

## Subject Index

- 2-acetylaminofluorene 81, 83, 85, 88, 89  
acneform 138  
acute 138  
adaptation 81  
adenofibrosis 88  
adenomas 87  
adipose tissue 98, 99  
aflatoxin B<sub>1</sub> 82, 85, 88, 89, 91  
Ah locus 35, 37  
– receptor 35, 37, 43, 49, 61, 67, 70, 71  
aldrin epoxidation 60  
algae 24, 33  
Ames test 84, 85  
 $\sigma$ -aminolevulinic acid synthetase 55  
aminopyrine N-demethylase 37, 60  
anaerobic dechlorination 24, 29, 43  
anthropogenic 111  
antibodies 59  
antipromoting 89  
antipyrene 136  
apoptosis 88  
arene oxides 97, 98, 103, 104, 107, 121  
Aroclor 1016 3, 4, 28  
– 1260 3, 4, 9, 10, 18, 26, 31, 39  
– 1221 1, 28  
– 1248 31  
– 1232 21, 22, 31  
– 1262 31  
– 1242 17, 21, 22, 31, 43  
– 1254 4, 18, 21, 22, 28, 31, 35, 38, 39, 43, 57,  
61, 62, 63  
aromatic amines 80  
– hydroxylation 104  
aryl hydrocarbon hydroxylase (AHH) 50, 69,  
141  
atmosphere 17, 18, 19, 28, 43  
avian species 24, 26, 29, 33, 34, 35, 37, 40, 43  
azo dyes 85, 88  
  
bacteria 33  
barbiturates 87, 88  
benzenes 105  
  
benzo[a]pyrene 41, 56, 71, 81, 85  
– hydroxylase 60, 72  
7,8-benzoflavone 60  
benzphetamine N-demethylation 60  
biliary excretion 113  
binding sites 112  
bioaccumulate 90  
bioaccumulation 2, 98, 142  
biochemical effects 34, 35, 44  
biodegradability 5  
biota 17, 19  
biotransformation 28, 55, 58, 59, 81, 97, 99,  
100  
biphenyl 20, 104, 105  
birds 52, 61  
bladder 86  
blood 113, 117, 118, 119, 123, 124, 125, 129  
– flow rates 118  
body weight loss 56, 57, 58, 141  
breast cancer 90  
bronchial disorders 138  
battered 67  
  
C57BL/2J mice 61, 70  
– /6 mice 54  
cadmium 18, 41  
capacitor workers 139  
carcinogenesis 52, 77, 79, 80, 82, 86, 91  
carcinogenicity 32, 41, 42, 78, 90, 91  
carcinogens 77, 78, 80, 81, 84, 86, 88  
catechol 107  
catechol-O-methyltransferase 107  
cattle 54  
cell proliferation 89  
chick embryos 37  
chickens 54  
chloracne 52, 134, 135, 136  
chlorinated anilines 6  
– benzenes 6, 135  
3,4-chlorobenzene oxide 103  
2-chlorobiphenyl 29  
4-chlorobiphenyl 98  
4'-chloro-4-<sup>2</sup>H-biphenyl 103

- 4-chlorobiphenyl hydroxylation 60  
 4'-chloro-3-biphenylol 102  
 4'-chloro-4-biphenylol 102, 103  
 chronic 138  
 clearance 111  
 Clophen 61  
 co-carcinogenic 92  
 co-carcinogens 85, 86  
 comedones 138  
 commercial mixtures 31, 32, 33, 34, 35, 36, 37, 38  
 composition 20, 21, 22, 23, 24  
 conjugation 81  
 coplanar 56, 57, 58, 63, 64, 65, 66, 68, 69, 70  
 coughing 136, 138  
 covalent binding 86  
 cysteine-adduct 107  
 cytochrome P-450b 49, 59, 60, 61, 62, 64, 65, 66, 67, 68, 69  
 - P-450c 49, 56, 59, 60, 62, 63, 64, 65, 66, 67, 68, 69, 71  
 - P-450 induction 35, 36, 37, 49  
 - P-450 35, 36, 37, 41, 49, 50, 55, 58, 59, 62, 63, 64, 66, 67, 68, 70, 80, 83, 84, 85, 89, 97, 100, 101, 102, 104, 105, 106, 123  
 - P-488<sub>mc</sub> 106  
 - P-450e 59, 60, 61, 62, 63, 65, 69  
 - P-450p 59  
 - P-450j 59  
 - P-450a 59, 60, 61, 62, 63, 64, 66, 68  
 cytotoxic 97
- DBA/2J mice 54  
 DDE 3  
 DDT 3, 142  
 dealkylating 58  
 deaminase 122  
 debrisoquine hydroxylation 59  
 deethylation 122  
 dehydrohalogenation 58  
 dermal absorption 115  
 - toxicity 32, 52, 133, 135  
 desorption 6  
 detoxification 83, 85, 92  
 diarrhea 137  
 2,2'-dichlorobiphenyl 29  
 4,4'-dichlorobiphenyl 57, 63, 65, 101, 102, 103, 106, 107, 115, 119, 120, 121, 122, 126, 127, 128, 129  
 3,4'-dichloro-4-biphenylol 102, 103  
 4,4'-dichloro-2-biphenylol 102  
 4,4'-dichloro-3-biphenylol 102, 107  
 4,4'-dichloro-3,3'-biphenyldiol 102  
 4,4'-dichloro-3,4-epoxy-biphenyl 103  
 dichlorobiphenyls 24, 101  
 dichloronitroanisole O-demethylation 60  
 dielectric fluid 2, 134  
 diethylnitrosamine 89  
 differentiation 82  
 3,4-dihydroxy-3,4-dihydro-2,2',5,5'-tetra-chlorobiphenyl 103  
 dimethylnitrosamine 87  
 disposition 24  
 DNA 80, 81, 82, 105, 106, 126  
 - binding 80, 82  
 - damage 81, 98  
 - methylation 81  
 - repair 80, 82, 85, 86  
 - replication 81  
 - synthesis 98  
 dog 98, 99, 100, 106, 107, 112, 114, 117, 119, 121, 123, 127, 128  
 DT-diaphorase 86
- eicosanoids 59  
 elimination 129  
 endocrine disorders 52  
 endoplasmic reticulum 58  
 environmental exposures 142  
 epidemiological 78, 79  
 epigenetic 88  
 epinephrine 107  
 epoxidating 58  
 epoxide 103, 105  
 2,3-epoxide 105  
 3,4-epoxide 105  
 epoxide hydrolase 62, 64, 66, 68, 81  
 equilibrium partitioning 123  
 estrogen 71  
 ethoxybenzamide 122  
 ethoxycoumarin O-dealkylation 60  
 7-ethoxyresorufin O-deethylase (EROD) 56, 60, 70, 71, 72, 87, 88, 136, 141  
 ethylmorphine N-demethylation 60  
 excretion 81, 121  
 eye discharge 137
- fat 99, 113, 116, 117, 118, 119, 123, 124, 125  
 fatty acids 59  
 feces 113  
 ferns 39  
 ferret 37, 61  
 FireMaster 61  
 FireMaster BP-6 63  
 fish 12, 22, 28, 29, 33, 37, 41, 42, 43, 61  
 flame retardant 2, 134  
 flow-limited 113  
 freshwater 17, 18, 20, 42  
 frogs 102  
 fungi 36
- gall bladder 54  
 gastric carcinogenesis 87  
 - carcinomas 84  
 gastrointestinal toxicity 32

- GC analysis 6  
 GC-mass spectrometry 3  
 genetic 54  
 genotoxic 77, 81, 82, 84, 85, 88, 89, 91  
 glucuronide conjugate 126  
 glucuronides 97  
 glucuronyl transferases 81  
 $\gamma$ -glutamyltranspeptidase 81, 107, 108, 135, 136  
 glutathione 97, 107  
 Glutathione S-transferases 83, 86  
 Great Lakes 17, 19, 43, 44  
 guinea pig 53, 54, 55, 61, 129  
 gulls 43  
 gut lumen 127  
 – reabsorption 113
- hair follicles 137  
 half-lives 97  
 halogenated hydrocarbons 84, 87, 90  
 hamster 53, 61  
 hazardous waste 92  
 headache 137, 138  
 heat transfer fluids 2  
 heavy metals 90  
 hepatic dysfunction 133, 135  
 – neoplasms 90  
 hepatocarcinogen 85  
 hepatocarcinogenesis 79, 87, 88, 89, 98  
 hepatocarcinogenic 87, 91  
 hepatocarcinoma 52  
 hepatocellular carcinomas 83, 84  
 – hypertrophy 87  
 – proliferation 88  
 – regeneration 88  
 hepatocytes 80, 84, 88  
 hepatoma cells 65, 69  
 hepatomas 86  
 hepatomegaly 52, 135, 136  
 hepatotoxicity 32  
 hepatotoxins 88  
 heptachlorobiphenyl 24  
 2,3,4,5,2',3',4'-heptachlorobiphenyl 68  
 2,2',3,4,4',5,5'-heptachlorobiphenyl 9, 141  
 2,3,4,5,3',4',5'-heptachlorobiphenyl 57, 66  
 2,2',3,3',4,4',5'-heptachlorobiphenyl 9, 141  
 2,2',3,4,5,5',6'-heptachlorobiphenyl 11  
 2,2',3,3',4,5,6'-heptachlorobiphenyl 11  
 2,3,3',4,4',5,5'-heptachlorobiphenyl 11  
 hexachlorobiphenyls 100, 106  
 2,3,4,5,3',4'-hexachlorobiphenyl 57  
 2,3,4,2',3',4'-hexachlorobiphenyl 68  
 2,3,4,2',4',5'-hexachlorobiphenyl 68  
 2,3,4,3',4',5'-hexachlorobiphenyl 57  
 2,3,4,5,6,4'-hexachlorobiphenyl 68  
 2,3,4,6,3',4'-hexachlorobiphenyl 68  
 2,4,5,3',4',5'-hexachlorobiphenyl 57  
 2,2',4,4',6,6'-hexachlorobiphenyl 100  
 3,4,5,3',4',5'-hexachlorobiphenyl 57, 58, 63, 64, 65, 66, 69, 71, 72  
 2,2',4,4',5,5'-hexachlorobiphenyl 9, 67, 71, 97, 98, 99, 100, 102–103, 105–107, 115, 117–124, 126–128, 141  
 2,2',3,3',5,5'-hexachlorobiphenyl 100  
 2,2',3,4,4',5'-hexachlorobiphenyl 9, 141  
 2,2',3,3',6,6'-hexachlorobiphenyl 98, 100, 105, 106, 115, 119, 120, 121, 122, 125, 126, 127  
 2,3,3',4,4',5'-hexachlorobiphenyl 9, 11  
 2,2',3,4',5',6'-hexachlorobiphenyl 11  
 3,3',4,4',5,5'-hexachlorobiphenyl 11  
 2,3,3',4,4',5'-hexachlorobiphenyl 141  
 2,2',3,4',5,5'-hexachloro-4-biphenylol 102, 103  
 2,2',4,4',5,5'-hexachloro-3-biphenylol 102  
 2,2',4,4',5,5'-hexachloro-6-biphenylol 102  
 1,2,3,4,7,8-hexachlorodibenzofuran 141  
 hexobarbital 3-hydroxylation 60  
 high resolution analysis 24, 25  
 – – gas chromatographic analysis 1  
 – – glass capillary GC analysis 4  
 hormones 59  
 Hudson River 18, 19, 24, 26, 28, 29  
 human milk 5, 6, 10, 11  
 humans 28, 42, 54, 61, 70, 101, 103  
 hydraulic fluids 2  
 1,2-hydride shift 105  
 hydropericardium 54  
 2-hydroxy-3,7,8-trichlorodibenzo-p-dioxin 55  
 3-hydroxy-2,5-trichlorobiphenyl 104  
 hydroxylation 104, 105  
 hyperkeratosis 52  
 hyperplasia 52, 87  
 hyperplastic 80, 82, 87  
 hypertrophic 82  
 hypolipidemic drugs 87
- immunotoxicity 32, 44, 45  
 induction 58, 66, 67, 72, 81, 135, 141  
 inhalation 115  
 inhibitors 60  
 initiate 81, 84, 87, 88  
 initiated cells 80, 82, 83  
 – hepatocytes 84, 89  
 initiation 80, 81, 82, 84, 86, 90  
 initiators 52, 77  
 insertion 104  
 interspecies 121  
 interstitial 112  
 intestine 87  
 intracellular 112  
 invertebrates 37  
 isosafrole 60  
 isozymes 58  
 itching 137

- jaundice 137
- Kanechlor 61  
Kanechlor-400 136, 139  
KC-300 24  
KC-500 24  
KC-600 24  
keratinization 55  
kidney 87, 108, 127  
km 122, 123, 127
- LD<sub>50</sub> 53, 54  
learning difficulties 137  
lethality 55  
lindane 3  
lithosphere 17, 18, 19  
liver 54, 58, 59, 62, 64, 69, 71, 79, 82, 87, 90,  
99, 101, 105, 107, 113, 116, 117, 119, 124, 125,  
126, 129  
- promoter 88  
lung 79, 87, 108  
lymphoid involution 52
- male 69, 71  
mammary 79  
man 122  
marine 17, 18, 28, 42  
m-chlorophenol 103  
mechanisms 78  
melanomas 136  
mercapturic acid 108  
mercury 39  
metabolic clearance 127  
metabolism 27, 28, 36, 41, 111, 115, 117, 119,  
121, 122, 129  
metabolites 77  
metastasis 83  
metastasize 80  
methylation 107  
3-methylcholanthrene 37, 41, 55, 59, 60, 61,  
62, 63, 66, 67, 68, 88  
methyl phenyl sulfone 104  
methylsulfinyl metabolite 108  
methylsulfonyl metabolites 98, 108  
m-hydroxylation 104, 105  
mice 53, 61  
Michaelis constants 122  
microsomal 60, 61, 63, 68, 72, 87, 122  
microsomes 58, 59, 62, 85, 90, 103, 107  
milk 70  
mink 37, 39, 52, 61  
mitoinhibitory 81, 83, 88, 89  
mixed-type 71  
modeling 112  
monkeys 34, 53, 54, 55, 61, 99, 100, 103, 107,  
112, 114, 119, 121, 123, 124, 125, 127, 128  
4-monochlorobiphenyl 115, 117, 118, 119,  
120, 121, 127, 128  
monochlorobiphenyls 24, 100  
monooxygenase 65, 72, 84, 135, 136  
Monsanto Chemical Co. 18  
mortality 136  
mouse 112, 114, 119, 120, 121, 122, 123, 127,  
128  
mucosal hypertrophy 87  
muscle 113, 116, 117, 119, 123, 124, 125, 126,  
129  
mutagenic 85  
mutagenicity 32, 79, 81, 85, 91  
mutation 81, 84
- NADPH-cytochrome c reductase 60  
 $\beta$ -naphthoflavone 101  
N-bis(2-hydroxypropyl)nitrosamine 87  
necrosis 81, 83, 85  
neoplasia 90  
neoplasms 78  
neoplastic development 90  
neurotoxicity 32  
neurotransmitters 107  
NIH shift 103  
nitrobenzene 104  
nitrosamines 80, 85, 89, 90  
N-methylnitrosourea 80, 81, 87  
N-methyl-N-nitrosoguanidine 87  
nodules 82, 86, 88  
nonbuttressed 67  
norepinephrine 107  
numbness 137
- 2,2',3,3',4,4',5,6-octachlorobiphenyl 11  
O-glucuronides 107  
oncogene 80  
oral ingestion 115  
organic diluents 2  
oxygen radicals 83  
oxygenating 58
- pancreas 79  
papillomas 82  
partial hepatectomy 82  
partition coefficient 115, 123  
pathogenesis 79  
PCB analysis 1  
PCB-glucuronides 107  
pentachlorobiphenyls 25, 122, 126, 127  
3,4,5,2',4'-pentachlorobiphenyl 57  
3,4,5,3',4'-pentachlorobiphenyl 11, 57, 58, 63,  
64, 65, 69, 70, 71, 72  
2,4,5,3',4'-pentachlorobiphenyl 57  
2,3,4,3',4'-pentachlorobiphenyl 57  
2,3,4,5,4'-pentachlorobiphenyl 57  
2,2',4,5,5'-pentachlorobiphenyl 115, 119, 120,  
121, 127, 128  
2,2',4,4',5-pentachlorobiphenyl 11

- 2,3',4,4',5-pentachlorobiphenyl 11  
 2,3,4,4',5-pentachlorobiphenyl 11  
 2',3,4,4'5-pentachlorobiphenyl 11  
 2,3,3',4,4'-pentachlorobiphenyl 11  
 2,2',3,5',6-pentachlorobiphenyl 11  
 2,2',4',5,5'-pentachloro-3-biphenylol 102  
 2,2',4',5,5'-pentachloro-4-biphenylol 102  
 2,3,4,7,8-pentachlorodibenzofuran 141  
 1,2,3,7,8-pentachlorodibenzofuran 141  
 1,2,4,7,8-pentachlorodibenzofuran 139, 141  
 pentoxyresorufin O-dealkylation 60  
 perfusion 98  
 peritesticular fat 123  
 peroxisomal 87  
 persistence 24, 44  
 pharmacokinetic 111, 113, 114, 122, 123, 126,  
 127, 129  
 – modeling 121  
 – models 112  
 phenobarbital 35, 41, 55, 59, 60, 61, 62, 63, 66,  
 67, 83, 86, 88, 89, 101, 103, 106, 107  
 Phenoclor 61  
 phenol 105  
 phenotypic alterations 83  
 phenytoin 122  
 phorbol esters 82  
 photolyte degradation 24  
 phthalate esters 87  
 phytoplankton 38  
 pigmentation 137, 138  
 placenta 87  
 plaques 82, 137  
 polarizability 67  
 polybrominated biphenyls 51, 52, 61, 63, 67  
 polychlorinated biphenyls 1, 63, 64, 66, 67, 68,  
 69, 77, 78, 79, 81, 83, 84, 85, 111, 139, 140,  
 141, 142  
 – dibenzofurans 40, 43, 50, 51, 56, 84, 133,  
 134, 138, 139, 140, 141, 142  
 – dibenzo-p-dioxins 40, 43, 50, 51, 56, 63  
 – quaterphenyl 138, 139, 140  
 polycyclic aromatic hydrocarbons 90  
 polyhalogenated azobenzenes 50, 51  
 – azoxybenzenes 50, 51  
 – naphthalenes 50, 51  
 polynuclear aromatic hydrocarbons 22, 41, 51  
 polyps 82  
 population effects 38, 39  
 porphyria 52, 53  
 p,p'-DDE 21, 38, 39, 40, 142  
 p,p'-DDT 38, 39  
 pregnenolone-16-carbonitrile (PCN) 59, 60  
 preneoplastic 84, 86, 87, 88  
 – foci 89  
 – lesions 82, 88  
 – liver 84  
 – nodules 83, 88  
 primates 87  
 production 15, 16  
 progesterone 71  
 progression 79, 88  
 proliferation 82  
 promoters 77, 80, 82, 91, 97  
 promotion 79, 82, 86, 87, 89, 90, 91  
 properties 25, 27  
 protein adducts 36  
 proteins 126  
 proton magnetic resonance spectroscopy 6  
 proximate carcinogen 80, 84  
 pulmonary function 133, 135  
 – toxicity 136  
 pyrrolizidine alkaloids 82, 83  
 quinone reductase 86  
 rabbit 53, 54, 61, 103, 107, 129  
 rate constants 121  
 rats 35, 53, 54, 56, 57, 60, 61, 62, 64, 68, 69,  
 70, 71, 82, 87, 88, 100, 101, 103, 105, 106, 107,  
 112, 114, 119, 121, 122, 123, 127, 128  
 rearrangement 102  
 redifferentiate 80  
 redistribution kinetics 115  
 regioselectivity 106  
 relative response factor 7, 8, 9  
 – retention time 7, 8, 9  
 renal carcinogens 87  
 repair 81  
 reproductive toxicity 32, 33, 39, 40, 41, 42  
 residues 20, 21, 22, 23, 24  
 respiratory toxicity 32  
 rice oil 136, 138, 140  
 risk assessment 1  
 RNA 105, 106, 126  
 – adducts 36  
 rodents 86, 87  
 RT (GLC) 25, 27  
 S-adenosylmethionine 107  
 Salmonella 80, 85  
 sea lions 40, 41, 42  
 seals 34, 40  
 sediments 17, 20, 29, 42  
 serum 138  
 – levels 18, 134  
 – lipids 135  
 sewage sludge 17, 18  
 SGOT 135, 136  
 sheep 22, 28, 29  
 silos 18  
 simulations 117  
 SKF 525A 60, 101  
 skin 54, 79, 86, 113, 116, 117, 119, 123, 124,  
 125, 129

- S-methyltransferase 108  
 snakes 39  
 solvent extenders 2  
 sperm count 142  
 splenic atrophy 52  
 steroid hormones 87, 88  
 sterols 59  
 structure-activity relationships 49, 58, 63  
 structure-function relationships 69, 70  
 subcutaneous fat 123  
 2,3,4-substituted polychlorinated biphenyls 67  
 2,3,4,5-substituted polychlorinated biphenyls 67  
 2,4-substituted polychlorinated biphenyls 67  
 2,4,5-substituted polychlorinated biphenyls 67  
 sulfhydryl groups 106  
 swelling 137  
 swine 22, 26, 28, 29, 34  
 synergistic 70  
  
 teratogenesis 52  
 testicular atrophy 52  
 testis 87  
 testosterone 16-hydroxylation 60  
 tetrachlorobiphenyl 106  
 2,5-tetrachlorobiphenyl 103  
 2,4,4',5-tetrachlorobiphenyl 11  
 2,2',3,5'-tetrachlorobiphenyl 26, 29  
 2,2',4,4'-tetrachlorobiphenyl 106  
 2,2',5,5'-tetrachlorobiphenyl 28, 29, 84, 103  
 2,3,4,4'-tetrachlorobiphenyl 127  
 3,4,3',4'-tetrachlorobiphenyl 11, 58, 63, 64, 65, 68, 69, 70, 106  
 3,4,5,4'-tetrachlorobiphenyl 11, 57, 64, 65, 69  
 2,3,6,7-tetrachlorobiphenylene 65  
 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) 11, 34, 35, 43, 52, 53, 54, 55, 56, 61, 65, 67, 69, 70, 139  
 tetrahedral intermediate 106  
 thermodynamic 114  
 thio-S-methyltransferase 107  
 threshold 86  
 thymic atrophy 52, 55, 56, 57, 58, 142  
  
 thymus 54  
 thyroid carcinogens 86  
 Tokyo Bay 24  
 toxicity 31, 32, 33, 34, 35, 36, 37, 38, 52  
 transcapillary transport 113  
 transcellular transport 113  
 transport 113  
 Triana 142  
 2,2,2-trichloroacetaldehyde 105  
 2,4',5-trichlorobiphenyl 107, 108  
 3,4,4'-trichlorobiphenyl 57, 64, 65, 69  
 2,4,6-trichlorobiphenyl 107  
 2,4,4'-trichlorobiphenyl 11  
 2,4,6-trichloro-3',4'-biphenyldiol 107  
 2,4',5-trichlorobiphenylthiol 107  
 trichloroethylene 105  
 tumor promotion 89  
  
 UDP-glucuronic acid 85  
 UDP-glucuronyltransferases 83, 86  
 urinary bladder 79  
 – tract 54  
 uroporphyrinogen decarboxylase 55  
  
 $V_{\max}$  122, 123  
 vapor pressure 25, 27, 28  
 vitamins 59  
 vomiting 137  
  
 waste 78  
 wasting syndrome 52, 55  
 water 28, 29  
 – solubility 25, 27, 28  
 whales 42  
 whole-body kinetics 115  
  
 xenobiotics 58, 59, 63, 81, 82, 83, 85, 86, 88, 89, 91  
  
 Yu-Cheng 78, 133, 134, 137, 138, 139, 141, 142  
 Yusho 78, 90, 133, 134, 137, 138, 139, 141, 142  
 – oil 138  
  
 Zoxazolamine 6-hydroxylation 60