

IARCにおける動物実験の判定(例)

参考資料5

	対象物質と発がん性分類	Animal carcinogenicity data(モノグラフの抜粋)	Cancer in experimental animals (評価)	備考	(参考) preamble(モノグラフ 序文)からの抜粋)
モノグラフ93 (2006)	カーボンブラック(2B)	<p>5.3 Two different carbon black products were tested by inhalation exposure(吸入ばく露) in two studies in female rats and in one study in rats of each sex. <u>Significant increases in the incidence of malignant lung tumours or of benign and malignant lung tumours combined were observed in female rats in all three studies.</u> In addition, an increased incidence of lesions described as <u>benign cystic keratinizing squamous-cell tumours or squamous-cell cysts</u> was observed. In one study in female mice exposed by inhalation, carbon black did not increase the incidence of respiratory tract tumours.</p> <p><u>In two studies of intratracheal administration(気管内投与) to female rats using two types of carbon black and in one study using one type, an increased incidence of malignant lung tumours or of benign and malignant lung tumours combined was observed.</u></p> <p>In several experiments of dermal application in mice that used various carbon blacks, no carcinogenic effect on the skin was observed; the dermal application of benzene extracts of several carbon blacks resulted in skin tumours.</p> <p>In one study in male and female mice using the same types of carbon black by subcutaneous injection, a carbon black that contained demonstrable quantities of carcinogenic polycyclic aromatic hydrocarbons produced local sarcomas, whereas a carbon black in which no polycyclic aromatic hydrocarbon was detected did not produce such sarcomas. In several experiments in mice, solvent extracts of carbon black produced sarcomas following subcutaneous injection.</p> <p>No adequate study of the carcinogenicity of carbon black administered by the oral or intraperitoneal route was available.</p>	sufficient evidence	吸入ばく露において雌ラットのみ肺腫瘍	<p><i>Sufficient evidence of carcinogenicity:</i> The Working Group considers that a causal relationship has been established between the agent and an increased incidence of malignant neoplasms or of an appropriate combination of benign and malignant neoplasms in (a) two or more species of animals or (b) two or more independent studies in one species carried out at different times or indifferent laboratories or under different protocols. An increased incidence of tumours in both sexes of a single species in a well-conducted study, ideally conducted under Good Laboratory Practices, can also provide <i>sufficient evidence</i>. A single study in one species and sex might be considered to provide sufficient evidence of carcinogenicity when malignant neoplasms occur to an unusual degree with regard to incidence, site, type of tumour or age at onset, or when there are strong findings of tumours at multiple sites.</p> <p>発がん性の十分な証拠: (a) 2種類以上の動物種、又は(b) 1種類の動物で異なる時期、異なる研究機関、又は異なるプロトコルで実施された2つ以上の独立した研究において、作用因子と、悪性腫瘍の発生率増加、又は良性腫瘍と悪性腫瘍の適切な組合せの発生率増加との間に因果関係が確立されたものと判断される場合。適正に実施された試験研究(GLPで理想的に実施された試験で、1種類の動物の雌雄両性で腫瘍発生率が増加した場合も「十分な証拠」となり得る。1種類の動物の片方の性を用いた1例の研究であっても、悪性腫瘍が、発生率、部位、腫瘍の種類又は発生齢に関して、異常な程度で発生した場合、又は、複数部位で腫瘍に関する強固な所見がある場合は、「十分な証拠」と判断されることがある。</p>
モノグラフ93 (2006)	二酸化チタン(2B)	<p>5.3 Pigmentary and ultrafine titanium dioxide were tested for carcinogenicity by oral administration in mice and rats, by inhalation exposure in rats and female mice, by intratracheal administration in hamsters and female rats and mice, by subcutaneous injection in rats and by intraperitoneal administration in male mice and female rats.</p> <p><u>In one inhalation study, the incidence of benign and malignant lung tumours was increased in female rats.</u> In another inhalation study, the incidence of benign lung tumours was increased in the high-dose groups of male and female rats. Cystic keratinizing lesions that were diagnosed as squamous-cell carcinomas but re-evaluated as non-neoplastic pulmonary keratinizing cysts were also observed in the <u>high-dose groups of female rats</u>. Two inhalation studies in rats and one in female mice gave negative results.</p> <p><u>Intratracheally instilled(気管内投与) female rats showed an increased incidence of both benign and malignant lung tumours following treatment with two types of titanium dioxide.</u> Tumour incidence was not increased in intratracheally instilled hamsters and female mice.</p> <p>Oral, subcutaneous and intraperitoneal administration did not produce a significant increase in the frequency of any type of tumour in mice or rats.</p>	sufficient evidence	雌雄ラットに腫瘍発生(雄良性)	<p>悪性腫瘍の発生率増加、又は良性腫瘍と悪性腫瘍の適切な組合せの発生率増加との間に因果関係が確立されたものと判断される場合。適正に実施された試験研究(GLPで理想的に実施された試験で、1種類の動物の雌雄両性で腫瘍発生率が増加した場合も「十分な証拠」となり得る。1種類の動物の片方の性を用いた1例の研究であっても、悪性腫瘍が、発生率、部位、腫瘍の種類又は発生齢に関して、異常な程度で発生した場合、又は、複数部位で腫瘍に関する強固な所見がある場合は、「十分な証拠」と判断されることがある。</p>