

## LIST OF ABBREVIATIONS

A	adenoma
ABC	adenosine triphosphate binding cassette
ACGIH	American Conference of Governmental Industrial Hygienists
act.	Catalytic activities
AdC	adenocarcinoma
AdSC	adenosquamous carcinoma
AH	aliphatic hydrocarbon
AhR	aryl hydrocarbon receptor
AhRR	aryl hydrocarbon receptor repressor
AKR	aldo-keto reductase
Akt	protein kinase $\beta$
ARNT (Arnt)	aryl hydrocarbon receptor nuclear translocator
ASTDR	Agency for Toxic Substances and Disease Registry
ATP	adenosine triphosphate
BaP	benzo[ <i>a</i> ]pyrene
BAX	BCL2-antagonist X protein
BCC	basal-cell carcinoma
BCL2 (Bcl2)	B-cell lymphoma protein 2
BCRP	breast cancer resistance protein
bHLH	basic helix-loop-helix
BPDE	benzo[ <i>a</i> ]pyrene diol epoxide
BPQ	benzo[ <i>a</i> ]pyrene quinone
BSC	British Steel Corporation
bw	body weight
C	carcinoma
CAS	Chemical Abstract Services
CI	confidence interval
COP	coal-oven gas mixed with pyrolysed pitch
COX	cyclooxygenase
CTP	coal-tar paint
CTPV	coal-tar pitch volatiles
CYP	cytochrome P450

DMBA	7,12-dimethylbenz[ <i>a</i> ]anthracene
DMF	<i>N,N</i> -dimethylformamide
DMSO	dimethyl sulfoxide
DRE	dioxin response element
E	epithelioma
ECD	electrochemical detection
$\Delta E_{\text{deloc}}/\beta$	carbonium ion delocalization energies
EGFR	epidermal growth factor receptor
EH	epoxide hydrolase
ELISA	enzyme-linked immunosorbent assay
<i>EPHX</i>	epoxide hydrolase gene
ER	estrogen receptor
ERK	extracellular signal-regulated kinase
excl.	excluding
F	female
GC	gas chromatography
GSH	glutathione
GST	glutathione <i>S</i> -transferase
H	hepatoma
HPAH	hydroxyl polychlorinated aromatic hydrocarbon
HPETE	hydroperoxy-5,8,11,13-eicosatetraenoic acid
HPLC	high-performance liquid chromatography
HPRT (hprt)	hypoxanthine(guanine)phosphoribosyl transferase
ICD	International Classification of Diseases
IL	interleukin
IP <sub>3</sub>	inositol-1,4,5-triphosphate
IPCS	International Programme on Chemical Safety
ISCO	International Standard Classification of Occupations
ISCP	iron, steel and coke plants
IUPAC	International Union of Pure and Applied Chemistry
JEFCA	FAO/WHO Joint Committee on Food Additives and Contaminants
JNK	Jun N-terminal kinase
K	keratocanthoma
K <sub>d</sub>	dissociation constant
K <sub>m</sub>	Michaelis constant
LC	liquid chromatography
Log K <sub>ow</sub>	partition coefficient for <i>n</i> -octanol:water
M	male
MAPK	mitogen-activated protein kinase
mEH	microsomal epoxide hydrolase
MMAD	mass median aerodynamic diameter
MPG	manufactured gas plant
MRP	multidrug resistance-associated protein

MS	mass spectrometry
NA	not applied
NAD(P)H	nicotinamide adenine dinucleotide (phosphate)
NAT	<i>N</i> -acetyltransferase
NF	nuclear factor
NHANES	National Health and Nutrition Examination Survey
NHBE	normal human bronchial epithelial
NIOSH	National Institute of Occupational Safety and Hygiene
NMR	nuclear magnetic resonance
NPAH	nitrogen-containing polychlorinated aromatic hydrocarbon
NQO1	nicotinamide adenine dinucleotide phosphate:quinone
oxidoreductase 1	
NS	not specified
NSF	National Smokeless Fuels
OR	odds ratio
8-oxo-dGuo	8-oxo-7,8-dihydro-2'-deoxyguanosine
P	papilloma
PAH	polychlorinated aromatic hydrocarbon
PAPS	3'-phosphoadenosine-5'-phosphosulfase
PARP	poly(ADP-ribose)polymerase
PAS	period (per)-aryl hydrocarbon receptor nuclear translocator (Arnt)-
Single-	
	minded protein (Sim)
PCB	polychlorinated biphenyl
PI3K	phosphatidylinositol-3-kinase
PK	protein kinase
PMR	proportionate mortality rate
PND	postnatal day
prot.	protein
PS	prostaglandin H synthase
PTK	protein tyrosine kinase
QR	quinone reductase
RDD	random-digit dialing
RP	reverse-phase
RR	relative risk
SCC	squamous-cell carcinoma
SD	standard deviation
SE	standard error
SEM	standard error of the mean
SERCA	sarcoplasmic-endoplasmic reticulum Ca <sup>2+</sup> -ATPase
SGA	sebaceous gland adenoma
SIR	standardized incidence ratio
SMR	standardized mortality ratio

SRC	solvent-refined coal
SRM	standard reference material
SRR	standardized rate ratio
STEL	short-term exposure limit
SULT	sulfotransferase
T	tumour
TBA	tumour-bearing animal
TCDD	2,3,7,8-tetrachlorodibenzo- <i>para</i> -dioxin
THF	tetrahydrofuran
TLC	thin-layer chromatography
TLV	threshold limit value
TPA	12- <i>O</i> -tetradecanoylphorbol-13-acetate
TWA	time-weighted average
UDP	uridine 5'-diphosphate
UGT	uridine 5'-diphosphate-glucuronosyl transferase
UV	ultraviolet
VIS	visible
$V_{\max}$	maximum velocity
vs	versus
wk	week
XRE	xenobiotic response element