## IARC Monographs of Carcinogenic Hazards to Humans and Handbooks of Cancer Prevention

(updated 13 June 2018) Human immunodeficiency virus type 1 X-radiation, gamma-radiation Brain and central Ultraviolet-emitting tanning devices Absence of excess body nervous system Aluminium production fatness (meningioma) Arsenic and inorganic arsenic compounds Asbestos (all forms) Beryllium and beryllium compounds Alcoholic beverages Bis(chloromethyl)ether; chloromethyl methyl ether Betel guid with tobacco hypo- and/or Alcoholic beverages Oral cavity (technical grade) Isopropyl alcohol manufacture using strong Nasal cavity Human papillomavirus type 16 Betel guid with tobacco Cadmium and cadmium compounds and paranasal Quitting smoking Betel guid without tobacco Chromium (VI) compounds Leather dust Tobacco smoking Human papillomavirus type 16 Coal, indoor emissions from household combustion Nickel compounds Quitting smoking Coal gasification Radium-226 and its decay products Smokeless tobacco Epstein-Barr virus Coal-tar pitch Radium-228 and its decay products Tobacco smoking Formaldehyde Coke production Tobacco smoking Salted fish, Chinese-style Diesel engine exhausts Wood dust Human papillomavirus type 16 Wood dust Gamma-radiation Haematite mining (underground) Acid mists, strong inorganic Iron and steel founding Salivary gland X-radiation, gamma-radiation Alcoholic beverages MOPP (vincristine-prednisone-nitrogen mustard-procarbazine mixture) Asbestos (all forms) Nickel compounds Quitting smoking Outdoor air pollution Tobacco smoking Outdoor air pollution, particulate matter in Absence of excess body fatness Thyroid Painter (occupational exposure as) Radioiodines, including iodine-131 Plutonium (exposure during childhood and adolescence) Pleura or peritoneum Quitting smoking Asbestos (all forms) X-radiation, gamma-radiation Radon-222 and its decay products (mesothelioma) Erionite Rubber production industry Painter (occupational Silica dust, crystalline exposure as) Absence of excess body fatness Soot (gastric cardia) Sulfur mustard Helicobacter pylori Tobacco smoke, secondhand Alcoholic beverages Quitting smoking Tobacco smoking Absence of excess body fatness Rubber production industry Welding fumes (postmenopausal) Tobacco smoking X-radiation Diethylstilbestrol X-radiation, gamma-radiation Estrogen-progestogen contraceptives Acetaldehyde associated with consumption of Upper aerodigestive tract Estrogen-progestogen menopausal alcoholic beverages Oesophagus Acetaldehyde associated with consumption of alcoholic beverages Absence of excess body fatness Mammography screening (50–74 years) Liver Alcoholic beverages (hepatocellular Aflatoxins Physical activity Alcoholic beverages Absence of excess body fatness (adenocarcinoma) carcinoma) X-radiation, gamma-radiation Estrogen-progestogen contraceptives Betel guid with tobacco Urinary bladder Aluminium production Hepatitis B virus Betel guid without tobacco 4-Aminobiphenyl Hepatitis C virus Quitting smoking (squamous cell carcinoma) Arsenic and inorganic arsenic compounds Kidney Absence of excess body fatness Smokeless tobacco Plutonium Auramine production Quitting smoking Tobacco smoking Thorium-232 and its decay products Benzidine Tobacco smoking X-radiation, gamma-radiation Tobacco smoking (in smokers and in Chlornaphazine Trichloroethylene smokers' children) Cyclophosphamide X-radiation, gamma-radiation Absence of excess body fatness Magenta production Vinyl chloride Liver (angiosarcoma) Thorium-232 and its decay products 2-Naphthylamine Painter (occupational exposure as) Aristolochic acid, Renal pelvis Alcoholic beverages Colon and rectum Quitting smoking 1,2-Dichloropropane Biliary tract plants containing and ureter Absence of excess body fatness Rubber production industry Clonorchis sinensis Phenacetin Physical activity Schistosoma haematobium Opisthorchis viverrini Phenacetin, analgesic mixtures Processed meat (consumption of) Tobacco smoking containing Screening with gFOBT ortho-Toluidine Tobacco smoking Screening with FIT Absence of excess body fatness Pancreas X-radiation, gamma-radiation Screening with sigmoidoscopy Quitting smoking Screening with colonoscopy Smokeless tobacco Tobacco smoking Tobacco smoking X-radiation, gamma-radiation Absence of excess body Leukaemia/ Human immunodeficiency virus type 1 Anus fatness (multiple myeloma) lymphoma Human papillomavirus type 16 Azathioprine Plutonium Bone Benzene Radium-224 and its decay products Busulfan Radium-226 and its decay products 1,3-Butadiene Absence of excess body fatness Radium-228 and its decay products Chlorambucil Estrogen menopausal therapy (endometrium) X-radiation, gamma-radiation Cyclophosphamide Estrogen—progestogen menopausal therapy Cyclosporine Epstein-Barr virus Etoposide with cisplatin and bleomycin Human papillomavirus type 16 Fission products, including strontium-90 Diethylstilbestrol (exposure in utero) Uterine cervix Conventional cytology screening (35–64 years) Formaldehyde Human papillomavirus type 16 Diethylstilbestrol (exposure in utero) Helicobacter pylori Multiple sites Cyclosporine Estrogen-progestogen contraceptives Hepatitis C virus Human papillomavirus type 16 Fission products, including strontium-90 (unspecified) Human papillomavirus testing Human immunodeficiency virus type 1 X-radiation, gamma-radiation (exposure in Human immunodeficiency virus type 1 Human T-cell lymphotropic virus type 1 Absence of excess body fatness utero) Human papillomavirus types 16, 18, 31, 33, 35, 39, 45, 51, 52, Ovary Kaposi sarcoma herpesvirus 56, 58, 59 Asbestos (all forms) Lindane 2,3,7,8-Tetrachlorodibenzo-All cancers Estrogen menopausal therapy Quitting smoking Melphalan *para*-dioxin combined Tobacco smoking Tobacco smoking MOPP (vincristine-prednisone-nitrogen mustard-procarbazine mixture) 2,3,4,7,8-Pentachlorodibenzofuran Group 1 agents Pentachlorophenol Solar radiation Polychlorinated biphenyls with a WHO TEF ("dioxin-like") with less than Phosphorus-32, as phosphate Polychlorinated biphenyls (melanoma) sufficient evidence 4,4'-Methylenebis(2-chloroaniline) (MOCA) Rubber production industry Ultraviolet-emitting tanning devices in humans Alpha- and beta-particle emitters Semustine [1-(2-Chloroethyl)-3-(4-International Agency for Research on Cancer
World Health
Organization Areca nut methylcyclohexyl)-1-nitrosourea, or Arsenic and inorganic arsenic compounds Skin (other Aristolochic acid methyl-CCNU] Azathioprine malignant Benzidine, dyes metabolized to **Thiotepa** Coal-tar distillation neoplasms) Benzo[a]pyrene Thorium-232 and its decay products Coal-tar pitch Ethanol in alcoholic beverages Tobacco smoking World Health Organization Cyclosporine Ethylene oxide Treosulfan Methoxsalen plus ultraviolet A Etoposide X-radiation, gamma-radiation Mineral oils, untreated or mildly treated Ionizing radiation (all types) Shale oils

Solar radiation

X-radiation, gamma-radiation

Endothelium

(Kaposi

sarcoma)

Human immunodeficiency virus type 1

Kaposi sarcoma herpesvirus

**Neutron radiation** 

Ultraviolet radiation

pyridyl)-1-butanone (NNK)

N'-Nitrosonornicotine (NNN) and 4-(N-nitroso-methylamino)-1-(3-