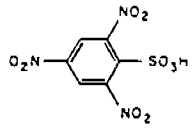
to the greatest extent, followed by RNA, then protein. *Maleic acid monoethyl ester Na salt* [55141-87-2] had a weaker effect on nucleic acid and protein synthesis in these cell prepns.

165381f Reaction of chemical probes with the erythrocyte membrane. Gordesky, Stanley E.; Marinetti, G. V.; Love, R. (Sch. Med. Dent., Univ. Rochester, Rochester, N. Y.). *J. Membr. Biol.* 1975, 20(1-2), 111-32 (Eng). Although



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fluorodinitrobenzene [25376-51-6] and *suberimidate* [3891-73-4] readily penetrated intact erythrocytes, *trinitrobenzenesulfonate* (I) [2508-19-2] did not significantly penetrate the cell membrane under certain conditions. Therefore, I could be used as a vectorial probe for the detection of functional groups (primarily amino groups) of proteins and phospholipids on the outer surface of the membrane. Min. penetration of I occurred at ~23°, at a high pH, and in phosphate-free bicarbonate buffer. The use of these probes in studying the erythrocyte membrane is discussed, for example, in detg. the localization of membrane phospholipids.

165382g Factors affecting fibrinogen precipitation by ristocetin. Ultrastructure of precipitates. Ts'ao, Chung-Hsin; Green, David; Rossi, Ennio C. (Sch. Med., Northwest. Univ., Chicago, Ill.). *Blood* 1975, 45(5), 621-9 (Eng). The antibiotic *ristocetin* [1404-55-3] pptd. human fibrinogen from aq. soln., the effect being inhibited by albumin and enhanced by low temp. The ristocetin-pptd. fibrinogen occurred as fibrils or clumps composed of irregularly spaced, structureless particles. Ristocetin also caused the aggregation of platelets from normal blood plasma, the changes in light transmission (aggregation curves) obsd. following the antibiotic being due both to platelet aggregation and fibrinogen clumping. Since ristocetin does not aggregate platelets in plasma from patients with von Willebrand's disease, this agent may be used for diagnosis of the disease. However, conclusions about the effect of ristocetin should not be based solely on light-transmission changes, but should include a morphol. examn. of the aggregated material to ensure that fibrinogen pptn. was not masquerading as platelet aggregation.

165383h Effects of Tris and histidine on human erythrocytes and conditions influencing their mode of action. Luthra, Madan G.; Ekholm, Janice E.; Kim, H. D.; Hanahan, Donald J. (Coll. Med., Univ. Arizona, Tucson, Ariz.). *Biochim. Biophys. Acta* 1975, 382(4), 634-49 (Eng). Incubation of human erythrocytes in *Tris-HCl* [1185-53-1] caused a marked increase in cellular vol., a preferential release of Na^+ [7440-23-5], and eventual hemolysis. In contrast, *L-histidine* [71-00-1] caused a decrease in cell vol., a high efflux of both Na^+ and K^+ [7440-09-7], and no hemolysis even through the cells gradually regained their vol. as a result of histidine entry. Histidine reversed the erythrocyte swelling induced by exposure to Tris. Inorg. salts and *glucose* [50-99-7] also delayed the Tris-induced swelling and hemolysis.

165384j Adenosylcobalamin analogs as inhibitors of ribonucleotide reductase and vitamin B_{12} transport. Jacobsen, D. W.; DiGirolamo, P. M.; Huennekens, F. M. (Dep. Biochem., Scripps Clin. and Res. Found., La Jolla, Calif.). *Mol. Pharmacol.* 1975, 11(2), 174-84 (Eng). Nucleoside analogs of *5'-deoxy-5'-adenosylcobalamin* [13870-90-1] were synthesized by redn. of *cyanocobalamin* [68-19-9] with Zn in NH_4Cl, followed by reaction with 5'-chloro nucleosides. These analogs, several alkylcobalamins, *5'-deoxy-5'-adenosylcobinamide* [2705-6-34-4], and *methylcobinamide* [20313-07-9] were tested for their effects on the adenosylcobalamin-dependent *ribonucleotide reductase* (*EC 1.17.4.2*) [9068-66-0] from *Lactobacillus leichmannii*. The fluoroadenosine deriv. had full coenzymic activity, but all other cobalamin analogs were inhibitory; the formycin and adenine arabinoside compds. were the most effective inhibitors. The cobinamides were weak inhibitors. All cobalamins tested were strong competitive inhibitors of vitamin B_{12} transport into animal cells, but the cobinamides were poor inhibitors of this transport.

165385k Effect of nonionic polymers on serum proteins. Shinkarenko, A. A. (USSR). *Vaktsiny i syvorotki. Resp. mezhved. sb.* 1974, (8), 120-6 (Russ). From *Ref. Zh., Biol. Khim.* 1974, Abstr. No. 15F433. Title only translated.

165386m Effect of butylated hydroxyanisole and butylated hydroxytoluene on Tetrahymena pyriformis and Gallus domesticus. Surak, John G. (Univ. Wisconsin, Madison, Wis.). 1974. 276 pp. (Eng). Avail. Xerox Univ. Microfilms, Ann Arbor, Mich., Order No. 74-27,764. From *Diss. Abstr. Int. B* 1975, 35(9), 4495.

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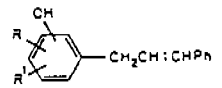
165387n Cinnamyl phenol antimicrobial agents. Jurd, Leonard; King, A. Douglas., Jr.; Stanley, William L. (United States Dept. of Agriculture) U.S. 3,865,748 (Cl. 252-404; A 01n, B 01j), 11 Feb 1975, Appl. 74,485, 22 Sep 1970; 7 pp. Division of U.S. 3,745,222. The cinnamylphenols I (R = H, Me,



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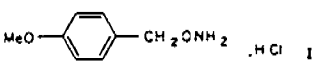
OMe or OH; R' = H or OH) inhibit the growth of bacteria, fungi and yeast, especially in fruits. Thus, *4-cinnamylphenol* [24126-82-7] showed in vitro min. inhibitory concns. of 12 ppm for *Zygosaccharomyces japonicus*, 100 ppm for *Aspergillus flavus*, and 50-100 ppm for *Escherichia coli*.

165388p Mutagen. Paronikyan, G. M.; Akopyan, L. G. (Institute of Fine Organic Chemistry, Academy of Sciences, Armenian S.S.R.) U.S.S.R. 455,150 (Cl. C12k), 30 Dec 1974, Appl. 1,917,861, Appl. 25 Apr 1973. From *Otkrytiya, Izobret., Prom. Obraztsy, Tovarnye Znaki* 1974, 51(48), 55. *O-(4-Methoxybenzyl)hydroxylamine hydrochloride* (I) [876-33-5] exhibits mutagenic activity.



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For papers of related interest see also Section:

1 164895q Antibiotic combinations in the treatment of experimental Staphylococcus aureus infection.

164972n Fundamental and clinical studies on BB-K8 (amikacin), a new semisynthetic aminoglycoside antibiotic.

2 165086p Possible effect of the state of adrenergic receptors on lipid biosynthesis from acetate in human blood.

165222e Influence of dibutyryl cyclic 3',5'-AMP on glucose and fat metabolism in normal and diabetic rats.

4 165448h Heavy metal-nucleotide interactions. III. Participation of amino groups in the binding of methylmercury(II) to cytidine and adenosine 5'-phosphate in aqueous solution. Studies by Raman difference spectrophotometry.

165452e Mutagenicity of sodium hypochlorite for Salmonella typhimurium.

165685h Mutagenic selectivity of carcinogenic nitroso compounds. I. N-methyl-N-nitrosourethane.

165697p Cytological investigations on onion root-tip cells treated with some cigaret smoke constituents.

5 Agrochemicals.

6 165930j Nature of bacteriocines.

166026f Energy-dependent accumulation of iron by isolated rat liver mitochondria. V. Effect on factors controlling respiration and oxidative phosphorylation.

166085z Light-induced free radicals in oriented DNA-proflavine complexes.

7 166532t Influence of template inactivators on the binding of DNA polymerase to DNA.

10 Microbial Biochemistry.

11 Plant Biochemistry.

12 Nonmammalian Biochemistry.

13 Mammalian Biochemistry.

14 Mammalian Pathological Biochemistry.

18 169237m Effect of sugar alcohol on the intestine.

36 157085x Fungus resistance of plastics.

4—TOXICOLOGY

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165389q Possible mechanism of carcinogenic action of vinyl chloride. Van Duuren, Benjamin L. (Med. Cent., New York Univ., New York, N. Y.). *Ann. N. Y. Acad. Sci.* 1975, 246, 258-67 (Eng). A review with 51 refs. An α-chloro ether or related-onium ion appeared to be an activated carcinogenic intermediate of *vinyl chloride* [75-01-4] in vivo. Based on the structural similarity of *trichloroethylene* [79-01-6] to vinyl chloride, an α-chloro ether or -onium ion is suggested as an intermediate in its metab. Thus, trichloroethylene may be carcinogenic.

Michael L.; Back, Kenneth C. (Toxic Hazards Div., 6570 Aerosp. Med. Res. Lab., Wright-Patterson AFB, Ohio). *J. Pharmacol. Exp. Ther.* 1975, 192(2), 251-9 (Eng). Rats and

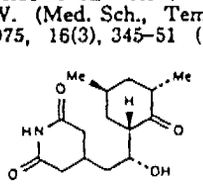
II

dogs were protected from the effects of lethal doses of ingested *ethylene glycol* (I) [107-21-1] with *pyrazole* (II) [288-13-1], an inhibitor of liver alc. dehydrogenase. Rats given 1.35 ml I/100 g followed by 2.2 mmole II/kg, i.p., at 6 and 30 hr postingestion survived. Untreated control animals died. Dogs were given either 10.0 or 12.5 ml I/kg and II doses of 0.9 mmole/kg and 0.5 mmole/kg were administered after 6 and 30 hr, resp. With 10 ml I/kg and no II, 2 of 5 dogs survived; 12.5 ml I/kg and no II, 0/1; 10 ml I/kg and II, 9/11; and 12.5 ml I/kg and II, 12/22. Dogs that succumbed had large nos. of *oxalate* [144-62-7] crystals in their kidneys at necropsy. The surviving dogs had few oxalate crystals in their kidneys at the time of unilateral nephrectomy (2 weeks postexposure) or necropsy (30 days postexposure). Several clin. factors were identified as useful prognostic indicators in the treatment of I poisoning. Thus, II, despite its marked toxicity, may be of clin. significant value in the treatment of I poisoning when therapy is initiated within 6 hr of exposure.

133678s **Extracorporeal complexing hemodialysis system for the treatment of methyl mercury poisoning. I. In vitro studies of the effects of four complexing agents on the distribution and dialyzability of methyl mercury in human blood.** Kostyniak, P. J.; Clarkson, T. W.; Cestero, R. V.; Freeman, R. B.; Abbasi, A. H. (Sch. Med. Dent., Univ. Rochester, Rochester, N. Y.). *J. Pharmacol. Exp. Ther.* 1975, 192(2), 260-9 (Eng). Sulfhydryl agents such as *penicillamine* [52-67-5], *N-acetylpenicillamine* [15537-71-0], *cysteine* [52-90-4] and *N-acetylcysteine* [616-91-1] are capable of reversing the protein binding of MeHg when they are added to whole human blood. The magnitude of the protein binding reversal was similar for each compd. as predicted by the detn. of their relative affinities for MeHg in vitro. Concn.-dependent reversals of protein binding of MeHg in blood were obsd. at increasing sulfhydryl concns. from 10^{-4} to $10^{-2}M$. At $10^{-2}M$, a 55- to 60-fold increase in non-protein-bound plasma MeHg was obsd., when compared to blood with no added sulfhydryl agent. Both the complexing agent and the MeHg complex formed in blood were readily dialyzable using a Travenol 145 twin coil hemodialyzer. At cysteine concns. of $10^{-2}M$ in whole blood, up to 44% of whole blood MeHg was dialyzed on a single pass at a dialyzer blood flow rate of 55 ml/min. Under the same conditions, up to 94% of plasma cysteine was dialyzed. A system is presented for use in vivo on exptl. animals. The potential advantages of this method over existing therapeutic regimens for MeHg poisoning are discussed.

133679t **Subcellular localization of plutonium citrate (plutonium-239) in the rat hepatocyte.** Pepin, Gilbert; Boudene, Claude (Lab. Toxicol., INSERM, Chatenay-Malabry, Fr.). *C. R. Hebd. Seances Acad. Sci., Ser. D* 1974, 279(26), 2071-4 (Fr). Beginning on day 7 after i.v. or i.p. injection of *plutonium citrate-^{239}Pu* [26677-58-7] until death of the rats, hepatocyte *plutonium-239* [15117-48-3] levels were higher in the mitochondrial and lysosomal fraction than in other fractions. On day 16, the activity of ^{239}Pu/g protein matter was 3-4-fold higher in the mitochondrial-lysosomal fraction than in other fractions. About 38% of the ^{239}Pu was bound specifically to the mitochondrial fraction.

133680m **Inhibition by cycloheximide of lipid metabolism by rat adipose tissue in vitro.** Jomain-Baum, Mireille; Hanson, Richard W. (Med. Sch., Temple Univ., Philadelphia, Pa.). *Life Sci.* 1975, 16(3), 345-51 (Eng). *Cycloheximide* (I)



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[66-81-9] in rat adipose tissue inhibited lipogenesis, decreased O consumption, CO_2 formation, and ATP-ADP ratio, and increased the ratio of lactate to pyruvate released. The effects were reversed by placing the tissue in I-free buffer. The mechanism of action of I in adipose tissue was thought to be similar to that in liver, where I inhibits mitochondrial energy transfer at site I.

133681n **Lack of cytogenetic effects in bone marrow and spermatagonial cells in rats treated with polychlorinated biphenyls (Aroclors 1242 and 1254).** Green, Sidney; Carr, Jacqueline V.; Palmer, Kenneth A.; Oswald, Elizabeth J. (Dep. Health, Educ. Welfare, Food Drug Adm., Washington, D. C.). *Bull. Environ. Contam. Toxicol.* 1975, 13(1), 14-22 (Eng). Neither *Arochlor 1242* (I) [53469-21-9] nor *Arochlor 1254* (II) [11097-69-1] showed any mutagenic potential, as demonstrated by cytogenetic anal. of rat bone marrow and spermatogonia. I was more toxic than II but II caused more wt. loss (18-34 vs 5-26 g) at the oral dose levels used (500-5000 mg/kg).

133682p **Modifications of mitochondrial respiration parameters and level of nucleotides in the hepatocyte of the rat, after in vivo contamination by plutonium-239 citrate.** Pepin, Gilbert; Pasquier, Christian; Vallee, Christiane; Duprey, Francois; Boudene, Claude (Lab. Toxicol., Univ. Paris-Sud, Chatenay-Malabry, Fr.). *C. R. Hebd. Seances Acad. Sci., Ser. D* 1975, 280(1), 141-4 (Fr). *Plutonium-239 citrate* [26677-58-7] (50 or 120 μCi/kg, i.v.), contrary to γ-irradn., had no effect on either electron transport or oxidative phosphorylation in liver mitochondria of rats. It, however, caused a marked decrease in hepatic and mitochondrial proteins and intramitochondrial *AMP* [61-19-8], *ADP* [58-64-0], *ATP* [56-65-5], *FMN* [146-17-8], and *GTP* [86-01-1].

133683q **Effect of water hardness on the toxicity of a nonionic detergent to fish.** Tovell, P. W. A.; Newsome, C.; Howes, D. (Environ. Saf. Div., Unilever Res. Lab., Sharnbrook/Bed., EngL). *Water Res.* 1975, 9(1), 31-6 (Eng). Fish (trout and goldfish) were placed in treatment solns. of different water hardnesses contg. ethoxylate (EO) detergents. Survival times were recorded. ^{14}C-labelled EO was used to assess absorption. The toxicity of ethoxylates to fish acclimatised and treated in different water hardnesses, and the effect of cations on ethoxylate toxicity were also investigated. EO was slightly less toxic in hard water than in soft water. The hardness of the treatment soln. has no marked influence on the amt. of EO absorbed by the fish. Evidence suggests that there is little relationship between the compn. of cations constituting a particular hardness and the toxicity of EO. Acclimatisation in different water hardnesses does not affect the susceptibility of fish to nonionic ethoxylate detergents.

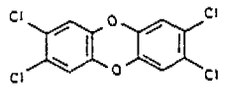
133684r **Fluorescent whitening agents. Acute fish toxicity and accumulation studies.** Sturm, R. N.; Williams, K. E.; Macek, K. J. (Environ. Water Qual. Res. Dep., Procter and Gamble Co., Cincinnati, Ohio). *Water Res.* 1975, 9(2), 211-19 (Eng). Four fluorescent whitening agents (FWA), 3 of which are currently marketed in the United States for use as ingredients in household laundry detergents, were tested to det. their acute toxicity to the bluegill (*Lepomis macrochirus*), as well as their potential for significant accumulation in the flesh of the bluegill and channel catfish (*Ictalurus punctatus*), 2 species of fish common to U.S. waters. Results of the acute toxicity bioassays showed that no acute toxic effects on fish, caused by these materials, would be expected at concns. well above their projected environmental levels. Rates of accumulation and max. levels accumulated were evaluated in the lab. for a period of 90-105 days, followed by an examn. of the rate of elimination of these materials from the fish over a 28-day period. Under these conditions, neither species accumulated any of 3 anionic fluorescent whitening agents (sulfonated stilbene derivs.) when exposed to nominal concns. of 0.125, 1.25, or 12.5 μg/l in water. A nonionic FWA not currently used in the U.S. detergent formulations was significantly accumulated at the 2 highest concns. tested. The nonionic FWA accumulated was rapidly eliminated by fish upon their transfer to water devoid of this chem. Elimination of FWA was essentially complete by 14 days. No significant accumulation by fish was detected with any FWA when exposure was conducted at levels approximating projected environmental concns. Details of the acute toxicity tests, and the patterns of accumulation and elimination seen in this study, as well as their significance, are discussed.

133685s **Inability of nickel(2+) and cobalt(2+) ions to release histamine from rat peritoneal mast cells.** Taubman, Sheldon B.; Malnick, Jeffrey W. (Health Cent., Univ. Connecticut, Farmington, Conn.). *Res. Commun. Chem. Pathol. Pharmacol.* 1975, 10(2), 383-6 (Eng). Ni^{++} [7440-02-0] and Co^{++} [7440-48-4] at $10^{-3}M$-$10^{-6}M$ (as $NiCl_2$ and $CoCl_2$, resp.) were added to rat peritoneal mast cells. The metal ions did not cause *histamine* [51-45-6] release from the mast cells, and did not inhibit the histamine release mediated by compd. 48/80. Therefore, the reported anaphylactoid edema of the rat following injection of Ni^{++} or Co^{++} must be on a basis other than a direct effect of the metal ion on mast cells.

133686t **Vinyl chloride monomer. Hepatotoxicity and interaction with 1,1-dichloroethylene.** Jaeger, Rudolph J. (Kresge Cent. Environ. Health, Harvard Sch. Publ. Health, Boston, Mass.). *Ann. N. Y. Acad. Sci.* 1975, 246, 150-1 (Eng). *Vinyl chloride* (VC) [75-01-4] monomer exposure (1.1 or 4.65% atm. concns.) did not elevate the serum alanine-α-ketoglutarate transaminase (AKT) level in fasted rats. By contrast, *1,1-dichloroethylene* (DCE) [75-35-4] exposure (0.02%) increased the serum AKI activity by 50-fold. When the 2 chems. were simultaneously administered (0.02% DCE and 0.1% VC), there was a complete lack of liver injury. This protection was concn.-dependent.

Miya, Japan). *Nippon Suisan Gakkaishi* 1975, 41(2), 225-31 (Japan). The rate of Hg [7439-97-6] bioconcn. through food chain was exptl. detd. to be 67% by feeding young yellowtail (*Seriora quinqueradiata*) with anchovy (*Engraulis japonica*) prefed with methylmercury chloride, followed by detg. Hg levels remaining in the yellowtail. The body wts. of yellowtail were then plotted against the total Hg concns. in yellowtail fed with anchovy contg. various known amts. of MeMg, assuming anchovy was the main food for yellowtail in nature. From these curves and the Hg level found in yellowtail from the Onagawa Bay, the Hg level in anchovy of the Onagawa Bay was estd. to be 0.01-0.03 ppm, which was similar to the value (0.021-0.038 ppm) actually found in anchovy.

1668z **Effects of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) on mammalian cells in tissue cultures.** Beatty, Patrick W.; Lembach, Kenneth J.; Holscher, Myron A.; Neal, Robert A. (Sch. Med., Vanderbilt Univ., Nashville, Tenn.). *Toxicol. Appl. Pharmacol.* 1975, 31(2), 309-12 (Eng).



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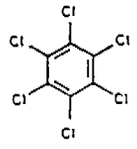
2,3,7,8-Tetrachlorodibenzo-p-dioxin (I) [1746-01-6] added to the culture medium in a final theor. concn. of $10^{-6}M$ prior to the addn. of HeLa cells Balb 3T3 cells, SV101 cells [virus(SV40)-transformed 3T3 mouse fibroblasts], human foreskin fibroblasts, or human lymphocytes did not inhibit cell growth measured after 4 days. None of the cells showed electron microscopic morphol. changes. Incubation of human fibroblasts and SV101 cells with ^{14}C-labeled I showed that incorporation of I into the cells did occur.

1669a **Effect of food restriction on the redistribution of hexachlorobenzene in the rat.** Villeneuve, David C. (Health Prot. Branch, Bur. Chem. Safety, Ottawa, Ont.). *Toxicol. Appl. Pharmacol.* 1975, 31(2), 313-19 (Eng). Adult male rats



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were given *hexachlorobenzene* (I) [118-74-1] (HCB) orally at doses of 0, 1.0, 10, and 100 mg/kg/day for 14 days. The diet of these animals was then restricted to 25% of their normal food intake for a period of 10 days after which all animals were killed and their tissues removed for HCB anal. Food restriction caused a mobilization of the HCB stored within the fat depot resulting in a transfer of this compd. into the plasma and other tissues of the body. Toxic signs including loss of appetite, tremors, and death occurred in the group of animals receiving 100 mg HCB/kg and subjected to food restriction. The tissue residue profile indicated that death occurred when brain HCB concn. exceeded 300 ppm.

1670u **Seborrhea on rat. III. In the case of branched esters.** Matsumoto, Osamu; Totani, Youichiro; Matsuo, Noboru (Coll. Technol., Seikei Univ., Musashino, Japan). *Yukagaku* 1975, 24(2), 127-30 (Japan). For the purpose of clarifying the effects of structure and the no. of C atoms of esters on the development of seborrhea, the oleic acid esters of mono-hydroxyalcs. having side chains were prepd. and fed to rats at a level of 15% of the feed. When *iso-Pr oleate* [112-11-8], *tert-Bu oleate* [16792-04-4], *tert-amyl oleate* [55130-09-1], *iso-amyl oleate* [627-89-4], *1,3-dimethylbutyl oleate* [55130-10-4], *2-ethylhexyl oleate* [26399-02-0], *2-methylheptyl oleate* [55130-11-5], and *3,7-dimethylocta-2,6-dienyl oleate* [55130-12-6] were used, development of seborrhea was obsd. in all cases. The C nos. of all the esters above were <28. In previous expts., when satd. straight chain monohydroxyalc. esters of oleic acid were used, although the C no. was <28, there was no symptom of seborrhea. In the case of the ester of tertiary-type mono-hydroxyalcs., a remarkable development was recognized, esp. with *tert*-Bu oleate and *tert*-amyl oleate.

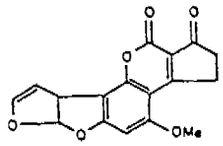
1671v **Function of erythrocytes in attaching selenium-75-labeled selenite onto specific plasma proteins.** Sandholm, Markus (Dep. Med., Coll. Vet. Med., Helsinki, Finland). *Acta Pharmacol. Toxicol.* 1975, 36(4), 321-7 (Eng). The binding of ^{75}Se-labeled *sodium selenite* [10102-18-8], to human plasma proteins was studied in the presence and absence of erythrocytes, and the binding proteins were detected by crossed immuno-electrophoresis followed by autoradiog. The erythrocytes metabolized labelled selenite, which bound to specific plasma proteins. β-Lipoprotein and albumin were initially the most heavily labelled proteins, but an unidentified fraction located electrophoretically between the α_1 and α_2 globulin fractions showed a greater uptake later on.

1672w **Liposomes containing chelating agents. Cellular penetration and a possible mechanism of metal removal.** Rahman, Yueh-Erh; Wright, Betty Jean (Div. Biol. Med. Res., Argonne Natl. Lab., Argonne, Ill.). *J. Cell Biol.* 1975, 65(1), 112-22 (Eng). Electron microscope studies were done on mouse liver, from 5 min to 8 wk after an i.v. injection of liposomes contg. *EDTA* [60-00-4]. Livers of mice receiving an injection of liposomes contg. KCl instead of EDTA or an injection of a soln. of EDTA were also examd. Liposomes were shown to be phagocytized by hepatocytes as well as by Kupffer cells within min after the injection. Initially, there was a close contact between the liposomal membrane and the cellular membrane, followed by an invagination of the latter and the formation of a distinct vesicle surrounding a single liposome or a cluster of several liposomes. No fusion between the liposomal membrane and the cell membrane was obsd. Between 15 min and 6 hr after liposome injection, the Kupffer cells were found to have an increased no. of lysosomes and autophagic vacuoles. Within the latter, morphol. intact liposomes or remnants of liposomes could be seen. At 12 hr after injection, a striking increase in macrophages was obsd. in the liver sinusoids of EDTA-liposome-injected mice, but not in those of KCl-liposome-injected mice. Within the macrorphages, remnants of liposomes occasionally could be obsd. However, the origin and the physiological role of these cells are unknown. In the hepatocytes, morphol. changes were first obsd. 24 hr after injection; there were large nos. of autophagic vacuoles, and some cells showed extensive areas of focal cytoplasmic degeneration. The morphol. of the liver cells returned to normal about 7 days after injection. No morphol. changes were obsd. in livers of mice receiving EDTA soln. without liposomes. A possible mechanism by which the liposome-encapsulated chelating agents can successfully remove intracellular toxic metals is discussed. The use of liposomes as carriers seems to be a useful tool for intracellular delivery of chelating agents or drugs in general.

1673x **Mutagenicity of vinyl chloride, chloroethyleneoxide, chloroacetaldehyde, and chloroethanol.** Malaveille, C.; Bartsch, H.; Barbin, A.; Camus, A. M.; Montesano, R.; Croisy, A.; Jacquignon, P. (Unit Chem. Carcinog., Int. Agency Res. Cancer, Lyons, Fr.). *Biochem. Biophys. Res. Commun.* 1975, 63(2), 363-70 (Eng). Exposure of *Salmonella typhimurium* strains TA 1530, TA 1535 and G-46 to *vinyl chloride* [75-01-4] increased the no. of his$^+$ revertants/plate 16, 12 or 5 times over the spontaneous mutation rate. The mutagenic response for TA 1530 strain was enhanced 7-, 4- or 5-fold when fortified S-9 liver fractions from humans, rats or mice were added. In TA 1530 strain, *chloroacetic acid* [79-11-8] showed only toxic effects, while *chloroacetaldehyde* [107-20-0], *chloroethanol* [107-07-3] and *chloroethylene oxide* [7763-77-1] caused a mutagenic response. The latter compd. was shown to be a strong alkylating agent.

1674y **Thermal sensitization of Chinese hamster cells to methyl methanesulfonate. Relation of DNA damage and repair to survival response.** Ben-Hur, E.; Elkind, M. M. (Biol. Dep., Brookhaven Natl. Lab., Upton, N. Y.). *Cancer Biochem. Biophys.* 1974, 1(1), 23-32 (Eng). Treatment of Chinese hamster cells with the monofunctional alkylating agent *methyl methanesulfonate* (MMS) [66-27-3] at temps. above 37° increased cell killing. Further, thermal sensitization was markedly enhanced by the lengthening of exposure times at elevated temps. Temps. up to ~41° led to a redn. in the shoulder of the survival curve, while those >41° also resulted in an increase in the final slope of the survival curve. Fractionated exposures to MMS showed that during incubation at 37° between 2 exposures, the cells were able to repair sublethal damage while incubation at 41° reduced the extent of such repair. DNA from MMS treated cells was sedimented in alk. sucrose gradients to demonstrate drug-induced lesions expressed as single-strand breaks under alk. conditions. A pronounced increase in the yield of single-strand breaks was obsd. after drug treatment at 42° compared to 37°. The repair of single-strand breaks in DNA derived from MMS treated cells was inhibited by incubation at 42°. Prolonged incubation of MMS treated cells at 42° led to degrdn. of the DNA derived from them. These, as well as other data, supported a partial similarity in action between MMS and x-irradn.

1675z **Death of woody ornamentals associated with leaking natural gas.** Garner, J. H. B. (Natl. Environ. Res. Cent., Research Triangle Park, N. C.). *Int. Shade Tree Conf., Proc.* 1973, 49, 13-17 (Eng). A review with 32 refs., and with some exptl. data on plots planted with willow oaks, crepe myrtle and azalea plants. Natural gas leaking into soil displaces soil air to some extent, but provides an energy source for natural gas-utilizing bacteria. The rapid uptake of natural gas results in the development of anaerobic soil conditions, and under anaerobic conditions microorganisms transform sulfates to H_2S [7783-06-4]. The H_2S inhibits root respiration and nutrient



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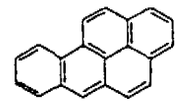


III

B_{2a}) and a 2,3-dehydrocyclopentabenzopyrandione congener did not show any binding, supporting the idea that microsomal mixed-function oxygenase-catalyzed oxidn. of the C2–C3 double bond of aflatoxins is a prerequisite for the formation of nucleic acid-binding metabolites. In assays involving *benzo[a]pyrene* (III) [50-32-8], microsomes from phenobarbital-treated rats were less active than those from 3-methylcholanthrene-treated animals, while the reverse was true for aflatoxin metabolites, suggesting that different enzymes were involved with the various polycyclic metabolites.

133810d **Temperature-sensitive mutants of chemically transformed epithelial cells.** Yamaguchi, Nobuo; Weinstein, I. Bernard (Coll. Physicians Surg., Columbia Univ., New York, N. Y.). *Proc. Natl. Acad. Sci. U. S. A.* 1975, 72(1), 214–18 (Eng). The first temp.-sensitive mutants of epithelial cells transformed with chem. carcinogens were isolated. Like the wild-type transformed parental cells, the mutants readily grew in agar suspension at 36°, but in contrast to the wild type, they did not do so at 40°. Detailed studies of one of these mutants, TS-223, indicated that at high temp. it also had reduced cloning efficiency in monolayer culture and a lower satn. d. Scanning electron microscopy revealed that at 40° confluent cultures of TS-223 consisted of a monolayer of generally flat polygonal cells, whereas 36° cultures contained many patches of piled-up cells that were spherical and had rougher surface membranes. All of these cellular changes were reversible with upward or downward temp. shifts. The temp.-sensitive lesion appeared to reside in a host cell gene which modulated expression of the transformed cell phenotype. These mutants may provide a useful system for elucidating the minimal biochem. changes required for expression of the transformed phenotype in epithelial cells.

133811e **Modifying effect of dimethyl sulfoxide and other chemicals on experimental skin tumor induction.** Stenback, Frej; Garcia, Humberto (Med. Cent., Univ. Nebraska, Omaha, Nebr.). *Ann. N. Y. Acad. Sci.* 1975, 243, 209–27 (Eng). The solvent used to apply carcinogens to the skin of mice affected tumor yield to some extent. *DMSO* [67-68-5] did not affect the initiating phase in 2-phase skin carcinogenesis, and no direct carcinogenic effect of DMSO was found after either percutaneous application or oral ingestion. *2,4-Dinitrophenol* [51-28-5] and *chloropromazine* [50-53-3] did not promote tumor formation. Irradn. with a light source having a spectrum similar to that of sunlight for 1 hr after carcinogen application decreased the tumor yield relative to the solvent used, although the irradn. itself did not produce a significant morphol. response.

133812f **New common marker for premalignant and malignant hepatocytes induced in the rat by chemical carcinogens.** Okita, K.; Kligman, L. H.; Farber, E. (Sch. Med., Temple Univ., Philadelphia, Pa.). *J. Natl. Cancer Inst.* 1975, 54(1), 199–202 (Eng). A new common antigen, preneoplastic (PN), was found in every early and late hyperplastic nodule and in every primary hepatoma induced by *N*-2-fluoren= ylacetamide, ethionine, 3'-methyl-4-dimethylaminoazobenzene, dimethylnitrosamine, or *diethylnitrosamine in three strains* of rats (CFN, F344, and BUF). It so far has not been found in normal adult rat liver, liver surrounding nodules or cancer, fetal liver, amniotic fluid, adult rat serum, sera from rats with hyperplastic nodules or primary hepatomas, or various normal rat tissues. Immunofluorescent staining indicated the PN antigen was present in the cytoplasm of hepatocytes in hyperplastic nodules and in primary hepatomas. Hypothesis on the fundamental nature of PN are discussed.

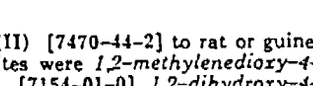
133813g **Carcinogenicity bioassays of vinyl chloride. Current results.** Maltoni, Cesare; Lefemine, Giuseppe (Ist. Oncol., Bologna, Italy). *Ann. N. Y. Acad. Sci.* 1975, 246, 195–218 (Eng). *Vinyl chloride* (VC) [75-01-4] induced tumors in rats, mice, and hamsters, and the spectrum of induced tumors varied from species to species. E.g., VC produced lung adenomas, mammary carcinomas, liver angiosarcomas and angiomas and skin epithelial tumors in mice, but produced Zymbal gland carcinomas, liver nephroblastomas and angiosarcomas, skin carcinoma, hepatomas and brain neuroblastomas in rats. The strain factor also affected the neoplastic response as reflected by the results obtained from Sprague–Dawley rats and Wistar rats. Two s.c. angiosarcomas were obsd. in the offspring of breeders exposed to VC during pregnancy for 7 days, indicating a transplacental effect. The observation of a few cases of ossifying angiosarcomas suggested a new orientation in the pathogenetic interpretation of acroosteolysis in workers exposed to VC.

133814h **Preferential induction of central or peripheral *nervous system tumors in rats by nitrosourea* derivatives.** Cravioto, Humberto M.; Weiss, Joseph F.; Goebel, Hans H.; Weiss, Elvira deC.; Ransohoff, Joseph F. (Med. Cent., New York Univ., New York, N. Y.). *J. Neuropathol. Exp. Neurol.* 1974, 33(5), 595–615 (Eng). A single i.v. dose of *ethylnitrosourea* [759-73-9] (20 mg/kg), given late in pregnancy to rats, induced neural tumors in 83–89% of the offspring in all 4 rat strains. *Intracerebral application of ethylnitrosourea (10 mg/kg) to* newborn rats induced purely neurogenic tumors in 91% of the animals, usually at sites distant from the injection site. Oral ethylnitrosourea (10 mg/kg) given to 10-day-old rats induced tumors in 42% of treated animals, 50% of the tumors being gliomas, and 50% neurinomas. *Methylnitrosourea* [684-93-5] (20 mg/kg) given i.v. once a month to adult rats, induced neurogenic tumors in more than 80% of animals. A consistent and reliable method to induce gliomas in rats apparently involved a single i.v. dose of ethylnitrosourea in the last 5 days of pregnancy or by intracerebral administration of the carcinogen into the newborn rats.

133815j **In vivo and in vitro binding of ethionine with nucleic acids.** Grilli, Sandro; Ferreri, Anna M.; Rocchi, Paola; Prodi, Giorgio (Ist. Cancerol., Univ. Bologna, Bologna, Italy). *Gann* 1974, 65(6), 507–11 (Eng). The *in vivo* binding of *ethionine* [13073-35-3] with RNA, nuclear proteins, cytoplasmic proteins, and DNA rat liver, at high doses of carcinogen, is described. The binding *in vitro* to DNA required the presence of microsomes, and was higher using polynucleotides as acceptors. Acid hydrolysis performed on DNA and *poly-A* [24937-83-5] after incubation with labeled ethionine *in vitro* led to radioactive compds. not coincident with 7-ethylguanine. N. H. Grant

133816k **Effect of ε-N-DL-trimethyllysin on a human lymphocyte culture in vitro.** Stotz, Gyula; Szende, Bela; Lapis, Karoly; Tyihak, Erno (I. Korbonctani Intez., Semmelweis Orvostud. Egy., Budapest, Hung.). *Kiserl. Orvostud.* 1974, 26(4), 352–7 (Hung). *ε-N-DL-Trimethyllysine* [28101-37-3] (5 and 25 μg/l. induced blastic transformation in thymus-dependent human lymphocytes in vitro, and stimulated DNA synthesis.

133817m **Metabolism of safrole and 2',3'-epoxysafrole in the rat and guinea pig.** Stillwell, W. G.; Carman, M. J.; Bell, L.; Horning, M. G. (Inst. Lipid Res., Baylor Coll. Med., Houston, Tex.). *Drug Metab. Dispos.* 1974, 2(6), 489–98 (Eng). After i.p. administration of *safrole* (I) [94-59-7] or

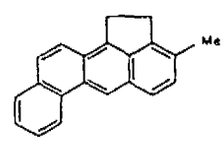


I. R = CH:CH$_2$

II. R = CH–CH$_2$

safrole epoxide (II) [7470-44-2] to rat or guinea pig, the major urinary metabolites were *1,2-methylenedioxy-4-(2,3-dihydrox= ypropyl)benzene* [7154-01-0], *1,2-dihydroxy-4-(2,3-dihydrox= ypropyl)benzene* [54850-10-1], and *2-hydroxy-3-(3,4-methylen= edioxyphenyl)propanoic acid* [949-14-4]. *1,2-Dihydroxy-4-all= ylbenzene* [1126-61-0], *1,2-methylenedioxy-4-(1-hydroxyallyl)= benzene* [5208-87-7] and *3,4-methylenedioxybenzoylglycine* [27855-25-0] were major metabolites of I only. *2-Hydroxy-3-(3,= 4-dihydroxyphenyl)propanoic acid* [23028-17-3] was identified after II administration only, in both rat and guinea pig urine, and a small amt. of *1,2-methylenedioxy-4-(1,2,3-trihydroxypro= pyl)benzene* [54850-11-2] was found only in rat urine. II was found in the urine of both species. The conversion of the allyl side chain to a 2,3-dihydroxypropyl side chain probably involves II as an intermediate.

133818n **Effect of cancerogenic substances on mastocytopoiesis in the amphibian (Rana esculenta).** Kapa, Eszter (Dep. Biol., Semmelweis Univ. Med., Budapest, Hung.). *Acta Biol. Acad. Sci. Hung.* 1974, 25(1–2), 1–7 (Eng). Seven to 21 days



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after injection of 100 μg *methylcholanthrene* (I) [56-49-5] / frog into thymus, or after placing a I crystal directly on the thymus, in vivo, numerous alcian blue-pos. mast cells of lymphoid and reticular type were obsd. in the thymus. One thymus contained 50–60 Gomori-pos. cells, on the av. I treatment increased in the thymus the no. of myoid cells displaying striated myofibrils, arranged concentrically. The spleen of the I-treated frogs contained numerous alcian blue-pos. mast cells of the lymphoid type, mast cells of mixed granulation, and mature, safranine-pos. mast cells. Numerous safranine and toluidine blue-pos. mast type cells were present in the *mesentery*. Many of the peripheral mast cells were in the

highest absorption rate with no prefumigation and sugar maple, a tolerant species, had the lowest. After 20 hr or more of prefumigation with 1,965 $\mu g/m^3$ (0.75 ppm) SO_2, the rate of sulfur absorption was reduced in all species except white ash, a species intermediate in sensitivity. The relation between species sensitivity and absorption rate thus changed with the prefumigation treatment. The foliar sulfur content of all species increased with SO_2 fumigation. Sulfur-35 absorbed from the atmosphere as $^{35}SO_2$ was concd. mainly in the leaves shortly after fumigation, but by the eighth day had been translocated throughout the plants. Amts. of sulfur translocated to roots varied with species.

142661d Effect of dithiocarbamic acid derivatives on the skin temperature of mice and the amount of oxygen consumed by them. Korablev, M. V. (USSR). *Gigiena truda i okhrana zdorov'ya naseleniya* 1974, 157-60 (Russ). From *Ref. Zh., Khim.* 1975, Abstr. No. 71569. Title only translated.

142662e Effect of ethanol on intestinal amino acid transport. Chang, Tsun; Glazko, Anthony J. (Res. Dev. Div., Parke, Davis, and Co., Ann Arbor, Mich.). *Alcohol Abnorm. Protein Biosynth.* 1975, 95-110 (Eng). Edited by Rothschild, Marcus Adolphus; Oratz, Murray; Schreiber, Sidney S. Pergamon: Elmsford, N. Y. A review with 57 refs.

142663f Effects of chromates (potassium chromate(VI)) on the respiratory metabolism and the tissue water-mineral balance in the nymph larvae of two bottom-dwelling fresh-water insects. Chaisemartin, C. (Lab. Biol. Anim., U.E.R. Sci., Limoges, Fr.). *C. R. Seances Soc. Biol. Ses Fil.* 1975, 169(2), 384-90 (Fr). The toxicity of *potassium chromate (VI)* [7789-00-6] to *Ecdyonurus* and *Sympetrum* nymph larvae was studied. Intraspecifically, the percentage of survival decreased with increasing chromate concn.; 2 ppm being lethal within 24 hr. Changes in ionic equil. did not correspond to simple variations in water content of the circulating liq. Natremia and kalemia were increased, but in general, the content of the major constituents of the organism was decreased in the presence of Cr [7440-47-3]. At chromate concns. >0.1 ppm, O uptake was decreased by ~50%.

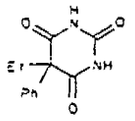
142664g Effect of a beryllium complex on the growth of Pseudomonas fluorescens (types R and S). I. Effect on the lag phase. MacCordick, J.; Hornsperger, J. M.; Wurtz, B. (Groupe Spectrochim. Mol., Univ. Louis Pasteur, Strasbourg, Fr.). *C. R. Seances Soc. Biol. Ses Fil.* 1975, 169(2), 417-21 (Fr). The toxic effect of Be [7440-41-7] on *P. fluorescens* was characterized by lengthening of the lag phase, the increase being proportional to the square of the Be concn. This lengthening was accompanied by progressive adaptation to high concns. of Be.

142665h Effect of beryllium complex on the growth of Pseudomonas fluorescens (types R and S). II. Competition with magnesium. MacCordick, J.; Wurtz, B.; Hornsperger, J. M. (Groupe Spectrochim. Mol., Univ. Louis Pasteur, Strasbourg, Fr.). *C. R. Seances Soc. Biol. Ses Fil.* 1975, 169(2), 421-5 (Fr). The inhibitory effect of Be [7440-41-7] on the growth of *P. fluorescens* appeared to be due in part to competition between Be and Mg [7439-95-4] at the level of various processes necessary for cellular metab. This effect was complicated by an adaptation phenomenon based on selection of cells most resistant to the inhibitor.

142666j Pharmacokinetics of polychlorinated biphenyl components in swine and sheep after a single oral dose. Borchard, R. E.; Welborn, M. E.; Wiekhorst, W. B.; Wilson, D. W.; Hansen, L. G. (Coll. Vet. Med., Univ. Illinois, Urbana, Ill.). *J. Pharm. Sci.* 1975, 64(8), 1294-9 (Eng). Single-dose oral administration of a com. polychlorinated biphenyl product contg. 54% chlorine provided data with which to plot the time course of total polychlorinated biphenyl and individual components in the blood of swine and sheep. Pharmacokinetic parameters describing absorption from the gut and elimination from a two-compartment body system were detd. for the components in swine and sheep. The absorption half-time for total polychlorinated biphenyl in swine was 1.13 hr while that for sheep was 3.83 hr. The half-time for disposition of total polychlorinated biphenyl from the central compartment was 4.4 hr in swine and 7.7 hr in sheep; the apparent biol. half-life was 62.4 hr in swine and 78.8 hr in sheep. Individual components varied significantly from each other and from total polychlorinated biphenyl in all parameters.

142667k Effects of nitrogen dioxide and 3-methylcholanthrene on pulmonary enzymes. Law, F. C. P.; Drach, J. C.; Sinsheimer, J. E. (Sch. Dent., Univ. Michigan, Ann Arbor, Mich.). *J. Pharm. Sci.* 1975, 64(8), 1421-2 (Eng). Guinea pig lung *phenol-O-methyltransferase* [37256-94-3], *catechol-O-methyltransferase* [9012-25-3], and *benzpyrene hydroxylase* [9037-52-9] activities were examd. after *nitrogen dioxide* [10102-44-0] and *3-methylcholanthrene* [56-49-5] treatment. While benzpyrene hydroxylase activity was enhanced by 3-methylcholanthrene, none of the pulmonary enzyme activities were altered after exposure to either 40 or 70 ppm of nitrogen dioxide for 2 hr.

142668m Effects of vinyl chloride exposures to rats pretreated with phenobarbital. Drew, Robert T.; Harper, Curtis; Gupta, Bohla N.; Talley, Fred A. (Pharmacol. Branch, Natl. Inst. Environ. Health Sci., Research Triangle Park, N. C.). *Environ. Health Perspect.* 1975, 11, 235-42 (Eng).



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The microsomal xenobiotic metabolizing enzyme inducer, *phenobarbital* (I) [50-06-6], or *3-methylcholanthrene* [56-49-5]-pretreated male rats were exposed to *vinyl chloride* [75-01-4] vapors at 13,500 ppm, 6 hr/day, for 10 days, and addnl. I-pretreated rats were exposed to vinyl chloride vapors at 17,300 ppm for 2 days. In both expts., the only marked difference noted was a decrease in the growth rate of the animals exposed to vinyl chloride and treated with I. This decreased growth rate was particularly apparent on the 3rd day of exposure. Occasional morphol. changes were also noted in the liver of the animals treated with I and exposed to vinyl chloride. No change was obsd. in organ wts., and in *benzphetamine-N-demethylase* [37237-40-4] activity and *cytochrome P 450* [9035-51-2] content of liver microsomes. Implications of these findings are discussed.

142669n Localization and uptake of copper into chromatin. Hardy, Kenneth J.; Bryan, Sara E. (Dep. Biol. Sci., Univ. New Orleans, New Oreleans, La.). *Toxicol. Appl. Pharmacol.* 1975, 33(1), 62-9 (Eng). Following administration of deionized water alone (control) or deionized water contg. *cupric chloride* [7447-39-4] to mice, Cu [7440-50-8] was detected in the total liver, liver nuclei, and nuclear fractions including control nuclei and control heterochromatin and euchromatin. Cu content in control euchromatin remained const. at ~0.3 μg/mg DNA, while the concn. in control heterochromatin was subject to wider variations. An elevation in total liver Cu followed prolonged treatment with the metal and was accompanied by an increase in total nuclear Cu. A preferential uptake of Cu by heterochromatin was suggested by the majority of metal binding to this fraction; there was no significant metal accumulation in euchromatin. Dialysis equil. expts. indicated that heterochromatin binds considerable Cu under physiol. ionic strength (154 m*M*), whereas euchromatin fails to bind appreciable amts. This biol. specificity was lost under conditions of low ionic strength (<2 m*M* NaCl).

142670f Serum AFP [α-fetoprotein] levels in the rat following carbon tetrachloride intoxication and partial hepatectomy. Gilli, J.; Masseyeff, R. (Lab. Immunol., U.E.R. Med., Nice, Fr.). *Colloq. Inst. Natl. Sante Rech. Med.* 1974, 28(Alpha-Foeto-Proteine, C. R. Conf. Int., 1974), 231-9 (Fr). In 7-week-old rats, CCl_4 [56-23-5] intoxication increased blood serum α-fetoprotein levels to a max. of 100-200 ng/ml from a normal level of 50 ng/ml for this age group. In 12-week-old rats, CCl_4 only slightly increased α-fetoprotein levels the first 2-3 days after its inhalation. No changes in serum α-fetoprotein levels were obsd. in CCl_4-poisoned 60-week-old rats. Partial hepatectomy had no effect on blood serum α-fetoproteins, regardless of the age of the animals.

142671g Effect of β-aminopropionitrile on acid hydrolases and selected metabolites in orofacial structures of fetal rats. DelBalso, A. M.; Kauffman, F. C. (Sch. Med. Dent., State U. of New York, Buffalo, N. Y.). *Arch. Oral Biol.* 1975, 20(4), [illegible]-5 (Eng). The dietary administration of *β-aminopropio[illegible]* [151-18-8] to pregnant rats altered enzyme activi[illegible]d tissue components assocd. with glycosaminoglycan metab. [illegible] the palates, mandibles, and Meckel's cartilages of 16-day-old fetuses. *Alkaline phosphatase* [9001-78-9], *β-galactosidase* [9031-11-2], *N-acetyl-β-D-glucosaminidase* [9012-33-3], *acid phosphatase* [9001-77-8], and *β-glucuronidase* [9001-45-0] activities were detd., as well as tissue concns. uronic acids *hydroxyproline* [51-35-4], and hexosamines. The responses of the enzymes and metabolites to *β-aminopropionitrile* were tissue dependent, and this may reflect differences in cellular compn. of the various structures.

142672h Inhibition of corn and sunflower photosynthesis by lead. Bazzaz, F. A.; Carlson, Roger W.; Rolfe, G. L. (Dep. Bot., Univ. Illinois, Urbana, Ill.). *Physiol. Plant.* 1975, 34(4), 326-9 (Eng). *Lead* [7439-92-1] (as $PbCl_2$) supplied to detached corn and sunflower leaves via the transpiration stream decreased the rates of photosynthesis, both the extent of this inhibitory effect and the amt. of lead taken up increasing with increased lead treatment levels. Transpiration rates were also diminished, suggesting that lead contamination may increase the stomatal resistance. Water vapor and CO_2 exchanges by the leaves were discussed in relation to the effects of lead on photosynthesis and transpiration.

91676c Biochemical bases for the effect of alcohol on the central nervous system. Sytinskii, I. A. (Leningr. Univ., Leningrad, USSR). *Usp. Fiziol. Nauk* 1975, 6(1), 49-84 (Russ). A review with 331 refs. The effects of EtOH [64-17-5] on carbohydrate, lipid and protein metab., active transport of ions and amino acids, and neuromediators in the brain are discussed.

91677d Genetic regulation and mechanisms of P-450 oxygenase action. Gunsalus, I. C.; Marshall, V. P. (Sch. Chem. Sci., Univ. Illinois, Urbana, Ill.). *Survival Toxic Environ., [Pap. Symp.]* 28 Dec 1973-30 Dec 1973 (Pub. 1974), 295-313 (Eng). Edited by Khan, Mohammed Abdul Quddus; Bederka, John P. Academic: New York, N. Y. A review with 29 refs. *P-450 oxygenase* [55963-41-2] is discussed from both the chem. and genetic viewpoints.

91678e Adaptation and its limits during the effects of poisons working mutagenically and embryotropically. Fomenko, V. N.; Strekalova, E. E.; Katosova, L. D.; Chirkova, E. M.; Sal'nikova, L. S.; Silant'eva, I. V.; Efimenko, L. P.; Kulakov, A. E. (USSR). *Itogi Nauki Tekh., Farmakol., Khimioter. Sredstva, Toksikol., Probl. Toksikol.* 1973, 5, 128-45 (Russ). A review with 22 refs. Cytogenetic damages caused by mutagenic and embryotropic poisons in somatic and generative cells are discussed in relation to adaptation processes. The effects of pesticides and alkylating agents are emphasized.

91679f Fixation of a primary effect in experiments with chemical carcinogens. Olenov, Yu. M. (Inst. Tsitol., Leningrad, USSR). *Vopr. Onkol.* 1975, 21(4), 63-74 (Russ). A review with 85 refs. Epigenome changes during carcinogenesis are discussed with special emphasis on cellular and enzymic changes during the 1st days after administration of chem. carcinogens.

91680z Effect of ultraviolet radiation on tolerance of the organism to chemical substances. Gabovich, R. D.; Minkh, A. A.; Motuzkov, I. N. (Kiev. Med. Inst., Kiev, USSR). *Vestn. Akad. Med. Nauk SSSR* 1975, (3), 26-37 (Russ). A review with 23 refs. The effects of uv on tolerance to heavy metals, *benzene* [71-43-2], *carbon tetrachloride* [56-23-5], *hexachlorocyclohexane* [58-89-9], and *methylmercaptophos* [8022-00-2] are discussed.

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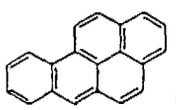

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refs., of model expts. on the action of uv- or visible light-activated *3,4-benzpyrene* (I) [50-32-8] on bacteriophage and *Escherichia coli*. These indicate that proteins, rather than DNA, are the targets for the photodynamic effect of the irradiated carcinogen.

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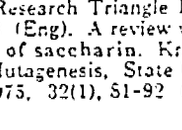

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91733u Microdetermination of cadmium and lead in whole blood by flameless atomic absorption spectrometry using carbon-tube and carbon-cup as sample cell and comparison with flame studies. Parsma, F. D.; Balke, Johannes; Herber, R. F. M.; Stulk, E. J. (Lab. Anal. Chem., Univ. Amsterdam, Amsterdam, Neth.). *Anal. Chem.* 1975, 47(6), 834-8 (Eng).