tetraphenylporphine:

Co(II): 25,219-0 500mg $17.50; 5g $150.00
Cu(II): 25,218-2 500mg $14.00; 5g $105.00
Fe(III) Cl: 25,907-1 500mg $19.00; 5g $135.00
Mn(III) Cl: 25,475-4 500mg $19.00; 5g $160.00
Ni(II): 25,220-4 500mg $14.50; 5g $115.00
Zn (low chlorin): **25,217-4 25mg $16.00; 100mg $45.00**

25,288-3 Tetrakis(*p*-methoxyphenyl)porphine [1-8 = H; X = *p*-(MeO)C_6H_4] **1g $12.00; 5g $39.35**

25,292-1 Tetrakis(pentafluorophenyl)porphine (1-8 = H; X = C_6F_5) **100mg $20.00; 1g $150.00**

25,291-3 Tetrakis(pentafluorophenyl)porphine iron(III) chloride, 99% **100mg $20.00**

25,878-4 Coproporphyrin I dihydrochloride
25mg $17.00; 100mg $48.00

25,879-2 Coproporphyrin I tetraisopropyl ester
25mg $17.50; 100mg $48.00

25,829-6 Coproporphyrin III tetramethyl ester, 99%
10mg $16.00; 50mg $54.00

25,880-6 Mesoporphyrin IX dihydrochloride
50mg $13.50; 250mg $45.00

25,835-0 Mesoporphyrin IX dimethyl ester, 98%
100mg $28.50; 500mg $100.00

25,290-5 Diacetyldeuteroporphyrin IX dimethyl ester
25mg $17.50; 100mg $50.00

All of the above are synthetic. Please write or call for a computer search of all of our porphyrins.

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