項目名	和訳結果(SIDS Dossier)	原文(SIDS Dossier)

1. 一般情報
GENERAL INFOMATION

1.01 物質情報
SUBSTANCE INFOMATION

CAS番号	67-68-5	67-68-5
物質名(日本語名)	ジメチルスルホキシド	
物質名(英名)		dimethyl sulfoxide
別名等		
国内適用法令の番号		
国内適用法令物質名		
OECD／HPV名称		
分子式	C2H6OS	C2H6OS
構造式		
備考	分子量 : 78.13	Molecular weight : 78.13

1.02 安全性情報収集計画書／報告書作成者に関する情報
SPONSOR INFOMATION

機関名	OECD/HPVプログラム(SIAM26)により収集された情報 (http://cs3-hq.oecd.org/scripts/hpv/)	OECD/HPV Program, SIDS Dossier, assessed at SIAM 26-APR-2008 http://ecb.jrc.ec.europa.eu/esis/index.php?PGM=hpv
代表者名		
所在地及び連絡先		
担当者氏名		
担当者連絡先(住所)		
担当者連絡先(電話番号)		
担当者連絡先(メールアドレス)		
報告書作成日		
備考	スポンサー国:国際航空貨物航空会社委員会	Sponsor Country: BIAC

1.03 カテゴリー評価
DETAILS ON CHEMICAL CATEGORY

1.1 一般的な物質情報
GENERAL SUBSTANCE INFOMATION

物質のタイプ	有機物	organic
物質の色・におい・形状等の情報	色 : 透明 臭い : 無臭	Colour : clear Odour : odourless
物理的状態(20℃、1013hPa)	液体	liquid
純度(重量／重量%)	> 99 % w/w	> 99 % w/w
出典		
備考		

1.2 不純物
IMPURITIES

1.3 添加物
ADDITIVES

1.4 別名
SYNONYMS

1.5 製造・輸入量
QUANTITY

1.6 用途情報
USE PATTERN

主な用途情報	用途タイプ:工業 カテゴリ:基本工業:基本化学物質	Type of use : industrial Category : Basic industry: basic chemicals
工業的用途		
用途分類		
出典		
備考		

主な用途情報	用途タイプ:工業 カテゴリ:塗料、漆、ワニス工業	Type of use : industrial Category : Paints, lacquers and varnishes industry
工業的用途		
用途分類		
出典		
備考		

1.7 環境および人への暴露情報
SOURCES OF EXPOSURE

1.8 追加情報
ADDITIONAL INFOMATION

2. 物理化学的性状
PHYSICAL CHEMICAL DATA

2.1 融点
MELTING POINT

試験物質名	1.1 - 1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈		
方法	その他:データなし	other: no data
GLP	いいえ	no
試験を行った年		
試験条件		
結果		
融点: ℃	18.5 ° C	18.5 ° C
分解: ℃	いいえ	no
昇華: ℃		
結論		
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	ハンドブックからのデータ	Data from handbook
出典		
引用文献	(157)	(157)
備考	フラグ:SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

2.2 沸点
BOILING POINT

試験物質名	1.1 - 1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈		
方法	その他:データなし	other: no data
GLP	いいえ	no
試験を行った年		
試験条件		
結果		
沸点: ℃	189 ° C	189 ° C
圧力	1013 hPa	1013 hPa
分解: ℃	はい	yes
結論		
注釈	分解開始点 : T>190° C 分解性生物 : メタンチオール; ホルムアルデヒド; dimethylsulfure 及び dimethylsulfone.	Start of decomposition : T>190° C Decomposition products : Methane thiol; formaldehyde; dimethylsulfure and dimethylsulfone.
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	ハンドブックからのデータ	Data from handbook
出典		
引用文献	(157)	(157)
備考	フラグ:化学品安全データセット、SIDSエンドポイントにとって重要な試験	Flag : Material Safety Dataset, Critical study for SIDS endpoint

2.3 密度(比重)
DENSITY(RELATIVE DENSITY)

試験物質名	1.1 - 1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈		
方法	その他:データなし	other: no data
GLP	いいえ	no
試験を行った年		
試験条件		
結果	1.1 g/cm³	1.1 g/cm³
タイプ	密度	density
温度(℃)	20 ° C	20 ° C
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	化学品安全データセット	Material Safety Dataset
出典		
引用文献	(28) (159)	(28) (159)
備考		

2.4 蒸気圧
VAPOUR PRESSURE

試験物質名		
CAS番号		
純度等		
注釈		
方法	英文参照	Experimental Procedure Methyl sulfoxide was purified by four recrystallizations, the last of which did not appreciably change the freezing point (18.42°). The amount of impurity remaining was estimated to be 0.1 mole %, and the vapor pressure values were corrected accordingly. Air, entering at A, was purified in train B by successive passage over the solids ferrons sulfate, potassium hydroxide, chromium trioxide, potassium hydroxide, and phosphorus pentoxide. Passing through a thermostat over two layers of liquid methyl sulfoxide C (each layer being 5 mm. wide and 25 cm. long) at a rate of two liters per hour (measured by a flowmeter K) and at a pressure 0.1 mm. below atmospheric, the air then bubbled through mercury (D), which completely prevented contamination of the liquid sulfoxide by backward diffusion of water vapor. The saturated sulfoxide vapor was absorbed in two tubes each containing 15 ml. of water (E) .
	英文参照	The air then emerging from the thermostat, after being thoroughly redried in the train F, was admitted through a system of capillaries (G) to one or two thirteen-liter highly evacuated glass bulbs (H) whose volumes had been (1) determined by filling with water and (2) checked by admittance of dry air and use of its data of state. The final pressure of the collected air was compared with the barometric pressure by means of a butyl phthalate manometer (L).The temperatures of the thermostat and the collected air were periodically measured to +/-0.01° C by single junction copper-constant thermocouples using a calibrated Type K potentiometer and correcting for extraneous potentials. The five thermocouple wells are designated in Fig. 1 by P.) The thermostat temperature remained constant to +/-0.005° C, and the total gradient averaged 0.03° C at the highest temperatures. The combined absorption solutions produced in each run were withdrawn through tube M (sealed by mercury (N) during runs) and were accurately analyzed for their total content of methyl sulfoxide by the method previously developed,2 with use of blanks and the other usual precautions.
	英文参照	Experimental Errors. Tests were made to determine whether certain suspected sources of systematic error appreciably affected the results.The contamination of the methyl sulfoxide during the series of runs was found to be inappreciable. After the completion of hall the runs, involving the passage of 170 liters of air, the freezing point of the remaining sulfoxide was redetermined and found to have changed not more than 0.03° . This result indicated also the lack of appreciable reaction between the sulfoxide and oxygen of the air at the temperatures used. Nor did a removal of appreciable sulfoxide vapor by adsorption seem to occur before it reached the absorber tubes. For the various temperatures were run in random order and no chronological trend of vapor pressure values was detectable after three preliminary runs, each of whose values was about 0.5% low on the basis of the remaining 15 runs.
	英文参照	Tests were made to establish whether the normal rate of air flow of two liters per hour was slow enough to permit complete saturation of the air with sulfoxide vapor, and a subsequent complete absorption of the vapor. One extra run at 30° and one at 50° were made at twice the normal rate of air flow, yielding vapor pressure values which were, respectively, 0.1 and 0.3% lower than at the normal rate, which latter thus appears to be sufficiently slow.Within the experimental error, all the sulfoxide vapor was found to be retained by the first of the two absorber tubes. One extra run at 30° and one at 50° in which water was present in only the first absorber tube gave vapor pressure values which were respectively 0.1% lower and 0.2% higher than the values obtained using two absorbers. As a check the total water collected from the emerging air from all the runs was found to contain only a mere trace of sulfoxide.

	英文参照	It was feared that some mercury may have been carried into the water absorbing the sulfoxide vapor, causing the subsequent titration of the solution with permanganate to run high. One solution from a 30° run and one from a 50° run were each tested for mercury, which, if present at all, was shown to be insufficient in amount to raise the experimental value of the vapor pressure by more than 0.1%. The departure of the saturated methyl sulfoxide vapor, mixed with air, from gas ideality is probably small, but seems too uncertain to justify its estimation. During one purification of the sulfoxide a sample was observed to boil at 79° at 16.5 1 mm., whereas extrapolation of the calculated vapor pressure values to this temperature gives 15.5 mm. This comparison indicates that the vapor density does not differ widely from that calculated using the formula (CH3)2SO. Nor is departure from this formula, through dissociation or association, to be expected on theoretical grounds. An estimation of individual errors indicated that the experimental vapor pressure values, as represented by the empirical equation below, are probably accurate in the temperature range of the measurements to within 1%.
GLP	いいえ	no
試験を行った年	1948	1948
試験条件		
結果		
蒸気圧		
温度: ℃		
分解: ℃		
結論		
注釈	蒸気圧の各値は実験データから以下の式により算出された。 p = .9977.P1 ――――――――――― N(P2.V2/n.R.T2) + 1 ここで p は 純品のメチルスルホキシドの蒸気圧、P1は飽和槽(約 635 mm.)におけるトータル圧力の平均、N は使用溶液中のメチルスルホキシドの推定モル分画、P2 は絶対温度T2における空気圧, V2 は空気容量、n は蒸発したメチルスルホキシド(推定分子式 (CH3)2SO),のモル数 、そして R は気体定数。0.0.9977は, 圧力pにおける液体メチルスルホキシドのフガシティの、圧力P1のフガシティへの比で、蒸気圧を空気無しで得られる値へ修正する。2つの独立した蒸気圧が20℃から50℃まで5℃間隔で実施された。	Each value of the vapor pressure was calculated from the experimental data by use of the equation p = .9977.P1 ――――――――――― N(P2.V2/n.R.T2) + 1 where p is the vapor pressure of pure methyl sulfoxide, P1 the average total pressure in the saturator (about 635 mm.), N the estimated mole fraction of methyl sulfoxide in the liquid used, P2 the pressure of collected air at absolute temperature T2, V2 the volume of collected air, n the moles of methyl sulfoxide evaporated (assuming the formula (CH3)2SO), and R the gas constant. 0.9977, the ratio of the fugacity of liquid methyl sulfoxide at pressure p to its fugacity at pressure P1, corrects the vapor pressure to the value which should be obtained in the absence of the air. Two independent measurements of vapor pressure were made at each temperature at 5° intervals from 20 to 50° .
	同じ温度におけるこれらの2重測定結果は平均値から0.15%以内に収まり 最大の差は0.5%であった。最小二乗法を用いて同じ重量における各 log p 値を導き、以下の式からメチルスルホキシドの20℃から50℃までの蒸気圧を算出した。式 (1) log10 p = 26.49558 − (3539.32/T) − 6.00000 log10T より、蒸気圧の実験値は平均との差が +/− 0.15%で, 最大誤差が 0.4%である事が示された。.式 (1)からのこの温度範囲における算出値を表 I に示した。. 表 I: ,メチルスルホキシドの濃度範囲における蒸気圧 (式 (1)より算出) （訳者注：以下に表 I が続く）	These duplicates at the same temperature agreed on the average to within 0.15% and the maximum difference was 0.5%. Using the method of least squares and giving each value of log p equal weight, the following equation was found for the vapor pressure of methyl sulfoxide from 20 to 50° . This equation (1) log10 p = 26.49558 − (3539.32/T) − 6.00000 log10T represented the experimental values of vapor pressure with an average deviation of +/− 0.15%, the maximum discrepancy being 0.4%. Values calculated from equation (1) in this temperature range are given in Table I. TABLE I: VAPOR PRESSURES OF METHYL SULFOXIDE AT ROUNDED TEMPERATURES (Calculated from equation (1))
	温度, ° C. 蒸気圧 mm.Hg 蒸気圧 hPa ――――――――――――――――――― 20 0.417 0.566 25 0.600 0.815 30 0.853 1.159 35 1.195 1.624 40 1.656 2.250 45 2.27 3.08 50 3.07 4.17 式 (1) より、25℃におけるメチルスルホキシドのモル蒸発熱は 12.64 kcal であった。.この推定値は 0.1 kcalの不確実性をもつと思われる。式 (1) により沸点 192° 及びとルートン定数 22.9 cal./mole/degが導かれる事は興味深い。しかしこれら2つの値は、幅広い外挿を行っているため一般的に信頼性は高くはない.	Temp., ° C. vapor pressure,mm.Hg vapor pressure,hPa ――――――――――――――――――― 20 0.417 0.566 25 0.600 0.815 30 0.853 1.159 35 1.195 1.624 40 1.656 2.250 45 2.27 3.08 50 3.07 4.17 Equation (1) yields a value of 12.64 kcal. for the molal heat of vaporization of methyl sulfoxide at 25° . This figure was estimated to have an uncertainty of 0.1 kcal. It is of interest that equation (1) leads to a normal boiling point of 192° and a Trouton constant of 22.9 cal./mole/deg., but these two figures are naturally not highly reliable, because of the wide extrapolations involved.

信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献	(63)	(63)
備考	フラグ：SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

2.5 分配係数(log Kow)
PARTITION COEFFICIENT

試験物質名		
CAS番号		
純度等		
注釈		
方法	その他（測定）	other (measured)
GLP	データなし	no data
試験を行った年		
試験条件		
結果		
Log Kow	-1.35	-1.35
温度:　℃		
結論		
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	ハンドブックからのデータ	Data from handbook
出典		
引用文献	(92)	(92)
備考	フラグ：SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

試験物質名	1.1～ 1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈		
方法	KOWWIN v1.67 による計算	other (calculated): KOWWIN v1.67
GLP		
試験を行った年		
試験条件		
結果		
Log Kow	-1.22	-1.22
温度:　℃		
結論		
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	認められた計算法	accepted calculation method
出典		
引用文献	(185)	(185)
備考	フラグ：SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

2.6.1 水溶解性（解離定数を含む）
WATER SOLUBILITY & DISSOCIATION CONSTANT

試験物質名		
CAS番号		
純度等		
注釈	水溶解度	Solubility in : Water
方法		
GLP		
試験を行った年		
試験条件		
結果		
水溶解度		
温度:　℃		
pH		
pH測定時の物質濃度		
結論	混和	miscible
注釈	水中で全て溶解する	Totaly soluble in water.
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	ハンドブックからのデータ	Data from handbook
出典		
引用文献	(38) (91)	(38) (91)
備考	フラグ：SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint
解離定数		
試験物質		
同一性		
方法		
温度:　℃		
GLP		
試験条件		
試験を行った年		
結果		

結論		
注釈		
信頼性スコア		
信頼性の判断根拠		
出典		
引用文献		
備考		

2.6.2 表面張力
SURFACE TENSION

2.7 引火点(液体)
FLASH POINT(LIQUIDS)

試験物質名		
CAS番号		
純度等		
注釈		
方法	その他:データなし	other: no data
GLP		
試験を行った年		
試験条件		
結果		
引火点: ℃	87 ° C	87 ° C
試験のタイプ	密閉式	closed cup
結論		
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	ハンドブックからのデータ	Data from handbook
出典		
引用文献	(94)	(94)
備考		

2.8 自己燃焼性 (固体/気体)
AUTO FLAMMABILITY(SOLIDS/GASES)

試験物質名		
CAS番号		
純度等		
注釈		
方法		
GLP		
試験を行った年		
試験条件		
結果		
自動発火点: ℃	300 - 302 ° C	300 - 302 ° C
圧力		
結論		
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	ハンドブックからのデータ	Data from handbook
出典		
引用文献	(94)	(94)
備考		

2.9 引火性
FLAMMABILITY

試験物質名		
CAS番号		
純度等		
注釈		
方法		
GLP		
試験を行った年		
試験条件		
結果		
固体の場合		
引火性が高い		
気体の場合		
水との接触		
結論		
注釈	引火性	flammable
信頼性スコア	(4) 信頼性を評価できない	(4) not assignable
信頼性の判断根拠		
出典		
引用文献	(9)	(9)
備考		

2.10 爆発性
EXPLOSIVE PROPERTIES

試験物質名	1.1 - 1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈		
方法	その他	other
GLP	いいえ	no
試験を行った年		
試験条件		
結果		
火により爆発		
m-ジニトロベンゼンより摩擦に敏感		
m-ジニトロベンゼンより衝撃に敏感		
爆発性ない		
その他		
結論	炎の影響で爆発性をしめす	explosive under influence of a flame
注釈	蒸気の爆発限界：下限界:2.6 %; 上限界:28.5%	Explosivity limits of vapours : lel:2.6 %; uel:28.5%
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	ハンドブックからのデータ	Data from handbook
出典		
引用文献	(158)	(158)
備考		

2.11 酸化性
OXIDISING PROPERTIES

2.12 酸化還元ポテンシャル
OXIDATION/REDUCTION POTENTIAL

2.13 その他の物理化学的性状に関する情報
ADDITIONAL INFOMATION

試験物質名		
CAS番号		
純度等		
注釈	粘度	VISCOSITY
方法		
GLP		
試験を行った年		
試験条件		
結果	2.14 - mPa s (dynamic) at 20 ° C	2.14 - mPa s (dynamic) at 20 ° C
結論		
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献	(159)	(159)
備考		

3. 環境運命と経路
ENVIRONMENTAL FATE AND PATHWAYS

3.1 安定性
STABILITY

3.1.1. 光分解
PHOTODEGRADATION

試験物質名		
CAS番号		
純度等		
注釈		
方法	その他	other
タイプ	大気	air
GLP	いいえ	no
試験を行った年	1987	1987
光源と波長(nm)	その他: Philips TLA 40 W/05 蛍光ランプ、254 nm	other: Philips TLA 40 W/05 fluoresence lamps、254 nm
太陽光強度に基づいた相対強度	太陽光強度に基づく	based on intensity of sunlight
物質のスペクトル		

試験条件	英文参照	The kinetic measurements were carried out in glass reaction chambers of 420 L volume at 760 Torr total pressure and room temperature using either N2 or synthetic air as the diluent gas. The photolysis of either CH3ONO in the presence of NO using Philips TLA 40 W/05 fluoresence lamps was used as the OH source.
	英文参照	The competitive kinetic technique was used to measure the rate constants for the reaction of OH radicals with DMSO relative to the reaction of OH with either n-butane (k=1.68x10e-llexp(-559/t) cm3/s), ethene (k=1.66x10e-12exp(474/T) cm3/s), propene (k=4.1x10e-12exp(544/t) cm3/s), cis-2-butene (k=1.04xl0e-llexp(488/T) cm3/s) or trans-2-butene (k=1.22x10e-11exp(549/T) cm/s). Reactant concentrations were in the range 2-15 ppmv and the concentrations of the OH precusor, CH3ONO was between 20 and 40 ppmv. The reference hydrocarbons were monitored by gas chromatography with flame ionization detection (Hewlett Parkard, Model 5710 A) using a 2 m stainless steel Porasil C column. DMSO was monitored in the 420 L reactor using in situ long-path Fourier transform absorption spectroscopy (FTIR). Product analyses of the reactions of OH with DMSO were also performed in the 420 L reactor using the built-in FTIR facility and the photolysis of H2O2 as the OH source.
結果		
物質濃度		
温度(℃)		
直接光分解		
半減期t1/2		
分解度(%)と時間		
量子収率 (%)		
間接光分解		
増感剤(タイプ)	OH	OH
増感剤濃度	1000000 molecule/cm³	1000000 molecule/cm³
速度定数	.000000000058 cm³/(molecule*sec)	.000000000058 cm³/(molecule*sec)
半減期t1/2	3時間	50 % after 3 hour(s)
分解生成物		
結論		
注釈	OHラジカルとDMSOの反応は、OH + cis-2-ブテンの反応に対応する 760 Torrの空気中で、CH30NOをOH源として光分解を行う 420 Lの反応槽中で試験された。0.90+0.36 という反応速度定数の比 k9/k10 が得られた。ここで k10=5.2x10e-11 cm3/s がOHとDMSOの速度定数 5.8(±2.3) x10e-11 cm3/s よりえられた。速度定数は反応系の酸素分圧やNO濃度には依存しなかった。予備的な調査により、DMSO2が主要な反応性生物であることが示された。.	The reaction of OH with DMSO was studied in a 420 L reactor relative to OH + cis-2-butene in 760 Torr air using the photolysis of CH30NO as the OH source. A rate constant ratio k9/k10 of 0.90+0.36 was obtained which with k10=5.2x10e-11 cm3/s yields a rate constant of 5.8(±2.3) x10e-11 cm3/s for the reaction of OH with DMSO. The determined rate constant showed no dependence upon the 02 partial pressure or the concentration of NO in the reaction system. Preliminary product investigation indicate that DMSO2 is the major reaction product.
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠	2e: 試験は良く記述され、一般に認められている科学的原則に合致し、評価に受容可能。	2e: study well documented, meets generally accepted scientific principles, acceptable for assessment
出典		
引用文献	(24)	(24)
備考	フラグ:SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

3.1.2. 水中安定性(加水分解性)
STABILITY IN WATER

試験物質名	1.1 - 1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈	タイプ : 非生物学的	Type : abiotic
方法		
GLP	いいえ	no
試験を行った年	2002	2002
試験条件		
結果		
設定濃度		
実測濃度		
所定時間後の分解度(%)、pH、温度		
半減期		
分解生成物		
結論		
注釈	DMSOを扱った文献の収集	Bibliographic work gathering references dealing with DMSO
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions

信頼性の判断根拠		
出典		
引用文献	(40)	(40)
備考	フラグ：SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

3.1.3. 土壌中安定性
STABILITY IN SOIL

試験物質名	1.1 - 1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈		
方法		
GLP	いいえ	no
試験を行った年	2002	2002
試験条件		
試験期間		
結果		
試験のタイプ	その他	other
放射性ラベル		
濃度		
土壌温度 ℃		
土壌中pH		
土壌中湿度 (%)		
土壌のクラス		
粘土含量 (%)		
有機炭素 (%)		
陽イオン交換能		
微生物バイオマス濃度		
消失時間(DT50、DT90)		
分解生成物		
時間ごとの消失率		
結論		
注釈	DMSOを扱った文献の収集	Bibliographic work gathering references dealing with DMSO
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献	(40)	(40)
備考	フラグ：SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

3.2. モニタリングデータ(環境)
MONITORING DATA(ENVIRONMENT)

試験物質名		
CAS番号		
純度等		
注釈	英文参照	Method : Rain samples were collected on a Teflon sheet and frozen or acidified to pH 2 until analyzed. An aliquot of 8-10 ml was pressurized in a small steel cylinder with helium and blown as a mist into a 25 cm x 1 cm (i.d.) steel column packed with glass beads and held at 130° . A 10 cm x 1 cm (i.d.) column of silica held at 110° attached directly to the evaporation tube trapped the sulfur compounds. The process was finished when no further steam was visible at the exit of the silica column. The column was eluted with 2.0 ml of 2:1, acetone:methanol solution. Recovery of the sulfoxide and sulfone from standard aqueous solutions by this technique was > 95%. Air was drawn through a 25 cm x 1 cm (i.d.) column of Tenax GC at a flow rate of 6 l/min. About 1400 l of air were extracted. The Tenax column was eluted with 2.0 ml of methanol. Retention and recovery of standards using the above conditions was > 95%. Aliquots of the above extracts were analyzed by gas chromatography on a 2 m x 2 mm (i.d.) column packed with 3% SP1500 on Carbopack B. The chromatograph was fitted with a Hall conductivity detector. Concentrations of DMSO and DMS02 were calculated from peak areas in comparison with known standards.
方法		
測定タイプ(地点)	バックグラウンド濃度	background concentration
媒体	雨水と大気	rain and air

結果	TABLE 1. DMSO and $DMSO_2$ in Various Rain and Air Samples Sample/ Date / Location / DMSO / $DMSO_2$ R-7-1 (6/2/84) / 5°S, 150°W / 1300 ng/ℓ / 9400 ng/ℓ R-7-11 (6/2/84) / 5°S, 150°W / 2600 ng/ℓ / 8500 ng/ℓ R-4 (5/28/84) / 3.5°S, 150°W / 100 ng/ℓ / 1400 ng/ℓ Christmas Island (6/2/84) / / 5500 ng/ℓ / 600 ng/ℓ Birmingham, Alabama (4/14/85) / / < 100 ng/ℓ / 200 ng/ℓ Miami air (4/19/85) / / 2.2 ng/m³ / 2.9 ng/m³ Miami air (4/26/85) / / 4.0 ng/m³ / 5.9 ng/m³	TABLE 1. DMSO and $DMSO_2$ in Various Rain and Air Samples Sample/ Date / Location / DMSO / $DMSO_2$ R-7-1 (6/2/84) / 5°S, 150°W / 1300 ng/ℓ / 9400 ng/ℓ R-7-11 (6/2/84) / 5°S, 150°W / 2600 ng/ℓ / 8500 ng/ℓ R-4 (5/28/84) / 3.5°S, 150°W / 100 ng/ℓ / 1400 ng/ℓ Christmas Island (6/2/84) / / 5500 ng/ℓ / 600 ng/ℓ Birmingham, Alabama (4/14/85) / / < 100 ng/ℓ / 200 ng/ℓ Miami air (4/19/85) / / 2.2 ng/m³ / 2.9 ng/m³ Miami air (4/26/85) / / 4.0 ng/m³ / 5.9 ng/m³
結論		
注釈	添付ドキュメント:harvey.bmp	Attached document : harvey.bmp
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献	(93)	(93)
備考	フラグ:SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

3.3. 移動と分配
TRONSPORT AND DISTRIBUTION

3.3.1 環境区分間の移動
TRANSPORT BETWEEN ENVIRONMENTAL COMPARTMENTS

試験物質名		
CAS番号		
純度等		
注釈	タイプ:フガシティモデル level III	Type : fugacity model level III
方法	EPIWIN v 3.10.からのLevel IIIフガシティモデル推定	Level III Fugacity model predictions from EPIWIN v 3.10.
結果		
媒体	大気 : % (Fugacity Model Level I) 水 : % (Fugacity Model Level I) 土壌 : % (Fugacity Model Level I) 生物相 : % (Fugacity Model Level II/III) 土壌 : % (Fugacity Model Level II/III)	Air : % (Fugacity Model Level I) Water : % (Fugacity Model Level I) Soil : % (Fugacity Model Level I) Biota : % (Fugacity Model Level II/III) Soil : % (Fugacity Model Level II/III)
環境分布予測と媒体中濃度 (levelIII/III)	容量 (percent) / 半減期 (hr) / 排出 (kg/hr) 大気 0.0334 / 4.14 / 1000 水 39.5 / 360 / 1000 土壌 60.4 / 720 / 1000 底質 0.0723 / 3.24e+003 / 0 フガシティ (atm) / 反応 (kg/hr) / 移流 (kg/hr) / 反応 (percent) / 移流 (percent) 大気 1.75e-012 / 93.5 / 5.58 / 3.12 / 0.186 水 6.38e-014 / 1.27e+3 / 660 / 42.3 / 22 土壌 3.61e-012 / 971 / 0 / 32.4 / 0 底質 5.83e-014 / 0.258 / 0.0241 / 0.00861 / 0.000805 残留時間: 557 hr 反応時間: 715 hr 移流時間: 2.51e+003 hr 反応% : 77.8 移流 : 22.2	Mass Amount (percent) / Half-Life (hr) / Emissions (kg/hr) Air 0.0334 / 4.14 / 1000 Water 39.5 / 360 / 1000 Soil 60.4 / 720 / 1000 Sediment 0.0723 / 3.24e+003 / 0 Fugacity (atm) / Reaction (kg/hr) / Advection Reaction (kg/hr) / Reaction (percent) / Advection (percent) Air 1.75e-012 / 93.5 / 5.58 / 3.12 / 0.186 Water 6.38e-014 / 1.27e+3 / 660 / 42.3 / 22 Soil 3.61e-012 / 971 / 0 / 32.4 / 0 Sediment 5.83e-014 / 0.258 / 0.0241 / 0.00861 / 0.000805 Persistence Time: 557 hr Reaction Time: 715 hr Advection Time: 2.51e+003 hr Percent Reacted: 77.8 Percent Advected: 22.2
	Half-Lives(hr), (based upon Biowin (Ultimate) and Aopwin): Air: 2.06 (12 h) Water: 360 Soil: 720 Sediment: 3240 Biowin estimate: 3.027 (weeks) Advection Times (hr): Air: 100 Water: 1000 Sediment: 5e+00	Half-Lives(hr), (based upon Biowin (Ultimate) and Aopwin): Air: 2.06 (12 h) Water: 360 Soil: 720 Sediment: 3240 Biowin estimate: 3.027 (weeks) Advection Times (hr): Air: 100 Water: 1000 Sediment: 5e+00

結論		
注釈	Level III フガシティモデル 化学名　　:　スルフィニルビスメタン 分子量　　:　78.13 Henry則定数 :　1.51e-009 atm-m3/mole (Henryデータベース) 蒸気圧　　:　0.622 mm Hg (Mpbpwin プログラム) Log Kow　　:　-1.35 (Kowwin プログラム) Soil Koc　　:　0.0183 (モデル計算値)	Level III Fugacity Mode Chem Name :　Methane, sulfinylbis- Molecular Wt:　78.13 Henry's LC :　1.51e-009 atm-m3/mole (Henry database) Vapor Press :　0.622 mm Hg (Mpbpwin program) Log Kow :　-1.35 (Kowwin program) Soil Koc :　0.0183 (calc by model)
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献	(185)	(185)
備考	フラグ:SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

3.3.2 分配
DISTRIBUTION

試験物質名		
CAS番号		
純度等		
注釈		
媒体	水-大気	water - air
	実施年:1987	Year : 1987
方法	その他(計算)	other (calculation)
試験条件	モル分画が2 x 10^{-3} から 1.0 の水溶液におけるDMSOの分圧が 7, 15, 21及び 35° Cで測定された。	Partial pressure of DMSO was measured above its aqueaous solutions over the mol fraction range 2 x 10-3 to 1.0 and at temperature of 7, 15, 21 and 35° C
結果	1.17*105 mol/kg/atm (± 0.02)	1.17*105 mol/kg/atm (± 0.02)
結論		
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献	(195)	(185)
備考	フラグ:SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

試験物質名		
CAS番号		
純度等		
注釈		
媒体	水-土壌	water - soil
	実施年:2007	Year : 2007
方法	その他(計算)	other (calculation)
試験条件		
結果	Log Koc = 0.64	Log Koc = 0.64
結論		
注釈		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献	(186)	(186)
備考	フラグ:SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

3.4 好気性生分解性
AEROBIC　BIODEGRADATION

試験物質名	1.1 - 1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈	タイプ:好気性	Type : aerobic
方法	OECD ガイドライン 303 A "シミュレーション試験 - 好気性排水処理: Coupled Unit 試験"	OECD Guide-line 303 A "Simulation Test - Aerobic Sewage Treatment: Coupled Unit Test"
培養期間	68日間	68 day(s)
植種源	活性汚泥、順化	domestic sewage, adapted
GLP	データなし	no data
試験を行った年	1981	1981

試験条件	英文参照	INOCULUM/TEST ORGANISM - Type of sludge: Domestic sewage, adapted. - Sampling site: Versailles. - Preparation of inoculum: Not available. - Initial cell concentration: 3.0 g/l. TEST SYSTEM - Culturing apparatus: 2 litre reactor. - Aeration device: Bubbling ungreasy compressed air. - Measuring equipment: DOHRMANN DC 80, DIONEX 4010 I, PERKIN ELMER Lambda 5. INITIAL TEST SUBSTANCE CONCENTRATION: 2 concentrations: 1- 65 mg/l. 2- 130 mg/l.
	英文参照	METHOD OF PREPARATION OF TEST SOLUTION: The substance was directly introduced in the test solution afetr 13 days of the beginning of the test. DURATION OF THE TEST: 68 days with two phases: 1- From the 13th days until the 33th days. 2- from the 34th days until the 67th days. ANALYTICAL PARAMETER: The evaluation of the biodegradation was done by measuring the difference of COD level between the effluent issued from the 2 following units: 1- Activated sludge. 2- Activated sludge+DMSO.
	英文参照	SAMPLING: Every day until the end of the test (68 days). TEST CONDITIONS - Composition of medium: For one litre: 1- 10 ml of nutritive solution : 16g peptone 11g meat extract 3g urea 0.7g NaCl 0.4g CaCl2,2H2O 0.2g MgSo4,2H2O q.s.p ultrapure water 1 l. 2- 10 ml of K2HPO4 : 2.8g K2HPO4 q.s.p 1 litre. 3- q.s.p 1 liter of city water. - Additional substrate: No. - pH value: Not available. INTERMEDIATES / DEGRADATION PRODUCTS: Not identified. NITRATE/NITRITE MEASUREMENT: Yes.
試験物質濃度	65 mg/l 試験物質として 20 mg/l DOC (溶存有機炭素)として	65 mg/l related to Test substance 20 mg/l related to DOC (Dissolved Organic Carbon)
汚泥濃度		
培養温度 ℃		
対照物質および濃度(mg/L)	対照物質の分解率 32 日後 = 92.6 % 68 日後 = 92.1 %	32 day(s) = 92.6 % 68 day(s) = 92.1 %
分解度測定方法		
分解度算出方法		
結果		
最終分解度(%) 日目	32日後で 90.4 (±) %	90.4 (±) % after 32 day(s)
分解速度-1		
分解速度-2		
分解速度-3		
分解速度-4		
分解生成物	測定せず	not measured
上記結果以外の分解度測定方法及びその結果	14 日後 = 18 % 25 日後 = 79.5 % 28 日後 = 87 % 32 日後 = 89 % 68 日後 = 54 %	14 day(s) = 18 % 25 day(s) = 79.5 % 28 day(s) = 87 % 32 day(s) = 89 % 68 day(s) = 54 %
対象物質の7，14日目の分解度		
その他	DMSO は生分解性の十分生分解の可能性あり. 1- 第1のケース: DMSO 濃度 = 65mg/l 生分解率 = 90.4%. 2- 第2のケース: DMSO 濃度 = 130mg/l 生分解率 = 65.1%, 毒性影響の発生	The DMSO has a good potential of biodegradation. 1- First case: DMSO concentration = 65mg/l DR = 90.4%. 2- second case: DMSO concentration = 130mg/l DR = 65.1%, toxic effects can appear.
結論		
注釈		

信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献	(186)	(186)
備考	フラグ : 部外秘, 67/548/EEC指令, SIDSエンドポイントにとって重要な試験, 仮のフラグ	Flag : confidential, Directive 67/548/EEC, Critical study for SIDS endpoint, temporary flag

3.5. BOD-5、CODまたはBOD-5／COD比
BOD-5、COD OR RATIO BOD-5/COD

3.6 生物濃縮性
BIOACCUMULATION

試験物質名	データなし	no data
CAS番号		
純度等		
注釈		
方法	OECD ガイドライン 305 C "生物濃縮性: 魚類を用いた生物濃縮性試験"	OECD Guide-line 305 C "Bioaccumulation: Test for the Degree of Bioconcentration in Fish"
生物種	*Cyprinus carpio* (魚類、淡水)	*Cyprinus carpio* (Fish, fresh water)
暴露期間 (日)	42 日間	42 day(s)
曝露濃度	1 mg/l	1 mg/l
排泄期間		
GLP	データなし	no data
試験を行った年	1981	1981
分析方法		
試験条件	25 ° C	25 ° C
被験物質溶液		
対照物質		
対照物質名及び分析方法		
試験方式／実施		
結果		
死亡率／行動		
脂質含有量 (%)		
試験中の被験物質濃度		
濃縮係数(BCF)	< 4	< 4
取込／排泄定数	データなし	no data
排泄時間		
代謝物		
その他の観察		
結論		
注釈	0.1 mg/l DMSOにおける BCF < 4.0 暴露方法 : 流水系における連続暴露 分析方法 : ガスクロマトグラフィー	With 0.1 mg/l DMSO, BCF < 4.0 Exposure method : Continuous flow system Analytical method : Gas chromatography
信頼性スコア	(3) 信頼性なし	(3) invalid
信頼性の判断根拠	ドキュメントは評価には不十分である	Documentation insufficient for assessment
出典		
引用文献	(30)	(30)
備考		

項目名	和訳結果（SIDS Dossier）	原文（SIDS Dossier）

4-1 魚への急性毒性
ACUTE TOXICITY TO FISH

試験物質	その他の試験物質＞99%	other TS: > 99%
同一性		
方法	その他	other
方法	試験条件 ※英文参照 温度: 24.9° C 溶存酸素: 7.0 mg/l 硬度: 44.3 mg/l CaCO3 アルカリ度: 46.2 mg/l CaCO3 タンク用量: 0.25 l pH: 7	Test condition Adults fatheads minnows were held at 25° C in flowing water with a controlled photoperiod of 16 h light. They were fed frozen adult brine shrimp (Artemia sp.). Temperature: 24.9° C Dissolved oxygen: 7.0 mg/l Hardness: 44.3 mg/l CaCO3 Alkalinity: 46.2 mg/l CaCO3 Tank volume: 0.25 l pH: 7
GLP	データ無し	no data
試験を行った年		
魚種、系統、供給者	*Pimephales promelas*（魚類, 淡水）	*Pimephales promelas* (Fish, fresh water)
エンドポイント		
試験物質の分析の有無	有り	yes
試験物質の分析方法		
結果の統計解析手法		
試験条件		
試験魚の月齢、体長、体重	齢: 31日齢 平均体長: 15.8 mm (SD : 3.259) 平均体重: 0.062 g (SD : 0.0493)	Age: 31 days Mean length: 15.8 mm (SD : 3.259) Mean weigh: 0.062 g (SD : 0.0493)
試験用水量あたりの魚体重		
参照物質での感受性試験結果		
じゅん化条件		
希釈水源		
希釈水の化学的性質		
試験溶液（及び保存溶液）とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		
暴露容器		
暴露期間	96時間	96 hour(s)
試験方式	流水	flow through
換水率/換水頻度		
連数、1連当たりの魚数		
影響が観察された少なくとも1濃度区及び対照区における水質		
試験温度範囲		
照明の状態		
平均測定濃度の計算方法		
結果		
設定濃度		
実測濃度		
生物学的影響観察		
累積死亡率の表	死亡率 C A B C D E T0 0 0 0 24 0 10 10 48 0 10 10 72 0 10 10 96 0 10 10	MORTALITIES C A B C D E T0 0 0 0 24 0 10 10 48 0 10 10 72 0 10 10 96 0 10 10

統計的結果	ストック溶液 : 59.1 g/l 魚を 0%, 20%, 40%, 60%, 80% 及び 100%のストック溶液に暴露させた。 DMSO 濃度 (g/l) A B C D E 設定濃度 11.4 22.8 34.1 45.5 56.9 測定濃度 8.33 13.8 23.6 26.9 55.6 9.58 21.4 28.5 46.1 56.3 7.30 22.7 28.3 44.6 56.7 9.12 23.4 27.8 46.5 60.1 10.2 20.3 27.8 45.2 54.3 平均 8.91 20.3 27.2 41.9 56.6 回収率% 99.3 (標準偏差 : 7.3) (サンプル数: N=8) 分析方法 : ガス-液 クロマトグラフィー 魚数 : 10	Toxicant stock : 59.1 g/l Fish were exposed to 0%, 20%, 40%, 60%, 80% and 100% of the stock solution. DMSO Concentrations (g/l) A B C D E Nominal 11.4 22.8 34.1 45.5 56.9 Measured 8.33 13.8 23.6 26.9 55.6 9.58 21.4 28.5 46.1 56.3 7.30 22.7 28.3 44.6 56.7 9.12 23.4 27.8 46.5 60.1 10.2 20.3 27.8 45.2 54.3 Average 8.91 20.3 27.2 41.9 56.6 % recovery 99.3 (Standard deviation : 7.3) (number of samples : N=8) Method of chemical analysis : Gas-liquid chromatography Number of fish : 10
注釈		
対照区における死亡率		
異常反応		
その他の観察結果		
結論		
結果(96h-LC50)	LC0 : = 27.2 g/l LC50 : = 34 g/l LC100 : = 41.9 g/l	LC0 : = 27.2 g/l LC50 : = 34 g/l LC100 : = 41.9 g/l
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
キースタディ		
信頼性の判断根拠		
出典		
引用文献	(88)	(88)
備考	フラグ : SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

4-2 水生無脊椎動物への急性毒性(例えばミジンコ)
ACUTE TOXICITY TO AQUATIC INVERTEBRATES (DAPHNIA)

試験物質	その他の試験物質 : Merck, 純度>99%	other TS: Merck, >99% purity
同一性		
方法	OECDガイドライン202	OECD Guide-line 202
方法	試験期間中、温度、溶存酸素、pH、総硬度及び伝導率を毎週モニタリングした。	During the test, Temperature, O2 dissolved , pH total hardness and conductivity were monitored weekly.
GLP	データ無し	no data
試験を行った年		
生物種、系統、供給者	*Daphnia magna* (甲殻類)	*Daphnia magna* (Crustacea)
エンドポイント		
試験物質の分析の有無	有り	yes
試験物質の分析方法		
結果の統計解析手法		
試験条件		
試験生物の起源、前処理、繁殖方法	※英文参照	TEST ORGANISMS - Strain: Daphnia magna Straus - Age: Less than 24 hours.From a single clone derived from a healthy parent stock - Feeding: Microscopic algae Selenastrum capricornutum. - Feeding during test: No. - Control group: Yes
参照物質での感受性試験結果		
試験開始時の時間齢		
希釈水源		
希釈水の化学的性質	※英文参照	MEDIUM : ASTM hard water (ASTM, 1994), enriched with the organic additive Marinure "25" , an extract from the algae Ascophyllum nododum. Total hardness : 160-180 mg/l CaCO3 pH range : 7.5-8.0 Conductivity of 580 µScm-1
試験溶液(及び保存溶液)とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		
暴露容器		
暴露期間	48時間	48 hour(s)
試験方式	止水	static
連数、1連当たりの試験生物数	10匹/暴露群及び対照群	Ten animals were used per treatment and control.
対照区と影響が観察された少なくとも1濃度区における水質		
試験温度範囲		

照明の状態		
平均測定濃度の計算方法		
結果		
設定濃度		
実測濃度		
遊泳阻害数		
累積遊泳阻害数の表		
注釈	48時間EC50は24.6 mg/l(95 %信頼区間 19.1～31.7 g/l)と算出された。	The EC50-48h was calculated to be 24.6 mg/l with 95 % confident interval ranging from 19.1 to 31.7 g/l.
対照区における反応は妥当か		
対照区における反応の妥当性の考察		
結論		
結果(48h-EC50)	EC50 : = 24.6 g/l	EC50 : = 24.6 g/l
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
キースタディ		
信頼性の判断根拠		
出典		
引用文献	(22)	(22)
備考	フラグ : Directive 67/548/EEC, SIDSエンドポイントにとって重要な試験, 暫定フラグ	Flag : Directive 67/548/EEC, Critical study for SIDS endpoint, temporary flag

4-3 水生植物への毒性(例えば藻類)
TOXICITY TO AQUATIC PLANTS e. g. ALGAE

試験物質	DMSO 分析用試薬(純度＞99%)	DMSO reagent grade (purity >99%)
同一性		
方法	※英文参照	Flasks were incubated at 25+-1° C and a light intensity of 7 klux on a 12 hour light-dark cycle. Growth was monitored by following the increase of optical density over time for 10 to 14 days. The solvent was assayed at 10 concentrations ranging from 0.1% to 6.0% (1 to 60 g/l).
GLP	データ無し	no data
試験を行った年		
生物種、系統、供給者	その他の藻類: *Anabaena sp*. and *Nostoc sp.* 5種の藍藻を試験に用いた - *Anabaena sp.* - *Anabaena cylindrica* . - *Anabaena variabilis* - *Anabaena inaequalis* - *Nostoc sp.*	other algae: *Anabaena sp*. and *Nostoc sp.* Five species of blue-green algae were used as test cultures - *Anabaena sp.* - *Anabaena cylindrica* . - *Anabaena variabilis* - *Anabaena inaequalis* - *Nostoc sp.*
エンドポイント	生長速度	growth rate
毒性値算出に用いたデータの種類		
試験物質の分析の有無	無し	no
試験物質の分析方法		
結果の統計解析手法	※英文参照	EC50 value was calculated using linear regression analysis (percent inhibition versus solvent concentration).
試験条件		
試験施設での藻類継代培養方法		
藻類の前培養の方法及び状況		
参照物質での感受性試験結果		
希釈水源		
培地の化学的性質		
試験溶液(及び保存溶液)とその調製法		
試験物質の溶液中での安定性		
溶解助剤/溶剤の種類とその濃度		
暴露容器		
暴露期間		
試験方式		
連数		
各濃度区の少なくとも1連における試験開始時と終了時の水質		
試験温度範囲		
照明の状態		
平均測定濃度の計算方法		
結果		
設定濃度		
実測濃度		
細胞密度		
生長阻害率(%)		
各濃度区における生長曲線		
その他観察結果		

注釈	結果 EC50 %(v/v) 95% CI - Anabaena variabilis 3.57 (2.32-4.82) - 〃 inaequalis 1.71 (1.24-2.18) - 〃 cylindrica 0.84 (0.25-1.43) - Anabaena sp. 0.39 (0.12-0.66) - Nostoc sp. 4.02 (3.64-4.40)	Results EC50 %(v/v) 95% CI - Anabaena variabilis 3.57 (2.32-4.82) - 〃 inaequalis 1.71 (1.24-2.18) - 〃 cylindrica 0.84 (0.25-1.43) - Anabaena sp. 0.39 (0.12-0.66) - Nostoc sp. 4.02 (3.64-4.40)
対照区での生長は妥当か		
対照区における反応の妥当性の考察		
結論		
結果(ErC50)		
結果(NOEC)		
信頼性スコア	(2) 制限付で信頼性あり	(2) valid with restrictions
キースタディ		
信頼性の判断根拠		
出典		
引用文献	(175)	(175)
備考		

4-4 微生物への毒性(例えばバクテリア)
TOXICITY TO MICROORGANISMS e. g. BACTERIA

4-5 水生生物への慢性毒性
CHRONIC TOXICITY TO AQUATIC ORGANISMS

A. 魚への慢性毒性
CHRONIC TOXICITY TO FISH

B. 水生無脊椎動物への慢性毒性
CHRONIC TOXICITY TO AQUATIC INVERTEBRATES

4-6 陸生生物への毒性
TOXICITY TO TERRESTRIAL ORGANISMS

A. 陸生植物への毒性
TOXICITY TO TERRESTRIAL PLANTS

B. 土壌生物への毒性
TOXICITY TO SOIL DWELLING ORGANISMS

C. 他の非哺乳類陸生種(鳥類を含む)への毒性
TOXICITY TO OTHER NON-MAMMALIAN TERRESTRIAL SPECIES (INCLUDING AVIAN)

4-6-1底生生物への毒性
TOXICITY TO SEDIMENT DWELLING ORGANISMS

4-7 生物学的影響モニタリング(食物連鎖による蓄積を含む)
BIOLOGICAL EFFECTS MONITORING (INCLUDING BIOMAGNIFICATION)

4-8 生体内物質変換と動態
BIOTRANSFORMATION AND KINETICS

4-9 追加情報
ADDITIONAL INFORMATION

項目名	和訳結果（SIDS Dossier）	原文（SIDS Dossier）

5-1 トキシコキネティクス、代謝、分布
TOXICOKINETICS, METABOLISM, and DISTRIBUTION

試験物質名	ジメチルスルホキシド	Dimethylsulfoxyde
CAS番号	67-68-5	67-68-5
純度等	コールドのDMSO 供給源：Crown-Zellerbach バッチ：データなし 純度：99.5% DMSO-S35 供給源：New England Nuclear Corp. 純度：赤外分光光度計及びGCで高純度	Cold DMSO Source: Crown-Zellerbach Batch : no data Purity : 99.5% DMSO-S35 Source: New England Nuclear Corp. Purity: Pure by IR spectroscopy and GC
注釈		
方法		
方法／ガイドライン		
試験形態	In vivo	In vivo
GLP適合	いいえ	no
試験をおこなった年		
方法の概略	※英文参照	Two subjects, weighing 60.4 and 108.2 kg, received 1 g/kg of DMSO-S35 dermally (approximately 125 µc each). A 70% solution of DMSO in water was used and was applied by means of a 4- by 4-inch gauze pad held with forceps over the entire body surface of human subjects standing on a piece of aluminum foil. The solution was gently rubbed into the skin until absorbed. When all of the solution had been applied, the gauze pad was washed with a small amount of water and squeezed out, and the washings were applied to the skin. The drug was shown to have been quantitatively applied in this manner through experiments with labeled drug, in which a second washing of the gauze pad, as well as washings of the aluminum foil, were shown to contain only a small fraction (<1%) of the total radioactivity applied. Serum and urinary levels of radioactivity were measured as well as concentrations of DMSO and DMSO2, at various times thereafter.
方法の概略	※英文参照	Gas Chromatography: DMSO and DMSO2 were quantified in urine and serum by gas chromatographic analysis after a solvent extraction. Radiometric assay: Liquid scintillation counting of urine or serum was performed by adding 0.1 to 0.2 ml of sample to vials containing 20 ml of a naphthalene-dioxane solution. At least 3000 counts were accumulated for each sample. Counting efficiencies were determined by addition of internal standards and ranged from 39 to 47%. The calculated disintegration rates were expressed as microgram equivalents of DMSO per milliliter of sample to allow direct comparison with the gas chromatographic assay values.
動物種	ヒト	human
試験動物：系統		
性別	男性	Males
細胞株		
年齢		
体重		
試験動物数	2名	2
曝露経路	経皮	dermal
溶媒（賦刑剤）	水	water
投与量	1 g/kg	1 g/kg
統計手法		
実際に投与された量		
排泄経路		
採取体液		
採取組織		
代謝産物		
代謝産物　CAS　No.		
結果		
試験結果	血清中のDMSOレベルは4-8時間後に最大となり、その後DMSOがもはや検出されなくなった36-48時間後まで約11-14時間の半減期で減少した。しかし、DMSO2の血清レベルは約36-72時間後まで最大に達しなかった。DMSO2の濃度はその後約60-70時間の半減期で低下した。312時間後にレベルはかなり低下したが、依然検出可能であった。	DMSO levels in the serum became maximal after 4 to 8 hr and then declined, with a half-life of approximately 11 to 14 hr, until after 36 to 48 hr, when DMSO could no longer be detected. Serum levels of DMSO2, however, did not become maximal until after about 36 to 72 hr. The DMSO2 concentration then declined, with a half-life of approximately 60 to 70 hr. After 312 hr, the levels were quite low but still detectable.

試験結果	ヒトへのDMSO-S35の経皮投与後のDMSO 及びDMS02の血清レベル 血清中濃度 (μg/ml) 時間 DMSO DMSO2 被験者 #1 #2 #1 #2 hr 1 287 299 Trace Trace 2 507 292 23 24 4 488 504 33 27 8 560 483 56 44 16 479 300 119 101 24 337 172 229 214 36 156 Trace 340 333 48 Trace Trace 464 327 72 0 0 514 278 96 0 0 460 210 120 0 0 306 164 144 0 0 245 109 168 0 0 86 166 192 0 0 130 72 216 0 0 108 54 240 0 0 114 47 264 0 0 95 35 288 0 0 59 36 312 0 0 48 30 DMSO-S35の投与量は1 g/kg (約 125 μc)。 Trace はDMSOの25 μg/ml 以下、及びDMSO2の10 μg/ml以下と定義。	Serum levels of DMSO and DMS02 after dermal administration of DMSO-S35 to man: Concentration in Serum (μg/ml) Time DMSO DMSO2 Subject #1 #2 #1 #2 hr 1 287 299 Trace Trace 2 507 292 23 24 4 488 504 33 27 8 560 483 56 44 16 479 300 119 101 24 337 172 229 214 36 156 Trace 340 333 48 Trace Trace 464 327 72 0 0 514 278 96 0 0 460 210 120 0 0 306 164 144 0 0 245 109 168 0 0 86 166 192 0 0 130 72 216 0 0 108 54 240 0 0 114 47 264 0 0 95 35 288 0 0 59 36 312 0 0 48 30 Dose was 1 g/kg of DMSO-S35 (approximately 125 μc). Trace are defined as less than 25 μg/ml of DMSO and less than 10 μg/ml of DMSO2
試験結果	DMSOの尿中排泄は薬物投与後すぐに生じ、48時間まで持続し、その後は極めて少なく、多くのDMSOが排泄された。総DMSO排泄量は両被験者で投与量の平均13%であった。尿中のDMSO2排泄は投与約8時間後に有意になり、486時間後まで持続し、平均総排泄量はDMSOの投与量の17.8%に相当した。 このように、本実験ではDMSO及びDMSO2の尿中排泄に占める割合は投与量の平均30.8%であった。 被験者1名に対する尿及び血清の放射測定試験の結果が対応するガスクロマトグラフィのデータとともに図3に示された。結果は両被験者で典型的である。	Urinary excretion of DMSO began shortly after drug administration and continued for 48 hr, after which very little, if any, more DMSO was excreted. Total DMSO excretion averaged 13.0% of the dose for both subjects. Urinary excretion of DMSO2, became significant approximately 8 hr after dosing and continued for 456 hr, the average total amount excreted being equivalent to 17.8% of the dose of DMSO. Thus, in this experiment, an average of 30.8% of the dose was accounted for by urinary excretion of DMSO and DMSO2 . The results of radiometric assay of urine and serum for one subject are shown in figure 3, with the corresponding gas chromatographic data. The results are typical of both subjects.
試験結果	ヒトへのDMSO-35Sの経皮投与後のDMSO 及びDMS03の尿中排泄: 尿中排泄量 (累積 %) 時間 DMSO DMSO2 被験者 #1 #2 #1 #2 hr 2 0.2 0.1 <0.1 <0.1 4 1.2 1.0 <0.1 <0.1 8 3.0 3.2 0.1 0.1 16 6.4 8.4 0.3 0.5 24 9.7 11.0 0.8 1.0 36 12.1 12.6 1.7 2.3 48 13.2 12.7 3.1 3.9 72 13.3 12.7 5.7 6.1 96 13.3 12.7 7.8 8.7 120 13.3 12.7 10.6 10.4 144 13.3 12.7 12.2 12.1 168 13.3 12.7 13.9 13.3 192 13.3 12.7 15.6 14.4 216 13.3 12.7 16.4 15.2 240 13.3 12.7 17.1 15.5 264 13.3 12.7 17.5 15.9 288 13.3 12.7 17.7 16.2 312 13.3 12.7 18.0 16.3 336 13.3 12.7 18.2 16.5 360 13.3 12.7 18.4 16.6 384 13.3 12.7 18.4 16.7 408 13.3 12.7 18.5 16.7 432 13.3 12.7 18.6 16.7 456 13.3 12.7 18.7 16.8 DMSO-S35 の等量は 1 g/kg (約 125 μc)。	Urinary excretion of DMSO and DMS03 after dermal administration of DMSO-S35, to man: Dose Excreted in Urine (cumulative %) Time DMSO DMSO2 Subject #1 #2 #1 #2 hr 2 0.2 0.1 <0.1 <0.1 4 1.2 1.0 <0.1 <0.1 8 3.0 3.2 0.1 0.1 16 6.4 8.4 0.3 0.5 24 9.7 11.0 0.8 1.0 36 12.1 12.6 1.7 2.3 48 13.2 12.7 3.1 3.9 72 13.3 12.7 5.7 6.1 96 13.3 12.7 7.8 8.7 120 13.3 12.7 10.6 10.4 144 13.3 12.7 12.2 12.1 168 13.3 12.7 13.9 13.3 192 13.3 12.7 15.6 14.4 216 13.3 12.7 16.4 15.2 240 13.3 12.7 17.1 15.5 264 13.3 12.7 17.5 15.9 288 13.3 12.7 17.7 16.2 312 13.3 12.7 18.0 16.3 336 13.3 12.7 18.2 16.5 360 13.3 12.7 18.4 16.6 384 13.3 12.7 18.4 16.7 408 13.3 12.7 18.5 16.7 432 13.3 12.7 18.6 16.7 456 13.3 12.7 18.7 16.8 Dose was 1 g/kg of DMSO-S35 (approximately 125 μc).
結論		
結論		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(98)	(98)
備考		

試験物質名	ジメチルスルホキシド	Dimethylsulfoxyde
CAS番号	67-68-5	67-68-5
純度等	コールドのDMSO 供給源：Crown-Zellerbach バッチ：データなし 純度：99.5% DMSO-S35 供給源：New England Nuclear Corp. 純度：赤外分光光度計及びGCで高純度	Cold DMSO Source: Crown-Zellerbach Batch : no data Purity : 99.5% DMSO-S35 Source: New England Nuclear Corp. Purity: Pure by IR spectroscopy and GC
注釈		
方法		
方法／ガイドライン		
試験形態	In vivo タイプ：トキシコキネティクス	In vivo Type : Toxicokinetics
GLP適合	いいえ	no
試験をおこなった年		
方法の概略	※英文参照	Acute dose: Serum levels of DMSO and DMSO2 were measured after oral administration of 1 g/kg DMSO to man. Chronic dose: A single subject received 0.5 g/kg p.o. daily for 14 days. Serum and urine were collected and assayed for DMSO and DMS02, beginning at 1 hour after the first close and then at regular inervals for 24 days thereafter.
方法の概略	※英文参照	Gas Chromatography: DMSO and DMSO2 were quantified in urine and serum by gas chromatographic analysis after a solvent extraction. Radiometric assay: Liquid scintillation counting of urine or serum was performed by adding 0.1 to 0.2 ml of sample to vials containing 20 ml of a naphthalene-dioxane solution. At least 3000 counts were accumulated for each sample. Counting efficiencies were determined by addition of internal standards and ranged from 39 to 47%. The calculated disintegration rates were expressed as microgram equivalents of DMSO per milliliter of sample to allow direct comparison with the gas chromatographic assay values.
動物種	ヒト	human
試験動物:系統		
性別	男性	Males
細胞株		
年齢		
体重		
試験動物数	6名	6
曝露経路	経口、非特定	oral unspecified
溶媒(賦刑剤)	水	water
投与量	1 g/kg	1 g/kg
統計手法		
実際に投与された量		
排泄経路		
採取体液		
採取組織		
代謝産物		
代謝産物 CAS No.		
結果		
試験結果	急性投与: DMSOのピークレベルは薬物投与後約4時間以内にみられた。レベルはその後かなり急速に低下し、推定半減期は約20時間であった。DMSOは120時間後にはもはや血清中に検出されなかった。 DMSO2の血清レベルは約72-96時間後に最大値に到達し、その後徐々に減少し、半減期は多くの例で約72時間であった。400時間後にはDMSO2の痕跡程度しか検出されなかった。	Acute dose: Peak levels of DMSO were seen within approximately 4 hr after drug administration; the levels then decreased fairly rapidly, with an estimated half life of about 20 hr. DMSO could no longer be detected in the serum after 120 hr. Serum levels of DMSO2 reached a maximum after approximately 72 to 96 hr and then decreased slowly, the half-life being about 72 hr in most cases. Only traces of DMSO2 could be detected after 400 hr.

試験結果	DMSOの尿中排泄は薬物投与後ほぼすぐに生じ、約120時間ほぼ同じ割合で持続し、その時点で排泄は終了した。この時点で投与量の平均50.8%がDMSO (30.7-68.5%)として排泄された。DMSO2の排泄は痕跡量を除外すると投与後約20時間まで始まらず、その後120時間後まで排泄は進行し、投与量の平均9.6%がDMSO2として排泄された。480時間追跡した2名の被験者では投与量の平均22%がDMSO2として排泄された。このように、6名の被験者で投与量の平均60.4%を120時間後までに占めた。2名の被験者では投与量の89.5%及び53.6%が480時間後までに排泄された。	Urinary excretion of DMSO began almost immediately after drug administration and continued at a fairly even rate for about 120 hr, when excretion ceased. At this time, an average of 50.8% of the dose had been excreted as DMSO (30.7-68.5%). Excretion of DMSO2 did not commence, except for trace amounts, until about 20 hr after dosing, and it then proceeded until, after 120 hr, an average of 9.6% of the dose had been excreted as DMS02. In two subjects followed for 480 hr, an average of 22% of the dose was excreted as DMS02. Thus, in six subjects an average of 60.4% of the dose was accounted for after 120 hr; in two subjects, 89.5% and 53.6% of the dose were accounted for after 480 hr.
試験結果	慢性投与: DMSOの血清レベルは196時間後に1850 μg/mlの最大値に達し、その時点では計9回の投与量が投与されていた。レベルはその後最終投与日まで低下し、DMSOレベルは1275 μg/mlになった。14日後に薬物を中止するとDMSOの濃度は72時間後までに低下し、血清中で検出されなくなった。 DMSO2のレベルも196時間後には最大値(1040 μg/ml) を示した。レベルはその後毎日変動しながら最終投与後48時間まで徐々に低下し、その時点で濃度の低下はより急激になり、556時間後には170 μg/ml になった。 この被験者でのDMSO及びDMSO2の累積尿中排泄を図5に示す。示されたように、最終投与 (312時間)日に計317.2g又は総薬物投与量の49.3%がDMSOとして排泄されるまでDMSOの排泄は投与期間を通して直線的に進行した。368時間後には排泄量は計346gないし投与量の53.7%に達し、終了した。DMSO2の排泄は指数関数的に進行し、最終投与日に総薬物投与量の11.1%に相当する86.1gが排泄された。560時間後には総投与量の12.7%に相当する計132.7gがDMSO2として排泄された。このように、本実験では投与した薬物の70.9%が尿中排泄された。	Chronic dose: Serum levels of DMSO reached a maximal value of 1850 μg/ml after 196 hr, when a total of nine doses had been administered. The levels then declined until on the day of the final dose the DMSO level was 1275 μg/ml. When the drug was stopped, after 14 days, the DMSO concentration fell until after 72 hr it could no longer be detected in the serum. Levels of DMSO2 were also maximal (1040 μg/ml) after 196 hr. The levels then slowly declined, with daily fluctuation, until 48 hr after the final dose when the fall in concentration became more abrupt, to a level of 170 μg/ml after 556 hr. Cumulative urinary excretion of DMSO and DMSO2 in this subject is shown in figure 5. As indicated, excretion of DMSO proceeded linearly throughout the dosing period, until on the day of the last dose (312 hr) a total of 317.2 g, or 49.3% of the total drug administered, had been excreted as DMSO. After 368 hr, excretion totaled 346 g, or 53.7% of the dose, and was completed. Excretion of DMS02 proceeded exponentially, so that on the day of the last dose 86.1 g, equivalent to 11.1% of the total drug administered, had been excreted. After 560 hr, a total of 132.7 g, equivalent to 17.2% of the total dose, was excreted as DMSO2. Thus, in this experiment, 70.9% of the administered drug was accounted for by urinary excretion.
結論		
結論		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(98)	(98)
備考		

試験物質名	ジメチルスルホキシド	Dimethylsulfoxyde
CAS番号	67-68-5	67-68-5
純度等		
注釈	供給源: Research Industris, Salt Lake City, Utah バッチ : no data 純度 : no data	Source: Research Industris, Salt Lake City, Utah Batch : no data Purity : no data
方法		
方法/ガイドライン		
試験形態	In vivo タイプ : トキシコキネティクス	In vivo Type : Toxicokinetics
GLP適合		
試験をおこなった年		
方法の概略	※英文参照	Plasma concentrations of DMSO, dimethylsulfone (DMSO2), and dimethylsulfide (DMSH2) were assessed in 10 patients who underwent autologous transplants with stem cells, cryopreserved in 10% DMSO (vol/vol). Blood was sampled at multiple times after the stem-cell infusion. Urine was pooled durinq the 24 hours postinfusion. DMSO, DMSO2, and DMSH2 were assayed simultaneously by gas chromatography. A one-compartment model with saturable elimination proved most suitable for fitting plasma DMSO concentration versus time data.
動物種	ヒト	human
試験動物:系統		
性別		
細胞株		
年齢		
体重		
試験動物数		
曝露経路		
溶媒(賦刑剤)		
投与量		
統計手法		
実際に投与された量		

排泄経路		
採取体液		
採取組織		
代謝産物		
代謝産物 CAS No.		
結果		
試験結果	点滴注入した幹細胞の量は180～585 ml (254-824 mmol DMSO)の範囲であった。点滴は20～120分まで持続した。血漿DMSO濃度のピークは19.1 ± 6.3mmol/L.であった。中心コンパートメントの量 (Vc)、最大速度 (Vmax)、及びMichaels-Menjen定数 (Km)の薬物動態パラメータは、それぞれ37.3 ± 17 L、0.99 ± 0.57mmol/L/h、及び 5.2 ± 5.0 mmol/Lであった。血漿DMSO2濃度は最初の24時間に増加し、4.4 ± 1.2 mmol/Lでプラトーとなり、48時間(最終サンプル)まで保持した。DMSO2濃度は5分までに定常状態となり、48時間にわたり3～ 5 mmol/Lを保った。DMSO及びDMSO2の尿中排泄量は投与したDMSOの量の、それぞれ44% ± 4% 及び 4% ± 1% を占めた。DMSOの腎臓クリアランスは14.1±3.4 ml/分であった。	Stem-cell volumes infused ranged between 180 and 585 ml (254 to 824 mmol DMSO). Infusions lasted between 20 and 120 minutes. Peak plasma DMSO concentrations were 19.1 ± 6.3mmol/L. Pharmocokinetic parameters for volume of the central compartment (Vc), maximum velocity (Vmax), and Michaels-Menjen constant (Km) were 37.3 ± 17 L, 0.99 ± 0.57mmol/L/h, and 5.2 ± 5.0 mmol/L, respectively. Plasma DMS02 concentrations increased during the first 24 hours, plateaued at 4.4 ± 1.2 mmol/L, and remained there until 48 hours (the last sample). DMSH2 concentrations were at steady-state by 5 minutes and remained between 3 and 5 mmol/L for 48 hours. Urinary excretion of DMSO and DMS02 accounted for 44% ± 4% and 4% ± 1%, respectively, of the administered DMSO dose. Renal clearance of DMSO was 14.1 ±3.4 ml/min.
結論		
結論		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(65)	(65)
備考		

5-2 急性毒性
ACUTE TOXICITY

A. 急性経口毒性
ACUTE ORAL TOXICITY

試験物質名	試験物質 ジメチルスルホキシド CAS no.: 67-68-5 供給源: Crown Zellerbach Corp. バッチ : データなし 純度 : データなし	Test compound Dimethylsulfoxyde CAS no.: 67-68-5 Source: Crown Zellerbach Corp. Batch : no data Purity : no data
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン	その他: OECDガイドライン401に相当	other: comparable to OECD Guide-line 401
GLP適合	いいえ	no
試験を行った年	1965	1965
試験系(種／系統)	ラット	rat
	その他: Carworth CFN	other: Carworth CFN
性別(雄:M、雌:F)	雌雄	male/female
投与量	10, 20, 及び 40 g/kg	10, 20, and 40 g/kg
各用量群(性別)の動物数	動物数 : 30匹	Number of animals : 30
溶媒(担体)	その他: なし	other: none
投与経路		
観察期間(日)		
その他の試験条件	英文参照	Single oral doses of undiluted DMSO were administered by gavage to groups of 5 male and 5 female Carworth CFN rats. Dose levels were 10, 20, and 40 g/kg. Animals were fasted for 16-18 hr prior to DMSO administration. Animals were observed for 14 days following administration of DMSO (body-weight was not monitored). Median lethal dose (LD50), 95% confidence limit, and probit slopes were determined by the Cornfield-Mantel modifications of Karber's method.
統計学的処理		
結果		
各用量群での死亡数		
臨床所見		
剖検所見		

その他	1例の例外を除き、全ての死亡例が最初の24時間以内に生じた。致死量では投与後すぐに運動失調、重症筋無力症、自発運動低下、及び呼吸困難が生じた。 20 g/kgの投与後にラットでは多飲症及び多尿症が認められたが、DMSOの非致死量では自発運動低下が生じた。LD50は28.3 g/kg (これ以上の詳細は入手できない)と決定された。	With one exception, all deaths occurred within the first 24 hours. lethal doses caused ataxia, myasthenia, decreased motor activity, and bradypnea shortly after administration. Non-lethal doses of DMSO produced decreased motor activity, although polydipsia and polyuria were noted in rats following doses of 20 g/kg. The LD50 was determined to be 28.3 g/kg (no more detail available).
結論		
LD50値又はLC50値	LD50= 28300 mg/kg bw	LD50= 28300 mg/kg bw
雌雄のLD50値又はLC50値の違い等		
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(201)	(201)
備考	フラグ : 指令 67/548/EEC, SIDSエンドポイントにとって重要な試験	Flag : Directive 67/548/EEC, Critical study for SIDS endpoint

B. 急性吸入毒性
ACUTE INHALATION TOXICITY

試験物質名	試験物質名: ジメチルスルホキシド CAS no. : 67-68-5 供給源: Elf aquitaine Production バッチ no. : 97-097 純度: 99.88%	Test article name: Dimethyl sulfoxide CAS no. : 67-68-5 Source: Elf aquitaine Production Batch no. : 97-097 Purity: 99.88%
CAS番号		
純度等		
注釈		
方法		
方法/ガイドライン	OECDガイドライン403 "急性吸入毒性"	OECD Guide-line 403 "Acute Inhalation Toxicity"
GLP適合	はい	yes
試験を行った年	1998	1998
試験系(種/系統)	ラット	rat
	Sprague-Dawley	Sprague-Dawley
性別(雄:M、雌:F)	雌雄	male/female
投与量	5.33 mg/l (蒸気+エアロゾル)	5.33 mg/l (vapor+aerosol)
各用量群(性別)の動物数	動物数 : 10匹	Number of animals : 10
溶媒(担体)		
投与経路		
観察期間(日)		
その他の試験条件	暴露時間 : 4時間	Exposure time : 4 hour(s)
その他の試験条件	英文参照	Groups of 5 male and 5 female rats were exposed to a DMSO liquid droplet aersol of 5.33 mg/l for four continuous hours by snout-only exposure. Control animals were similarly treated but were exposed to air only. Rats were held for exposure in nose-only molded polycarbonate restraining tubes which were attached to a central exposure chamber. During exposure, at least five air samples were taken to determine the concentration of DMSO in the chamber.
その他の試験条件	英文参照	Rats were observed continuously for reaction to the test atmosphere during exposure, at one and two hour after exposure, and at least twice daily during the post-exposure interval. Body weight, and food and water consumption were measured daily for all rats, from day of delivery until the end of the observation interval. Rats were sacrificed and subjected to a detailed macroscopic examination at the end of the 14-day observation interval. Lungs were processed and examined microscopically.
その他の試験条件	英文参照	ANIMALS - Number: 5 males and 5 females per concentration - Strain : Sprague-Dawley - Breeder: Charles River UK Ltd, anston Road, argate, Kent, UK - Age at the beginning of the treatment period: 8-9 weeks old - Weight at the beginning of the treatment period: 210-245 g for the males and 185-211 g for the females - Acclimation: at least 5 days ENVIRONMENTAL CONDITIONS - Temperature : 21 ± 2° C - Relative humidity : 55 ± 10% - Light/dark cycle : 12h/12h (8:00 - 20:00) - Ventilation : no data HOUSING The animals were by sex in group of 5 in wire-wesh cages.

その他の試験条件	英文参照	FOOD and WATER - Food: SDS RM1 ad libitum - Water: tap water ad libitum EXPOSURE SYSTEM - Atmosphere generation The vapour generator was designed to produce and maintain an atmosphere containing the vapour of DMSO at the saturation concentration in air by evaporation of the test substance from a fritted glass disc with a countercurrent of air. The test substance was delivered to the generator at a constant flow rate from a syringe driven by a syringe pump and the air supplied to the generator was dried, filtered and oil free.
その他の試験条件	英文参照	- Exposure chambers The snout-only exposure chambers used for the exposures were of cylindrical form (30 cm i.d., 45 cm height) and made of aluminium alloy. The chambers have an enclosed volume of approximately 30 litres. The rats were held for exposure in moulded polycarbonate restraining tubes which were attached at evenly spaced ports in the cylindrical section of the chamber, and were designed to allow only the snout to project into the chamber. Each rat was restrained in a forward position by an adjustable foamed plastic stopper which also provided a seal for the tube. The test atmosphere entered through a port at the top centre of the chamber and passed out through a port at the base section below the level of the rats. Each chamber was positioned in a large cabinet equipped with an extract fan exhausting to atmosphere through an absolute filter.
その他の試験条件	英文参照	CHAMBER ATMOSPHERE ANALYSIS At least five air samples were taken from the chamber during the exposure to determine the concentration of test substance in the air chamber. The samples were taken at approximately 30, 60, 95, 120, 180, and 230 minutes alter the start of exposure. The May impinger is used for particle size distribution analysis of droplet aerosol atmospheres.
統計学的処理		
結果		
各用量群での死亡数		
臨床所見		
剖検所見		
その他	暴露中の暴露チャンバー内のDMSOの分析濃度は 5.33 mg/l (sd 0.475 mg/l)であった。エアロゾルの分析では粒子の32%が大きさ4ミクロン以下で20%が0.5ミクロン以下であった。残りは4ミクロン以上であった。試験エアロゾルのDMSOの呼吸可能部分は52%であった。	The analyzed concentration of DMSO in the exposure chamber during exposure was 5.33 mg/l (sd 0.475 mg/l). Analysis of aerosol determined that 32% of the particles were less than 4 microns in size, and 20% were less than 0.5 microns. The remainder were greater than 4 microns. The respirable fraction of DMSO in the test aerosol was 52%.
その他	DMSOへの暴露後に死亡例はなかった。 暴露中にDMSOへの暴露に関連した臨床症状はなかった。拘束による結果としての被毛の排泄物による汚染が暴露中及び暴露直後に全投与群及び対照群の動物にみられた。14日間の観察期間中には全ての動物で外観及び行動は正常であった。DMSOに暴露したラットにおける体重増加率及び摂餌量、摂水量は対照群と同程度であった。試験動物の肺の体重比は対照群と同様であった。試験動物、対照動物ともに肉眼的異常はなかった。	There were no deaths during or following exposure to DMSO. There were no clinical signs related to exposure to DMSO during exposure. Soiling of the fur with excreta, as a consequence of the method of restraint, was seen in all test and control rats during and immediately after exposure. Normal appearance and behavior was observed in all animals during the 14-day observation interval. Rate of body weight gain, and food and water consumption in rats exposed to DMSO were similar to controls. Lung to body weight ratios in test animals were similar to controls. There were no macroscopic abnormalities in test or control rats.
その他	試験動物の肺にはDMSO暴露によると思われる投与関連性の病理組織変化はなかった。マイナーな変化しか報告されず、対照群及び試験群のラットでこれらも同様の頻度であった。泡沫肺胞マクロファージ (高用量の10/10、中用量の雄4/5、雌3/5、対照群の雄4/5及び雌5/5)	There were no treatment-related histopathologic changes in the lungs of test animals that could be ascribed to DMSO exposure. Only minor changes were reported and these of similar incidence in control and test rats : foamy alveolar macrophages (10/10 in high dose, 4/5M and 3/5 F in mid dose group, 4/5M & 5/5F in controls).
結論		
LD50値又はLC50値	LC0 > 5.33 mg/l	LC0 > 5.33 mg/l
雌雄のLD50値又はLC50値の違い等		
注釈		
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		

引用文献(元文献)	(66)	(66)
備考	フラグ : 指令 67/548/EEC, SIDSエンドポイントにとって重要な試験	Flag : Directive 67/548/EEC, Critical study for SIDS endpoint

C. 急性経皮毒性
ACUTE DERMAL TOXICITY

試験物質名	1.1～1.4で規定	as prescribed by 1.1 – 1.4
CAS番号		
純度等		
注釈	試験物質名: ジメチルスルホキシド CAS no. : 67-68-5 供給源: Schering AG (West Berlin, Germany), The Aldrich Chemical Company (Milwaukee, Wisconsin) 純度: データなし その他: 本体の分析が行われた (密度、freezing & boiling points). 推定密度 1.1G/mL	Test article name: Dimethyl sulfoxide CAS no. : 67-68-5 Source: Schering AG (West Berlin, Germany), The Aldrich Chemical Company (Milwaukee, Wisconsin) Purity: no data Other: Identity analysis conducted (densities, freezing & boiling points). Density of 1.1G/mL assumed.
方法		
方法／ガイドライン	その他	other:
GLP適合	いいえ	no
試験を行った年	1968	1968
試験系(種／系統)	ラット	rat
	系統 : データなし	Strain : no data
性別(雄:M、雌:F)	雌雄	male/female
投与量	40, 60, 80 及び 100% DMSO	40, 60, 80 and 100% DMSO
各用量群(性別)の動物数	動物数 : 26匹	Number of animals : 26
溶媒(担体)	水	water
投与経路		
観察期間(日)		
その他の試験条件	英文参照	Groups of 4 to 14 unshaven rats (108-182 g) were immersed in a DMSO solution (40, 60, 80 or 100%) until the fur and the skin were thoroughly wetted. The animals were then withdrawn from the solution and allow most of the excess solution to run off. From the weights before and after dipping, it was possible to calculate the amount of DMSO.
その他の試験条件	英文参照	TEST ORGANISMS: - Source: no data - Age: no data - Weight at study initiation: 108-182 g - Number of animals per dose group: 14 (males & females) for the undiluted solution & 4 (males & females) for each other 3 doses. - Controls: no ADMINISTRATION: - Area covered: whole body except head - Exposure: entire unshaven body immersed in solutions of DMSO - Concentration in vehicle: 40, 60, 80 % & undiluted solutions - Total volume applied: according to the body weight determined before and after dipping in solution : 2, 13, 33, 44 g/kg. - Removal of test substance: no, animals were just held off after immersion to allow most of the excess solution to run off - Exposure duration: few seconds (time to fur and skin got thoroughly wetted) - Post-dose observation period: 24H
その他の試験条件	英文参照	EXAMINATIONS: - Clinical signs: yes - Mortality: yes - Body weight: measured just before administration and just after. - Necropsy: . macroscopic examination : no data . microscopic examination: "complete" STATISTICAL TEST: Not reported : "LD50 estimated to be approximately"
統計学的処理		
結果		

各用量群での死亡数	死亡率: 即時の反応はなかったが、100%DMSOに浸漬された13/14匹のラットが24時間以内に死亡した。 他の濃度では死亡例は生じなかった。	MORTALITY: There was no immediate response, but within 24 hours 13/14 rats dipped into 100% DMSO were dead. No death occurred at the other concentrations.
臨床所見	臨床症状: データは報告されなかった。局所の皮膚影響に関するデータはない。	CLINICAL SIGNS: No data reported. No data on local skin effects.
剖検所見	剖検所見: 死亡した動物の腸には餌はなく、胆汁と腸の分泌物であると思われる黄色の液体が充満していた。 組織の完全な顕微鏡検査では変化は示されなかった。	NECROPSY FINDINGS: Intestines of the animals which did not survive were filled with yellow liquid without food, supposed to be bile and intestinal secretion. A complete microscopic examination of tissues revealed no changes.
その他	体重: データなし	BODY WEIGHT: No data
結論		
LD50値又はLC50値	LD50= 約 40000　mg/kg bw	LD50= ca. 40000　mg/kg bw
雌雄のLD50値又はLC50値の違い等		
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(167)	(167)
備考	フラグ : 指令 67/548/EEC, SIDSエンドポイントにとって重要な試験	Flag : Directive 67/548/EEC, Critical study for SIDS endpoint

D. 急性毒性(その他の投与経路)
ACUTE TOXICITY、OTHER ROUTES

試験物質名	1.1～1.4で規定	as prescribed by 1.1 - 1.4
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン	その他	other
GLP適合	いいえ	no
試験を行った年	1965	1965
試験系(種／系統)	ラット	rat
性別(雄:M、雌:F)	雌雄	male/female
投与量		
各用量群(性別)の動物数	動物数 : 30匹	Number of animals : 30
溶媒(担体)		other: none
投与経路	静脈内	i.v.
観察期間(日)		
その他の試験条件	暴露時間 : 1分間	Exposure time : 1 minute(s)
その他の試験条件	暴露時間 : 1分間	Single i.v. injections of undiluted DMSO were administered to groups of 5 male and 5 female Carworth CFN rats. Dose levels were 2.5, 5.0, and 10 g/kg. Each dose was administered over a 1-minute interval. Animals were observed for 14 days following DMSO administration. Median lethal dose (LD50), 95% confidence limit, probit slopes and maximum tolerated dose (LD0.1) were determined.
統計学的処理		
結果		
各用量群での死亡数		
臨床所見		
剖検所見		
その他	1例のを除き、死亡は最初の24時間以内に生じた。死亡前に振戦、重症筋無力症、呼吸困難、及びしばしば痙攣がみられた。DMSOの非致死量では自発運動低下及び筋無力症が生じた。LD50は5.36 g/kgと決定された。LD0.1は2.35 g/kgと計算された。	With one exception, deaths occurred within the first 24 hours. Death was preceded by tremors, myasthenia, dyspnea, and occassionally, convulsions. Non-lethal doses of DMSO produced decreased motor activity and myasthenia. The LD50 was determined to be 5.36 g/kg; the LD0.1 was calculated to be 2.35 g/kg.
結論		
毒性値	LD50= 5360　mg/kg bw	LD50= 5360　mg/kg bw
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(201)	(201)
備考		

5-3 腐食性／刺激性
CORROSIVENESS/IRRITATION

A. 皮膚刺激／腐食
SKIN IRRITATION/CORROSION

試験物質名	試験物質名 : ジメチルスルホキシド Cas n° : 67-68-5 供給源: Arkema-Lacq バッチ番号: 15/11/06 純度: 99.98%	Test article name : Dimethylsulfoxyde Cas n° : 67-68-5 Source: Arkema-Lacq Batch number: 15/11/06 Purity: 99.98%
CAS番号		
純度等		
注釈		
pH		
方法		
方法／ガイドライン	OECDガイドライン 404 "急性経皮刺激性/腐食性"	OECD Guide-line 404 "Acute Dermal Irritation/Corrosion"
GLP適合	はい	yes
試験を行った年	2002	2002
試験系(種／系統)	ウサギ	rabbit
性別(雄:M、雌:F)		
投与量	濃度 : 希釈せず	Concentration : undiluted
各用量群(性別)の動物数	動物数 : 3匹	Number of animals : 3
溶媒(担体)	その他:なし	other:none
投与経路		
観察期間(日)		
その他の試験条件	暴露 : 半閉塞 暴露時間 :4時間	Exposure : Semiocclusive Exposure time : 4 hour(s)
その他の試験条件	英文参照	The test item was first evaluated on a single animal. The durations of exposure were 3 minutes, 1 hour and 4 hours. Since the test item was neither severely irritant nor corrosive on this first animal, it was then applied simultaneously for 4 hours to two other animals. Doses of 0.5 mL of the undiluted test item were placed on a dry gauze pad, which was then applied to an area of approximately 6 cm2 of the anterior left flank (application for 3 minutes), the anterior right flank (application for 1 hour) or the posterior right flank (application for 4 hours) of the animals. The gauze pad was held in contact with the skin by means of an adhesive hypoallergenic aerated semi-occlusive dressing and a restraining bandage.
その他の試験条件	英文参照	Cutaneous examinations: The skin was examined approximately 1 hour, 24, 48 and 72 hours after removal of the dressing.The study was ended on day 4 in the absence of persistent irritation reactions. Dermal irritation was evaluated for each animal according a scoring scale.
その他の試験条件	英文参照	Test animals: - Strain : New Zealand White. - Source: Grimaud frères selection S.A.S., La Corbière, Roussay, France. - Age at study initiation: 2 to 4 months - Body weight at study initiation: 3.0 ± 0.3 kg. - Acclimation period: at least 5 days ENVIRONMENTAL CONDITIONS: - Housing: individually in Pajon cages (50 cm x 57 cm x 75 cm). - Diet: free access to 110C pelleted diet (SAFE, Villemoisson, Epinay-sur-Orge, France). - water: Drinking water ad libidum - Temperature: 18 ± 3° C - Humidity: 30 to 70% - Air changes: approximately 12 cycles/hour of filtered, non-recycled air. - Photoperiod: 12 h/12 h
統計学的処理		
結果		
一次刺激スコア		
皮膚反応等		

その他	-皮膚の所見: 暴露3分後(1匹の動物) 皮膚反応は観察されなかった。 暴露1時間後(1匹の動物) 皮膚反応は認められなかった。 暴露4時間後(3匹の動物) 極めて軽度ないし明瞭な紅斑(グレード1ないし2)が第1日に全ての動物で認められ、1匹の動物では2日まで、他の動物では3日まで持続した。 各動物に対する24、48及び72時間にわたる平均スコアは紅斑については0.3、0.0及び0.7、浮腫については0.0、0.0及び0.0であった。	-Dermal observations: After a 3-minute exposure (one animal) No cutaneous reactions were observed. After a 1-hour exposure (one animal) No cutaneous reactions were noted. After a 4-hour exposure (three animals) A very slight or well-defined erythema (grade 1 or 2) was noted on day 1 in all animals, persisting until day 2 in one animal and until day 3 in another one. Mean scores over 24, 48 and 72 hours for each animal were 0.3, 0.0 and 0.7 for erythema and 0.0, 0.0 and 0.0 for edema.
結論		
皮膚刺激性	軽度の刺激性あり	slightly irritating
皮膚腐食性		
注釈	分類 : 刺激性なし	Classification : not irritating
注釈	結論 : 試験物質のジメチルスルホキシド (バッチ番号 15/11/06、純度 99.98%)はウサギに局所適用した場合、軽度の刺激性を示した。	Conclusion : The test item DIMETHYLSULFOXIDE (batch No. 15/11/06; purity: 99.98%) was slightly irritant when applied topically to rabbits.
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		
引用文献(元文献)	(11)	(11)
備考	フラグ : 製品安全データセット、指令 67/548/EEC	Flag : Material Safety Dataset, Directive 67/548/EEC

B. 眼刺激／腐食
EYE IRRITATION/CORROSION

試験物質名	-試験物質名 : ジメチルスルホキシド -供給源 : E. Merck, Darmstadt, Germany -バッチ番号 : 2931 -純度 : 99%	-Test article name: Dimethyl sulfoxide -Source: E. Merck, Darmstadt, Germany -Batch number: 2931 -Purity: 99%
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン	指令84/449/EEC, B.5 "急性毒性 (眼刺激性)"	Directive 84/449/EEC, B.5 "Acute toxicity (eye irritation)"
試験のタイプ		
GLP適合	データなし	no data
試験を行った年	1987	1987
試験系(種／系統)	ウサギ	rabbit
性別(雄:M、雌:F)		
投与量	濃度 : 希釈せず	Concentration : undiluted
各用量群(性別)の動物数	動物数 :6匹	Number of animals : 6
溶媒(担体)		
投与経路		
観察期間(日)		
その他の試験条件	暴露時間 : 24時間	Exposure time : 24 hour(s)
その他の試験条件	英文参照	TEST ORGANISMS: - Strain: New Zealand White - Sex: no data - Number: 6 - Source: "Proefstations voor veeteelt, Merelbeke, Belgium - Age: no data - Weight at study initiation: 2-3.5 kg - Controls: untreated right eye ADMINISTRATION: - Administration frequency: once EXAMINATIONS: - Ophthalmoscopic examination: Yes, 72 H prior treatment with fluorescein - Scoring system: Draize's score - Observation period: 1h, 24h, 48h, 72h, 96h & at day 7 after administration of the test substance - Tool used to assess score: fluorescein
統計学的処理		
結果		
腐食		
刺激点数: 角膜		
刺激点数: 虹彩		
刺激点数: 結膜		

その他	時間　紅斑　結膜浮腫　虹彩炎　角膜混濁 0　0　0　0　0 1　1.56　1　1　0 4　1.56　1　0　0 24　1.28　0　0.17　0.17 48　1.11　0　0.17　0 72　0.45　0　0　0 96　0　0　0　0 168　0　0　0　0 平均スコアは紅斑に対して0.95、虹彩炎に対して0.11、結膜浮腫に対して0、及び角膜混濁に対して0.06であった。	h　Erythema　Chemosis　Iris　Corneal opacity 0　0　0　0　0 1　1.56　1　1　0 4　1.56　1　0　0 24　1.28　0　0.17　0.17 48　1.11　0　0.17　0 72　0.45　0　0　0 96　0　0　0　0 168　0　0　0　0 The mean score was of 0.95 for erythema, 0.11 for irititis, 0 for chemosis and 0.06 for corneal opacity.
結論		
眼刺激性	軽度の刺激性あり	slightly irritating
眼腐食性		
注釈	分類 : 刺激性なし	Classification : not irritating
注釈	結論 : DMSOは試験の最初の3日間にわたり結膜の軽度の紅斑を生じ、低いレベルのキースコアが結膜浮腫、虹彩炎及び角膜混濁について記録された。このように、DMSO適用後の主な反応は回復性のある結膜への即時型の影響であると考えられる。 本試験で得られたDraizeスコアはEEC分類に準じて眼刺激性物質と表示されるDMSOの結果と異なるようである。	Conclusion : DMSO produced slight erythema of the conjunctiva over the first three days of the study, and a low level of key scoring was also recorded for chemosis, iritis and corneal opacity. Thus, the predominant response following DMSO application appears to be an immediate effect on the conjunctiva which is reversible. The Draize's score obtained in this study would not result in DMSO being labelled as an eye irritant according to EEC classification.
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(104)	(104)
備考	フラグ : 製品安全データセット、指令 67/548/EEC	Flag : Material Safety Dataset, Directive 67/548/EEC

5-4 皮膚感作
SKIN SENSITISATION

試験物質名	データなし	no data
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン	その他	other:
試験のタイプ	パッチテスト	Patch-Test
GLP適合	いいえ	no
試験を行った年		
試験系(種／系統)	ヒト	human
性別(雄:M、雌:F)		
投与量	濃度 : 1回目: 誘導 75%活性物質　閉塞塗布 2回目: 惹起 25%活性物質　閉塞塗布	Concentration : 1st: Induction 75 % active substance occlusive epicutaneous 2nd: Challenge 25 % active substance occlusive epicutaneous
各用量群(性別)の動物数	動物数 :23匹	Number of animals : 23
溶媒(担体)	データなし	no data
投与経路		
観察期間(日)		
その他の試験条件	英文参照	Subjets: A panel of 25 healthy adult subjects is used, the age range is 18 to 50 years. Induction Procedure: The sensitizing patches are applied to an extremity, either the forearm or the lower leg in the calf region. 1. Deliver 1.0 ml of 5% aqueous sodium lauryl sulfate (SLS) to a 1.5″ square of Webril. Fasten occlusively to extremity for 24 hours, This treatment produces a moderate inflammatory reaction which promotes sensitization. 2. Apply to the same site a 48 hour occlusive patch with the test material. 3. Repeat this sequence of alternating 24 hour irritant and 48 hour allergen patches for a total of five exposures of each. The procedure therefore consists of five 48 hour exposures, each one preceded by a 24 hour pre-treatment with 5% SLS. The inflammation will tend to increase somewhat with each SLS exposure.reaching a maximum by the third or fourth time. The SLS pre-treatments are eliminated if at any time the skin becomes too inflamed.

その他の試験条件	英文参照	Challenge Tests: The provocative test consists of pre-treating the skin occlusively with 0.4 ml of 10% SLS on a 1.0″ Webril square for one hour. This produces sub-clinical inflammation in 48 hours. Non-irritating solids are routinely tested at 10% in petrolatum; liquids may be used undiluted if non-irritating.
統計学的処理		
結果		
試験結果	誘導濃度(%) 惹起濃度(%) 感作性頻度 感作性グレード DMSO 75 25 0/23 1	Induction concentration(%) Challenge concenttration(%) Sensitization rate Sensitization grade DMSO 75 25 0/23 1
その他		
結論		
感作性	感作性なし	not sensitizing
注釈	分類：感作性なし	Classification : not sensitizing
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(117)	(117)
備考		

5-5 反復投与毒性
REPEATED DOSE TOXICITY

試験物質名	ジメチルスルホキシド	Dimethylsulfoxyde
CAS番号	67-68-5	67-68-5
純度等	供給源: Sigma Aldrich バッチ : 29356-089 純度 : > 99%	Source: Sigma Aldrich Batch : 29356-089 Purity : > 99%
注釈		
方法		
方法／ガイドライン	OECD ガイドライン 413 ″亜慢性吸入毒性:90日試験 ″	OECD Guide-line 413 ″Subchronic Inhalation Toxicity: 90-day Study″
GLP適合	はい	yes
試験を行った年	2000	2000
試験系(種／系統)	ラット	rat
	Sprague-Dawley	Sprague-Dawley
性別(雄:M、雌:F)	雌雄	male/female
投与量	0、0.310、0.964、2.783 mg/l	0, 0.310, 0.964, 2.783 mg/l
各用量群(性別)の動物数	10匹/性/群	Three groups of rats (each of 10 males and 10 females) of the Crl:CD-BR strain were exposed to a vapour or vapour/liquid droplet atmosphere generated from pure (100%) DMSO, 6 hours a day, 7 days a week, for 13 weeks using a snout-only exposure system.
溶媒(担体)		
投与経路	吸入	inhalation
対照群に対する処理	無処置対照群	yes, concurrent no treatment
投与期間(日)(OECD422等で、投与期間のデータ等がある場合、最長投与期間)	13週間	13weeks
投与頻度	6時間/日、7日間/週	6hours a day, 7 days a week
回復期間(日)	4週間 (対照群及び高用量群)	4 weeks (control and high dose group)
試験条件	*英文参照	The purpose of this study was to assess the response in rats to repeat inhalation exposure to dimethylsulphoxide (DMSO). The study was designed to comply with OECD (Testing of Chemicals) and US EPA OPPTS guidelines. The study was conducted in compliance with UK, EC and OECD Good Laboratory Practice Regulations.
試験条件	*英文参照	EXPOSURE Three groups of rats (each of 10 males and 10 females) of the Crl:CD-BR strain were exposed to a vapour or vapour/liquid droplet atmosphere generated from pure (100%) DMSO, 6 hours a day, 7 days a week, for 13 weeks using a snout-only exposure system. A fourth group, acting a control, was exposed to air only. An additional 10 male and 10 female rats concurrently exposed at the Control and High dose levels were retained following the final exposure for a further 4 weeks of withdrawal (recovery) to assess the reversibility of any adverse findings. The study mean analysed chamber concentrations of DMSO were 0.310 mg/l, 0.964 mg/l and 2.783 mg/l for Groups 2 (Low dose), 3 (Intermediate dose) and 4 (High dose) respectively.

試験条件	*英文参照	CLINICAL INVESTIGATIONS Throughout the study, all cages were checked in the morning and again at the end of the normal working day for dead or moribund animals. Clinical signs both during exposures and at other times were monitored and recorded. BODYWEIGHT Each rat was weighed for allocation to groups and weekly thereafter commencing one week prior to the start of exposures. Bodyweights were recorded before dosing on the day.
試験条件	*英文参照	FOOD CONSUMPTION The quantity of food consumed by each cage of Main and Withdrawal group rats was recorded weekly commencing 1 week prior to the start of exposures until the end of the study. WATER CONSUMPTION The amount of water consumed by each cage of Main and Withdrawal group rats was recorded daily beginning one week before the start of dosing.
試験条件	*英文参照	OPHTHALMIC EXAMINATION All Main and Withdrawal group rats were subjected to ophthalmoscopic examination prior to the start of exposures, rats from the control and High dose group were examined during Week 13. FUNCTIONAL OBSERVATION BATTERY A functional observation battery was conducted on rats from all groups. Comprehensive observations were conducted prior to the start of exposure, during Week 12 and during the recovery period. A shortened battery of observations was conducted during each of Weeks 1–11 of the study. LABORATORY INVESTIGATIONS Laboratory investigations comprising analysis of haematological and blood chemistry parameters together with urinary analysis (all according to OECD guideline) were conducted during Week 13 in rats form all Main groups. OESTRUS CYCLE The oestrus cycle of female rats was monitored. Vaginal smears were prepared daily from all female rats during Weeks 8 and 9 of the study
試験条件	*英文参照	MACROSCOPIC EXAMINATION AND ORGAN WEIGHTS All rats were subjected to a detailed macroscopic examination . The following organs from all Main and Withdrawal animals killed at the scheduled sacrifice were dissected free of fat and weighed: Adrenals Lungs(all lobes and mainstem bronci) Brain (medulla, cerebellar and cortical sections) Ovaries Epididymides* Spleen@ Heart Testes Kidneys Thymus (where present)@ Liver * Right epididymis only. The left epididymis was used for sperm count analysis. @ Also recorded for Satellite rats. Bilateral organs were weighed together
試験条件	*英文参照	SEMINOLOGY Male rats were subjected to seminological investigations. Immediately following sacrifice, samples from all males were taken for: – Sperm analysis: Sperm samples taken from vas deferens (from left side) from rats from all groups were assessed for motility using a computer assisted sperm analyser (CASA). – Morphology: A manual assessment of sperm morphology was performed – Cauda epididymis (from left side): The cauda epididymis was weighed and homogenised and the number of sperm was counted using a computer assisted sperm analyser (CASA).
試験条件	*英文参照	HISTOPATHOLOGY Histopathological examinations were performed on all scheduled tissues (marked with *) for Groups 1 and 4, and on tissues from all groups (marked with X). These tissues were embedded in paraffin wax and sections 4 – 5 µm thick were cut, processed and stained with haematoxylin and eosin for examination by light microscopy.

試験条件	*英文参照	Sections, approximately 2 µm, were cut from the testes (transverse sections) and epididymides (longitudinal sections) and stained with PAS-haematoxylin. Adrenals* Heart* Sciatic nerve* Alimentary tract Kidneys* Seminal vesicles* Oesophagus* Larynx * Skeletal muscle* Stomach (antrum, glandular and non glandular)* Duodenum* Liver* Skin Lungs (all lobes and mainstem bronchi)X Spinal column Spinal cord (cervical, thoracic and lumbar)* Lymph nodes (cervical, mesenteric and tracheobronchial)* Jejunum* Ileum* Spleen* Caecum* Sternum* Colon* Mammary gland Testes* Rectum* Nasal passages (head for rostral and caudal nasal cavities)* Thymus (where present)* Animal identification mark Thyroids (with parathyroids)* Aorta* Optic nerve Tongue Brain (4 levels)* Ovaries* Trachea (including bifurcation)* Epididymides(a) * Pancreas* Eyes* Pharynx* Ureter Femur with joint (for bone marrow in situ) Pituitary* Urinary bladder* Prostate Uterus (corpus and cervix)* Gross abnormalitiesX Salivary gland* Vagina
試験条件	*英文参照	(a) Right epididymis only. The left epididymis was used for sperm count analysis X All rats from all groups The lymph nodes were identified separately. The remaining head was retained for paranasal sinuses, oral cavity, nasopharynx, middle ear, teeth, eyelids, lacrymal gland, Harderian gland and Zymbal's gland
試験条件	*英文参照	CHAMBER ATMOSPHERE CONDITIONS Chamber analysed concentration of DMSO Group Study mean concentration (mg/l) Target Total Analysed 2 (Low dose) 0.3 0.31 3 (Inter dose) 1.0 0.964 4 (High dose) 3.0 2.793 The analysed concentrations were in agreement with the target concentrations.
統計学的処理	*英文参照	All statistical analyses were carried out separately for males and females. Food consumption was analysed using cage mean values For all other parameters the analyses were carried out using the individual animal as the experimental unit. Bodyweight data were analysed using weight gains. The following sequence of statistical tests was used for bodyweight, organ weight and clinical pathology data. If the data consist predominantly of one particular value (relative frequency of the mode exceeded 75%), the proportion of animals with values different from the mode was analysed by appropriate methods. Otherwise: Bartlett's test was applied to test for heterogeneity of variance between treatments; where significant (at the 1% level) heterogeneity was found, a logarithmic transformation was tried to see if a more stable variance structure could be obtained.
統計学的処理	*英文参照	If no significant heterogeneity was detected (or if a satisfactory transformation was found), and more than two groups were being compared, group means were compared using Williams' test for a dose-related response (Williams, 1971-72), or if there was evidence for a non-monotonic response, Dunnett's test (Dunnett, 1955, 1964). For separate two-group comparisons, a Student's t test was used. If significant heterogeneity of variance was present (and could not be removed by a logarithmic transformation), groups were compared using Shirley's non-parametric test for a dose-related response (Shirley, 1977), or if there was evidence for a non-monotonic response, Dunn's test (Dunn 1964). For separate two-group comparisons, a Wilcoxon rank sum test (Wilcoxon 1945) was used.
結果		

体重、体重増加量	DMSO濃度2.783 mg/lで有意な体重減少が13週からみられた。この傾向は回復試験で回復した。 差は少なく、他の全身毒性を示す所見もないことは試験の空気のわずかな刺激と関連しているように思われる。これは付随する摂餌量のわずかな減少で裏づけされた。	Rats exposed to DMSO gained less weight over the 13 weeks of exposure compared with controls, statistically significant when exposed at 2.783 mg/L. (−17% in males and −16% in females). The trend was reversed during the recovery phase of the study. The differences were small and the absence of any other indications of systemic toxicity were considered likely to be related to a degree of inapetance caused by the mildly irritant nature of the test atmosphere. This was supported by small concomitant reductions in food consumption.
摂餌量、飲水量	暴露群と対照群差はわずかで毒性学的に重要でなかった。	FOOD CONSUMPTION: Differences between Control and Treated groups were minimal and of no toxicological importance. WATER CONSUMPTION: Differences between Control and Treated groups were minimal and of no toxicological importance.
臨床所見（重篤度、所見の発現時期と持続時間）	暴露と関連した所見として、第3群(中用量群）で暴露5週から鼻周囲の赤色着色がみられた。第4群(高用量群）では暴露4週から鼻周囲の赤色着色がみられた。 その他の臨床所見は刺激性のある空気の暴露と一致していた。 FOB 13週間の暴露、4週間の回復期間に神経毒性を示したと考えら得る臨床変化はなかった。	Treatment-related clinical signs consisted of red staining around the nose, observed post-exposure in a proportion of Group 3 (Intermediate dose) from Week 5. All Group 4 (High dose) rats were observed to have red staining around the nose pre and post exposure from Week 4 of the study period, continuing throughout the exposure period. Other clinical observations were consistent with exposure to a midly irritant atmosphere. FUNCTIONAL OBSERVATION BATTERY Treatment with dimethylsulphoxide (DMSO) for 13 weeks followed by a four week recovery period was not associated with any behavioural changes that were considered indicative of neurotoxicity.
眼科学的所見（発生率、重篤度）	異常はみられなかった。	OPHTHALMIC EXAMINATION There were no treatment-related differences between the groups.
血液学的所見（発生率、重篤度）	異常はみられなかった。	HAEMATOLOGY There were no differences between control and test groups considered to be attributable to exposure to DMSO.
血液生化学的所見（発生率、重篤度）	異常はみられなかった。	BLOOD CHEMISTRY There were no differences between control and test groups considered to be attributable to exposure to DMSO.
尿検査所見（発生率、重篤度）	異常はみられなかった。	URINALYSIS There were no differences between control and test groups considered to be attributable to exposure to DMSO.
死亡数（率）、死亡時間	第4群の雄は上切歯のの状態と以降の体重減少のために、13週で人道的な根拠でと殺した。	A Group 4 male was sacrificed on humane grounds in Week 13 due to the condition of the upper incisors and subsequent weight loss.
剖検所見（発生率、重篤度）	異常はみられなかった。	MACROSCOPIC EXAMINATION There were no findings that were considered to be attributable to exposure to DMSO.
臓器重量	DMSOを暴露した雄の肺重量が有意に増加したが、差は小さく、用量依存性がなく、雌ではみられなかった。この所見はDMSO暴露に起因したものではないと考えられた。 他の違いはみられなかった。	ORGAN WEIGHTS The lung weights of male rats exposed to DMSO were significantly greater than Control weights however, the difference was small, not dose related and not seen in females. The difference is considered not to be attributable to exposure to DMSO. There were no other differences between the groups that were considered to be attributable to exposure to DMSO.

病理組織学的所見(発生率、重篤度)	病理組織学的検査所見はわずかな刺激性の空気の暴露と一致していた。 90日間の暴露後剖検時に、高用量群の雌雄の咽頭、鼻腔に暴露と関連した変化がみられた。これらの変化は、低及び中用量ではみられなかった。 高用量群での鼻腔の暴露と関連した変化は下部腹側中間道の病変(呼吸上皮の偽腺形成、扁平上皮の炎症を伴うあるいは伴わない上皮の過形成)からなっていた。また、嗅上皮への好酸性封入体の増加の程度。咽頭において、顕著な杯状細胞は、大多数の高用量群のラットに存在した。 回復期間後にと殺したラットにおいて、高用量の雌雄の鼻腔には変化はまだ存在し、雌の咽頭においてもみられた。	HISTOPATHOLOGY Histopathological findings were consistent with exposure to a midly irritant atmosphere. Treatment related changes were found in the nasal passages and pharynx of High dose males and females which were killed after treatment for 90 days. These changes were not found in rats from the Low and Intermediate dose groups killed at this time. Treatment-related changes in the nasal passages of High dose rats comprised lesions in the inferior ventral medial meatus (pseudogland formation in the respiratory epithelium and epithelial hyperplasia with or without inflammation in the squamous epithelium), and an increased degree of eosinophilic inclusions in the olfactory epithelium. In the pharynx, prominent goblet cells were present in the majority of High dose rats. In rats killed after the recovery period, changes were still evident in the nasal passages of High dose male and females and also in the pharynx of the females.
実際に摂取された量		
用量反応性		
注釈	性周期: 影響はみられなかった。 精子検査: 影響はみられなかった。	OESTRUS CYCLE There were no differences between control and test groups considered to be attributable to exposure to DMSO. SEMINOLOGY There were no differences between control and test groups considered to be attributable to exposure to DMSO.
結論		
NOAEL (NOEL)		
LOAEL (LOEL)		
NOAEL/LOAELの推定根拠		
雌雄のNOAEL(LOAEL)の違い等		
注釈	結論: 気道刺激のNOAECは0.964 mg/l、全身毒性のNOAECは2.783 mg/lと確定した。	Conclusion: The no adverse effects concentration could be established at 0.964 mg/l for respiratory tract irritation and 2.783 mg/l for systemic toxicity.
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		
引用文献(元文献)	(75)	(75)
備考	フラグ : 製品安全データセット、指令 67/548/EEC、SIDSエンドポイントにとって重要な試験	flag. Material Safety Dataset, Directive 67/548/EEC, Critical study for SIDS endpoint

5-6 *in vitro* 遺伝毒性
GENETIC TOXICITY IN VITRO

A. 遺伝子突然変異
GENE MUTATION

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度:> 99%	Purity: > 99%
注釈	入手源:Burdick and Jackson	Source: Burdick and Jackson
方法		
方法/ガイドライン	ネズミチフス菌の復帰突然変異試験	Salmonella typhimurium reverse mutation assay
	他:OECDガイドライン471と比較可能な方法	other: comparable to OECD Guide-line 471
GLP適合	情報無し	no data
試験を行った年		
細胞株又は検定菌	菌株 TA97, TA98, TA100, TA1535, TA1537	Strains TA97, TA98, TA100, TA1535, TA1537
代謝活性化(S9)の有無	有及び無	with and without
試験条件	原文参照	Test concentration : 100, 333, 1000, 3333 and 10000 µg/plate. DMSO was tested as a coded chemical in two separate laboratories. Concentrations of DMSO (100, 333, 1000, 3333, and 10,000 µg), overnight culture of S. typhimurium (0.05-0.10 ml), and S-9 mix or buffer were incubated without shaking for 20 minutes. The top agar was added and the contents of the tubes were mixed and poured onto the surfaces of petri dishes. His+ (histidine dependent) colonies arising on plates were machine-counted after two days incubation. Initial testing was without metabolic activation, with 10% rat liver S-9, or with 10% hamster liver S-9. After a negative result was obtained, DMSO was retested without S-9 and with 30% S-9 from rat and hamster. Positive controls: - Without S9: Sodium azide (TA 1535 and TA100), 9-aminoacridine or ICR-191 (TA 97 and TA1537), 4-nitro-o-phenylenediamine (TA98) - With S9: 2-aminoanthracene (all strains)

結果		
細胞毒性		
代謝活性ありの場合	> 10000 µg/plate	> 10000 µg/plate
代謝活性なしの場合	> 10000 µg/plate	> 10000 µg/plate
変異原性		
代謝活性ありの場合	陰性	negative
代謝活性なしの場合	陰性	negative
注釈	陽性対照物質は代謝活性化の有無に関わらず、いずれの試験菌株でも復帰変異頻度の有意な増加を誘発した。 DMSOは、代謝活性化の有無に関わらず、いずれの試験菌株でも陰性を示した。	The positive control chemicals induced a significant increase of the revertant frequency in all tester strains, either with or without metabolic activation. DMSO was negative, in the presence and absence of metabolic activation, in all tester strains.
結論		
遺伝子突然変異	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	Zeiger E; Anderson B; Haworth S; Lawlor T; Mortelmans K (1992) Salmonella mutagenicity tests: V. Results from the testing of 311 chemicals. Environ. Mol. Mutagen, Vol 19, Suppl. 21, pp. 2-141.	Zeiger E; Anderson B; Haworth S; Lawlor T; Mortelmans K (1992) Salmonella mutagenicity tests: V. Results from the testing of 311 chemicals. Environ. Mol. Mutagen, Vol 19, Suppl. 21, pp. 2-141.
備考	フラグ:SIDSエンドポイントの重要な試験	Flag : Critical study for SIDS endpoint

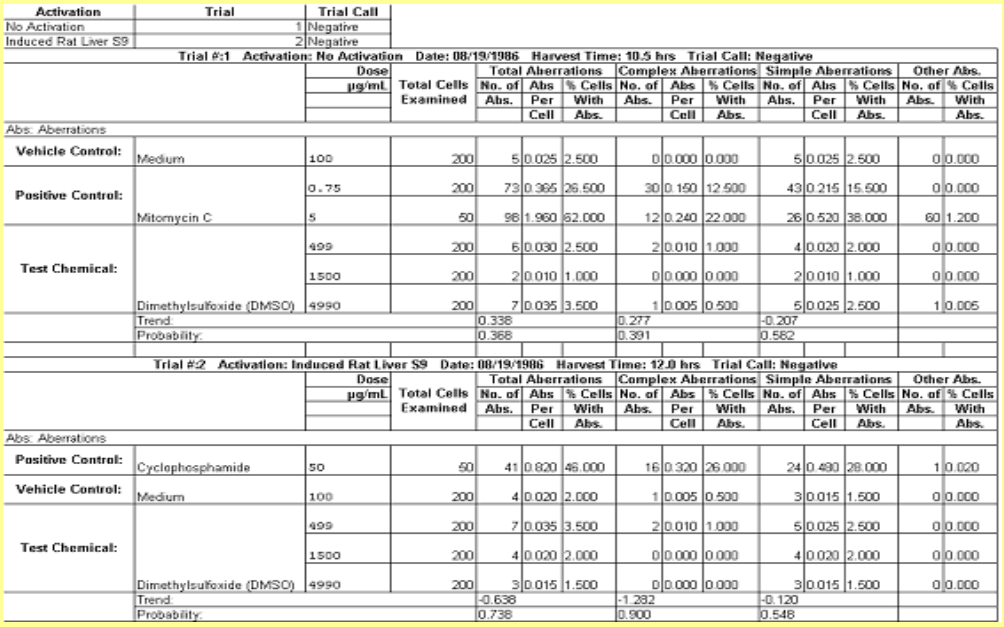
試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度:情報無し	Purity: no data
注釈	入手源:情報無し	Batch number: no data Source: no data
方法		
方法／ガイドライン	ネズミチフス菌の復帰突然変異試験	Salmonella typhimurium reverse mutation assay
	他: Ames B.N. et al., Mutat. Res., 31, 347-364, (1975)	other: Ames B.N. et al., Mutat. Res., 31, 347-364, (1975)
GLP適合	情報無し	no data
試験を行った年	1981年	1981
細胞株又は検定菌	Strains: TA 98, 100, 1535, 1537, 1538	Strains: TA 98, 100, 1535, 1537, 1538
代謝活性化(S9)の有無	有及び無	with and without
試験条件	原文参照	Test concentration : up to 1.4 mM/plate (109 mg/plate). DMSO was tested in the standard plate incorporation assay using five S. typhimurium tester strains (TA 98, 100, 1535, 1537, 1538) in the presence and absence of metabolic activation. Multiple geometric dilutions were tested in duplicate plates, starting with the maximum non-toxic dose tested of 1.4 mM, with and without S-9 mix EXPERIMENTAL CONDITIONS: - Number of replicates: 2 - Metabolic activation: S9 fraction from Aroclor-pretreated rats - Vehicle: no data - Positive control chemicals: not reported, however among the 106 compound tested by the author, 62 were found to be mutagenic, demonstrating the sensitivity of the method used. - Pre-incubation time: none DESCRIPTION OF FOLLOW-UP REPEAT STUDY: no data CRITERIA FOR EVALUATING RESULTS: A clearly positive result as indicated by a dose-related and reproducible increase of his+ revertants over controls (at least a 3-fold increase).
結果		
細胞毒性		
代謝活性ありの場合	報告無し	not reported
代謝活性なしの場合	報告無し	not reported
変異原性		
代謝活性ありの場合	陰性	negative
代謝活性なしの場合	陰性	negative
注釈	DMSOは使用した5菌株全てにおいて、代謝活性化の有無に関わらず陰性であった。	DMSO was negative, in the presence and absence of metabolic activation, in all five tester strains.
結論		
遺伝子突然変異	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	De Flora S (1981) Study of 106 organic and inorganic compounds in the salmonella microsome test, Carcinogenesis, 2(4), 283-298.	De Flora S (1981) Study of 106 organic and inorganic compounds in the salmonella microsome test, Carcinogenesis, 2(4), 283-298.
備考	フラグ:SIDSエンドポイントの重要な試験	Flag : Critical study for SIDS endpoint

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等		
注釈	入手源: Carlo Erba バッチ: 2384 M 100	Source: Carlo Erba Batch: 2384 M 100
方法		
方法／ガイドライン	DNA傷害・修復試験	DNA damage and repair assay
	他	other
GLP適合	情報無し	no data
試験を行った年	1987年	1987
細胞株又は検定菌	大腸菌　Escherichia coli PQ37	Escherichia coli PQ37
代謝活性化(S9)の有無	有及び無	with and without
試験条件	原文参照	Test concentration : 7.8 ng/ml to 7.8 mg/ml. The SOS chromotest was performed with the kits provided by Orgenics, and following exactly the procedure described by the manufacturer. The bacteria growing time was 3 h at 37° C; the compounds were incubated with bacteria for 2 h at 37° C and the colour development lasted 60 or 90 min at 37° C before optical density readings. For each assay, the colour development was checked with serial dilutions of pure galactosidase provided with the kit; as recommended, 4-nitroquinoline oxide was used as directly mutagenic substance and a viability control of the bacteria was performed at each dilution of the chemicals tested. The efficacy of the S9-mix provided with the kits (lot number 019270) was not evaluated. At least 7 dilutions in water were assayed. Multichannel micropipettes were used to deliver the bacterial suspension, the substrate solutions for beta-galactosidase and alkaline phosphatase and the stopping solution; 1 or 10 µl glass microconstriction pipettes (Pedersen type) were used to sample the various dilutions of chemicals under examination. The analysis of the genetoxic activity of the tested compounds was carried out quantitatively with a photometer.
結果		
細胞毒性		
代謝活性ありの場合	報告無し	not reported
代謝活性なしの場合	報告無し	not reported
変異原性		
代謝活性ありの場合	陰性	negative
代謝活性なしの場合	陰性	negative
注釈		
結論		
遺伝子突然変異	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	Brams A, Buchet JP., Crutzen-Fayt MC, De Meester C, Lauwerys R, Leonard A (1987) A comparative study, with 40 chemicals, of the efficiency of the salmonella assay and the SOS chromotest (kit procedure). Toxicol. Lett., 38, 123-133.	Brams A, Buchet JP., Crutzen-Fayt MC, De Meester C, Lauwerys R, Leonard A (1987) A comparative study, with 40 chemicals, of the efficiency of the salmonella assay and the SOS chromotest (kit procedure). Toxicol. Lett., 38, 123-133.
備考		

B. 染色体異常
CHROMOSOMAL ABBERATION

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度：99.4%	Purity: 99.4%
注釈	入手源：Burdick and Jackson Laboratories	Source: Burdick and Jackson Laboratories
方法		
方法／ガイドライン	染色体異常試験、 他：OECDガイドライン473と比較可能な方法	Cytogenetic assay, other: comparable to OECD Guide-line 473
GLP適合	情報無し	no data
試験を行った年		
細胞株	CHO細胞	CHO-cells
代謝活性化(S9)の有無	有及び無	with and without

試験条件	原文参照	Test concentration : 499, 1500 and 4990 µg/ml. Cell Culture and Medium: CHO cells were obtained from Litton Bionetics (Kensington. MD) at their fifth passage level after cloning. and were designated CHO?LB. A large stock of cells was initially prepared, and vials were stored at −80° C. To ensure karyotypic stability, cells were not used beyond the fifteenth passage after cloning. Cells were tested regularly for mycoplasma contamination using 4,6−diamidino−2−phenylindole (DAPI) fluorescence and were found to be free of mycoplasma for all experiments. Growth and treatment conditions were based on procedures described by Galloway et al. (1985). Cells were grown and exposed to chemicals at 37° C. Metabolic Activation: The rat liver microsomal fraction was prepared from Aroclor 1254−induced male Sprague−Dawley rats and was combined with cofactors and culture medium to form the metabolic activation system.
試験条件	原文参照	Controls: Medium and solvent controls were used with each assay. Solvent controls consisted of culture medium with or without S9 and contained the same concentration of solvent as the test cultures (0.5 or 1%). Mitomycin C (MMC; Sigma) was used in the experiments without metabolic activation, and cyclophosphamide (CP; Sigma) was used in the experiments with activation as positive controls. Test Chemical Dose Selection Test concentrations were empirically chosen based on toxicity and cell cycle delay. At least five concentrations of the test chemical were selected; the concentrations were spaced using two merged half−log scales, and the highest concentrations analyzed were those yielding a sufficient number of suitable metaphase cells. The concentrations analyzed generally covered a one−log range.
試験条件	原文参照	Treatment In the AB trials without S9, the cultures were treated with the test chemical in medium for 8 hr, washed to remove the test chemical, and treated with colcemid for 2−2.5 hr before cell harvest. In the experiments with activation, cultures were exposed to the test chemical in serum free medium with S9 and cofactors for 2 hr, washed to remove the test chemical and S9, and incubated at 37° C with fresh medium for 8 hr. Colcemid was then added, and the cells were harvested 2 hr later. Thus the total durations of the nonactivated and activated AB experiments were 10 hr and 12 hr, respectively, to give 10 hr growth in medium with serum for each experiment.
試験条件	原文参照	Staining and Scoring of Slides Selection of cells for scoring was based on well−spread chromosomes with good morphology and a chromosome number of 21 ± 2. All slides except the high−dose positive control were coded, and a complete experiment was scored by one technician. Slides were stained in 5% Giemsa for 5 min. In early studies, one hundred cells were scored for each of three concentrations: the highest test concentration in which sufficient metaphase cells could be scored and the next two lower concentrations, covering a one−log range. For later studies, 200 cells per dose were scored; however, fewer cells were scored if a test chemical produced a strong positive response or the chemical was toxic. Cells were analyzed for the following categories of chromosomal aberrations: "simple," defined as a chromatid gap, break, fragment, and deletion or chromosome gap, break, or double minutes; "complex," defined as interstitial deletions, triradials, quadriradials, rings, and dicentric chromosomes, and "other" defined as pulverized chromosomes or cells with greater than 10 aberrations. Chromatid and chromosome gaps were recorded but were not used in the analysis. The frequency of polyploid or endoreduplicated cells was noted only when it seemed excessive: however, these categories were not included in the totals or in the statistical analyses.

試験条件	原文参照	Analysis of Data All categories of aberrations (simple, complex. and other) were combined for the statistical analysis, which was based on the percent of total cells with aberrations. The percent of cells with ABs (i.e., percent of aberrant cells) was used for the analysis, rather than the average number of aberrations per cell. The use of the latter could distort the results in cases where there are a high number of aberrations in only one or two cells. A binomial sampling assumption as described by Margolin et al. (1983) was used to examine absolute increases in ABs over solvent control levels at each dose. The P values were adjusted by Dunnett's method to take into account the multiple dose comparisons. Only the "total" percent cells with aberrations were analyzed, and a positive response was defined as one for which the adjusted P value was <0.05. A test was designated "positive" if at least two doses gave significantly increased responses.
結果		
細胞毒性		
代謝活性ありの場合	> 4990 µg/ml	> 4990 µg/ml
代謝活性なしの場合	> 4990 µg/ml	> 4990 µg/ml
染色体異常		
代謝活性ありの場合	陰性	negative
代謝活性なしの場合	陰性	negative
注釈	DMSOは細胞毒性又は細胞周期の遅延を誘発しなかった。また、染色体異常頻度の増加を誘発しなかった。	DMSO did not induce cell toxicity or cell cycle delay, and did not induce an increase in the incidence of chromosomal aberrations.
注釈	（原文では試験結果表が画像貼付されていたため、下欄に挿入した。）	(Attached document)
注釈		

Activation	Trial	Trial Call
No Activation	1	Negative
Induced Rat Liver S9	2	Negative

Trial #:1 Activation: No Activation Date: 08/19/1986 Harvest Time: 10.5 hrs Trial Call: Negative

		Dose µg/mL	Total Cells Examined	Total Aberrations No. of Abs.	Total Aberrations Abs Per Cell	Total Aberrations % Cells With Abs.	Complex Aberrations No. of Abs.	Complex Aberrations Abs Per Cell	Complex Aberrations % Cells With Abs.	Simple Aberrations No. of Abs.	Simple Aberrations Abs Per Cell	Simple Aberrations % Cells With Abs.	Other Abs. No. of Abs.	Other Abs. % Cells With Abs.
Abs: Aberrations														
Vehicle Control:	Medium	100	200	5	0.025	2.500	0	0.000	0.000	5	0.025	2.500	0	0.000
Positive Control:		0.75	200	73	0.365	26.500	30	0.150	12.500	43	0.215	15.500	0	0.000
	Mitomycin C	5	50	98	1.960	62.000	12	0.240	22.000	26	0.520	38.000	60	1.200
Test Chemical:		499	200	6	0.030	2.500	2	0.010	1.000	4	0.020	2.000	0	0.000
		1500	200	2	0.010	1.000	0	0.000	0.000	2	0.010	1.000	0	0.000
	Dimethylsulfoxide (DMSO)	4990	200	7	0.035	3.500	1	0.005	0.500	5	0.025	2.500	1	0.005
	Trend:			0.338			0.277			-0.207				
	Probability:			0.368			0.391			0.582				

Trial #:2 Activation: Induced Rat Liver S9 Date: 08/19/1986 Harvest Time: 12.0 hrs Trial Call: Negative

		Dose µg/mL	Total Cells Examined	Total Aberrations No. of Abs.	Total Aberrations Abs Per Cell	Total Aberrations % Cells With Abs.	Complex Aberrations No. of Abs.	Complex Aberrations Abs Per Cell	Complex Aberrations % Cells With Abs.	Simple Aberrations No. of Abs.	Simple Aberrations Abs Per Cell	Simple Aberrations % Cells With Abs.	Other Abs. No. of Abs.	Other Abs. % Cells With Abs.
Abs: Aberrations														
Positive Control:	Cyclophosphamide	50	50	41	0.820	46.000	16	0.320	26.000	24	0.480	28.000	1	0.020
Vehicle Control:	Medium	100	200	4	0.020	2.000	1	0.005	0.500	3	0.015	1.500	0	0.000
Test Chemical:		499	200	7	0.035	3.500	2	0.010	1.000	5	0.025	2.500	0	0.000
		1500	200	4	0.020	2.000	0	0.000	0.000	4	0.020	2.000	0	0.000
	Dimethylsulfoxide (DMSO)	4990	200	3	0.015	1.500	0	0.000	0.000	3	0.015	1.500	0	0.000
	Trend:			-0.638			-1.282			-0.120				
	Probability:			0.738			0.900			0.548				

結論		
染色体異常	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	・Loveday KS, Anderson BE, Resnick MA and Zeiger E (1990) Chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells in Vitro V: Results with 46 chemicals. Environ. Mol. Mutagen. 16: 272–303. ・Loveday KS, Lugo MH, Resnick MA, Anderson BE and Zeiger E (1989) Chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells in vitro : II Results with 20 chemicals. Environ. Mol. Mutagen. 13: 60–94.	・Loveday KS, Anderson BE, Resnick MA and Zeiger E (1990) Chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells in Vitro V: Results with 46 chemicals. Environ. Mol. Mutagen. 16: 272–303. ・Loveday KS, Lugo MH, Resnick MA, Anderson BE and Zeiger E (1989) Chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells in vitro : II Results with 20 chemicals. Environ. Mol. Mutagen. 13: 60–94.
備考	フラグ：SIDSエンドポイントの重要な試験	Flag : Critical study for SIDS endpoint

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度：99.4%	Purity: 99.4%
注釈	入手源：Burdick and Jackson Laboratories	Source: Burdick and Jackson Laboratories
方法		
方法／ガイドライン	姉妹染色分体交換試験、 他：OECDガイドライン479と比較可能な方法	Sister chromatid exchange assay, other: comparable to OECD Guide-line 479
GLP適合	情報無し	no data
試験を行った年	1987年	1987
細胞株	CHO細胞	CHO-cells
代謝活性化（S9）の有無		with and without
試験条件	原文参照	Test concentration : up to 5000 µg/ml. Cell Culture and Medium: CHO cells were obtained from Litton Bionetics (Kensington. MD) at their fifth passage level after cloning. and were designated CHO?LB. A large stock of cells was initially prepared, and vials were stored at -80° C. To ensure karyotypic stability, cells were not used beyond the fifteenth passage after cloning. Cells were tested regularly for mycoplasma contamination using 4,6-diamidino-2-phenylindole (DAPI) fluorescence and were found to be free of mycoplasma for all experiments. Growth and treatment conditions were based on procedures described by Galloway et al. (1985). Cells were grown and exposed to chemicals at 37° C. Metabolic Activation: The rat liver microsomal fraction was prepared from Aroclor 1254-induced male Sprague?Dawley rats and was combined with cofactors and culture medium to form the metabolic activation system.
試験条件	原文参照	Controls: Medium and solvent controls were used with each assay. Solvent controls consisted of culture medium with or without S9 and contained the same concentration of solvent as the test cultures (0.5 or 1%). Mitomycin C (MMC; Sigma) was used in the experiments without metabolic activation, and cyclophosphamide (CP; Sigma) was used in the experiments with activation as positive controls. Test Chemical Dose Selection A series of dilutions were made from the stock solution to achieve 10 test concentrations in a half-log series covering a range of five logs. The highest dose used was based on solubility or toxicity, with the highest dose scored being that allowing sufficient M2 cells for analysis at the time of harvest. In the absence of limitations on solubility or toxicity, the maximum test chemical concentration was 5 mg/ml.
試験条件	原文参照	Exposure In tests without metabolic activation, cell cultures were exposed to DMSO for 24 hr. In tests with metabolic activation, cultures were exposed to DMSO and rat liver S-9 for 2 hr. Cell toxicity was determined by comparing cell monolayers in treated flasks with control cultures. Slide preparation Mitotic cells were harvested, treated with hypotonic buffer, and resuspended in fixative. Slides were stained and 50 second-division M2 cells from each of the top three concentrations were scored for SCEs.
結果		
細胞毒性		
代謝活性ありの場合	> 5000 µg/ml	> 5000 µg/ml
代謝活性なしの場合	> 5000 µg/ml	> 5000 µg/ml
染色体異常		
代謝活性ありの場合	陰性	negative
代謝活性なしの場合	陰性	negative
注釈	DMSOは細胞毒性又は細胞周期の遅延を誘発しなかった。また、SCE頻度の増加を誘発しなかった。	DMSO did not induce cell toxicity or cell cycle delay, and did not induce an increase in the incidence of SCEs.
注釈		
注釈		
結論		
染色体異常	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008

引用文献(元文献)	・Loveday KS, Anderson BE, Resnick MA and Zeiger E (1990) Chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells in Vitro V: Results with 46 chemicals. Environ. Mol. Mutagen. 16: 272-303. ・Loveday KS, Lugo MH, Resnick MA, Anderson BE and Zeiger E (1989) Chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells in vitro : II Results with 20 chemicals. Environ. Mol. Mutagen. 13: 60-94.	・Loveday KS, Anderson BE, Resnick MA and Zeiger E (1990) Chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells in Vitro V: Results with 46 chemicals. Environ. Mol. Mutagen. 16: 272-303. ・Loveday KS, Lugo MH, Resnick MA, Anderson BE and Zeiger E (1989) Chromosome aberration and sister chromatid exchange tests in Chinese hamster ovary cells in vitro : II Results with 20 chemicals. Environ. Mol. Mutagen. 13: 60-94.
備考	フラグ:SIDSエンドポイントの重要な試験	Flag : Critical study for SIDS endpoint

5-7 *in vivo*遺伝毒性
GENETIC TOXICITY IN VIVO

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度:99.99%	Purity : 99.99%
注釈	入手源: Aldrich Chemical Co. バッチ : 02758HI	Source: Aldrich Chemical Co. Batch : 02758HI
方法		
方法/ガイドライン	OECDガイドライン474「遺伝毒性:小核試験」	OECD Guide-line 474 "Genetic Toxicology: Micronucleus Test"
試験のタイプ	他:骨髄小核試験	other: Micronucleus assay in bone marrow
GLP適合	適合	Yes
試験を行った年	1997年	1997
試験系(種/系統)	ラット	rat
	他:Han Wistar	other: Han Wistar
性別(雄:M、雌:F)	雌雄	male/female
投与量	0, 200, 1000 and 5000 mg/kg/d	0, 200, 1000 and 5000 mg/kg/d
投与経路	腹腔内	i.p.
試験期間	24時間間隔で5回投与	5 administration at 24-hour interval
試験条件	原文参照	Dimethyl sulphoxide was assayed in vivo in a rat bone marrow micronucleus test at three dose levels. To ensure that the maximum selected dose would not cause severe or lethal toxicity a range finding experiment was performed to confirm suitability of the top dose. In the range-finding test Dimethyl sulphoxide, formulated in water for injection (purified water) was administered to rats via intraperitoneal injection. The test article was administered once daily on five consecutive days (approximately 24 hours apart) to groups of three male and three female rats at a dose of 5000 mg/kg/day. Observations were made over a 2-day period following the last administration and signs of toxicity recorded. The main study was conducted using both male and female rats. Dimethyl sulphoxide was formulated as described and administered at 200, 1000 and 5000 mg/kg/day to groups of six male and six female rats killed 24 hours after the last administration. The negative (vehicle) control in the study was purified water also administered via intraperitoneal injection once daily on five consecutive days (approximately 24 hours apart). Groups of six male and six female rats treated with this were killed and sampled 24 hours after the last administration. Cyclophosphamide (CPA), the positive control, was dissolved in saline and administered via intraperitoneal injection as a single dose of 20 mg/kg to groups of six male and six female rats which were killed after 24 hours.
統計学的処理		
結果		
性別及び投与量別の結果		
遺伝毒性効果	陰性	negative
NOAEL (NOEL)		
LOAEL (LOEL)		
統計的結果		
注釈	原文参照	Preliminary study : All animals survived to the end of the dosing regimen with clinical signs of lethargy and/or abnormal breathing noted on all dosing occasions. This preliminary study was considered to confirm the acceptability of 5000 mg/kg/day as the maximum test dose for the main study. Main study : No clinical signs were observed in any animal administered with the test article although two female animals showed limited signs of irritation at the injection site immediately after dosing. Negative (vehicle) control rats exhibited normal group mean ratios of PCE (polychromatic erythrocytes) to NCE (normochromatic erythrocytes) and normal frequencies of micronucleated PCE within historical negative control (normal) ranges.

注釈	原文参照	Positive control animals exhibited increased numbers of micronucleated PCE such that the micronucleus frequency in the positive control group was significantly greater than in concurrent controls. The study was therefore accepted as valid. In general rats treated with Dimethyl sulphoxide at all doses exhibited group mean ratios of PCE to NCE and frequencies of micronucleated PCE which were similar to or lower than the values for the vehicle control group. The data from female animals administered the test article, demonstrated group mean frequencies of micronucleated PCE that were higher than the vehicle control group. However, there were no instances of statistically significant increases in micronucleus frequency for any of the male or female groups receiving the test article.
注釈	原文参照	Treatment group Kill time Mean Ratio Group mean frequency (mg/kg/day) (hours) PCE/NCE of micronucleated PCE (per 1000 cells)(±sd) ---------- Males Vehicle Control 24 1.34 0.58 ± 0.38 200 24 1.19 0.17 ± 0.41 1000 24 0.95 0.17 ± 0.26 5000 24 1.42 0.25 ± 0.27 CPA, 20+ 24 0.81 5.50 ± 2.07 Females Vehicle Control 24 2.06 0.17± 0.41 200 24 1.14 0.67± 0.61 1000 24 1.06 0.50± 0.45 5000 24 1.12 0.33± 0.26 CPA, 20+ 24 0.84 6.50± 3.87 ---------- + Administered as a single dose sd Standard deviation
結論		
*in vivo*遺伝毒性	陰性	negative
注釈	雌雄のHan Wistarラットに5日間、DMSOの5000 mg/kg/day以下の用量を投与した場合、その骨髄多染性赤血球に小核を誘発しなかった。	Dimethyl sulphoxide did not induce micronuclei in the polychromatic erythrocytes of the bone marrow of male and female Han Wistar rats treated at dose levels up to 5000 mg/kg/day for five consecutive days.
信頼性	(1)制限なしに有効	(1) valid without restriction
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	Atofina (2002) Dimethyl sulphoxide: Induction of micronuclei in the bone marrow of treated rats. Unpublished COVANCE report no. 514/94-D6172.	Atofina (2002) Dimethyl sulphoxide: Induction of micronuclei in the bone marrow of treated rats. Unpublished COVANCE report no. 514/94-D6172.
備考	フラグ:SIDSエンドポイントの重要な試験	Flag : Critical study for SIDS endpoint

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度:情報無し	Purity : no data
注釈	入手源: Baker バッチ : 情報無し	Source: Baker Batch number: no data
方法		
方法／ガイドライン	他	other
試験のタイプ	姉妹染色分体交換試験	Sister chromatid exchange assay
GLP適合	情報無し	no data
試験を行った年	1985年	1985
試験系(種／系統)	マウス	mouse
	ICR	ICR
性別(雄:M、雌:F)	雌	female
投与量	2.5, 5.0, 10.0, 20.0 ml/kg	2.5, 5.0, 10.0, 20.0 ml/kg
投与経路	腹腔内	i.p.
試験期間	妊娠13日目に単回投与	single on day 13 of gestation

試験条件	原文参照	Sister chromatid exchanges (SCE) and cell replication kinetics (CRK) after maternal DMSO exposure were studied in mouse dams and fetuses. Pregnant ICR-mice had a 55 milligram 5-bromodeoxyuridine (59143) (BrdU) tablet implanted subcutaneously in the abdomen on gestation day 13. After 30 minutes to 1 hour, animals were treated ip with 0, 2.5, 5.0 and 10.0 ml/kg DMSO. About 21 hours after BrdU implantation, dams were injected with 80 micrograms colchicine and killed 2 to 3 hours later. Uterine horns and fetuses were removed. Fetal livers and maternal bone marrow were prepared for cell scoring. CRK was assessed by classifying fluorescence plus Giemsa stained metaphase cells as M1, M2, or M3 plus, which indicated one, two, or three more rounds of DNA replication since BrdU treatment, respectively. Average generation time (AGT) as a function of test dose was calculated. SCE was scored as a reciprocal exchange between the chromatids of a chromosome in M2 cells. Cyclophophamide (10 mg/kg ip) was used as positive control.
統計学的処理		
結果		
性別及び投与量別の結果		
遺伝毒性効果	陰性	negative
NOAEL (NOEL)		
LOAEL (LOEL)		
統計的結果		
注釈	母動物の骨髄及び胎児の肝臓において、DMSOはSCEの誘発に関し陰性と分類された。	DMSO was classified as negative regarding SCE induction in maternal bone marrow and fetal liver.

TABLE 11

EFFECT OF DIMETHYLSULFOXIDE (DMSO) ON SISTER-CHROMATID EXCHANGE FREQUENCIES IN MATERNAL BONE MARROW AND FETAL LIVER CELLS

Dose [d] (ml/kg)	Maternal bone marrow [a,c]			Fetal liver [b,c]		
	Number of dams	Number of cells	SCE/cell ($\bar{x} \pm$ S.E.)	Number of fetuses	Number of cells	SCE/cell ($\bar{x} \pm$ S.E.)
0.0	3	90	7.16 ± 0.46	5	40	5.59 ± 0.50
2.5	3	93	5.91 ± 0.32	9	84	5.92 ± 0.34
5.0	2	60	7.55 ± 0.47	6	60	6.95 ± 0.50
10.0	3	92	5.83 ± 0.37	8	80	7.40 ± 0.44
Positive control (10 mg/kg CP)	3	90	22.93 ± 0.81	3	14	24.86 ± 3.87

[a] ANOVA revealed a significant effect of dose ($0.001 < P < 0.01$). The mean SCE/cell was significantly lower at 2.5 ml/kg DMSO ($0.01 < P < 0.05$) and 10.0 ml/kg DMSO ($0.001 < P < 0.01$), but significantly higher at 10 mg/kg CP ($P < 0.001$) as compared with 0.0 ml/kg DMSO.

[b] ANOVA revealed no significant effect of dose ($P > 0.05$). The mean SCE/cell was significantly higher only at 10 mg/kg CP as compared with 0.0 ml/kg DMSO.

[c] Results of t tests for differences between mean SCE/cell for maternal and fetal cells for each dose showed a significant difference at 10.0 ml/kg DMSO.

[d] In addition to the above doses which were administered in 2 equal injections, 5.0 ml/kg DMSO was also administered in a single injection and the following results were obtained: maternal bone marrow, $N = 94$ (3 dams), SCE/cell = 6.63 ± 0.33; fetal cells, $N = 74$ (9 fetuses), SCE/cell = 5.93 ± 0.40. Results of t tests for differences in the single vs. 2 injections for SCE/cell revealed no significant differences ($p > 0.05$) either in maternal bone marrow or fetal cells. Also, there was no significant difference ($P > 0.05$) between maternal bone marrow and fetal cells with the single injection.

結論		
*in vivo*遺伝毒性	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	Sharma RK, Jacobson-Kram D, Lemmon M, Bakke J, Galperin I and Blazak WF (1985) Sister-chromatid exchange and cell replication kinetics in fetal and maternal cells after treatment with chemical teratogens, Mutation Res., 158, 217-231.	Sharma RK, Jacobson-Kram D, Lemmon M, Bakke J, Galperin I and Blazak WF (1985) Sister-chromatid exchange and cell replication kinetics in fetal and maternal cells after treatment with chemical teratogens, Mutation Res., 158, 217-231.
備考		

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度:情報無し	Purity : no data
注釈		
方法		
方法／ガイドライン	他:情報無し	other: no data
試験のタイプ	優性致死試験	Dominant lethal assay
GLP適合	非適合	no
試験を行った年		
試験系(種／系統)	マウス	mouse
	Swiss	Swiss

性別(雄:M、雌:F)	雄	male
投与量	5.0, 7.5 and 10 g/kg	5.0, 7.5 and 10 g/kg
投与経路	腹腔内	i.p.
試験期間	20時間の間隔で2回投与	twice at an interval of 20 hr
試験条件	原文参照	Groups of 15 male mice (10–11 week old) were injected intraperitoneally with 5.0, 7.5, and 10 g/kg DMSO twice at an interval of about 20 hours. Control animals received no treatment. Triethylenephosphoramide was injected twice at a dose of 1.25 mg/kg i.p.. Surviving males were paired with 2 or 3 untreated virgin females, which were replaced at weekly intervals for five consecutive weeks. Females were killed and examined for implantion sites and dead implants at 10–11 days after separation from males. Pre-implantation loss was evaluated by comparing the number of implantation sites in females mated with DMSO-treated males to the number in females mated with untreated males. The incidence of females with dead implantatons was recorded, and pregnancy rates determined.
統計学的処理		
結果		
性別及び投与量別の結果		
遺伝毒性効果	陰性	negative
NOAEL (NOEL)		
LOAEL (LOEL)		
統計的結果		
注釈	原文参照	Male mice treated with DMSO appeared sedated, and consumed less food and water than untreated controls. These effects were dose related and were most apparent in mice that received 10 g/kg DMSO. Incidence of mortality was 7, 20, and 73% for the 5, 7.5 and 10 g/kg groups, respectively. During the first week of matings, pregnancy rates were reduced in females paired with 10 g/kg males. Rates increased in subsequent weeks, and were comparable to controls by week 5. Pregnancy rates of females paired with males given 5 and 7.5 g/kg were similar to controls. Total implantation rates were reduced in females paired with 7.5 and 10 g/kg males during week 1. There were no significant differences in implantations in subsequent weeks. The number of dead implantations in females mated to DMSO-treated males did not differ from that of controls during the entire test interval.

TABLE I

Total and live implantations per pregnant female

Week	Group	Pregnant female	Implants		Live implants per female
			No	Per female	
1	Control	18	190	10.6 ± 0.31	9.9 ± 0.39
	DMSO 5 g[a]	26	250	9.6 ± 0.33	9.1 ± 0.33
	7.5 g	19	170	9.0* ± 0.46	7.7* ± 0.60
	10 g	10	84	8.4* ± 0.96	7.6* ± 0.86
2	Control	18	177	9.8 ± 0.25	8.9 ± 0.32
	DMSO 5 g	25	238	9.5 ± 0.46	8.4 ± 0.45
	7.5 g	23	210	9.1 ± 0.48	8.7 ± 0.45
	10 g	7	71	10.1 ± 0.34	9.7 ± 0.42
3	Control	20	206	10.3 ± 0.23	9.6 ± 0.34
	DMSO 5 g	25	232	9.3 ± 0.56	8.8 ± 0.59
	7.5 g	22	185	8.4 ± 0.56	7.6 ± 0.65
	10 g	6	59	9.8 ± 0.60	9.2 ± 0.65
4	Control	17	163	9.6 ± 0.33	9.2 ± 0.50
	DMSO 5 g	25	231	9.2 ± 0.45	8.2 ± 0.54
	7.5 g	18	172	9.6 ± 0.54	8.5 ± 0.62
	10 g	6	49	8.2 ± 1.33	7.7 ± 1.43
5	Control	18	170	9.4 ± 0.36	8.2 ± 0.53
	DMSO 5 g	19	175	9.2 ± 0.30	8.3 ± 0.55
	7.5 g	20	160	8.0 ± 0.71	7.3 ± 0.74
	10 g	7	58	8.3 ± 0.42	7.4 ± 0.61

a - per kg body weight

* $P < 0.05$ as compared to the corresponding control group.

TABLE II

Percentage pregnancy, mean total and dead implantations in TEPA treated mice

Week	Control						TEPA*					
	% pregnancy	Implants		Dead Implants			% pregnancy	Implants		Dead implants		
		No.	per fem.	No.	per fem.	%		No.	per fem	No.	per fem.	%
1	61.2 (52)	484	9.3	28	0.54	5.8	45.7 (53)	447	8.4	68	1.28	15.2
2	64.6 (84)	743	8.9	39	0.46	5.3	51.2 (65)	597	9.2	125	1.92	20.9
3	72.5 (50)	445	8.9	28	0.56	6.3	81.0 (34)	313	9.2	37	1.09	11.8
4	64.2 (88)	834	9.5	50	0.57	6.0	69.6 (94)	866	9.2	132	1.40	15.2
5	63.6 (35)	330	9.4	17	0.49	5.2	51.7 (30)	296	9.9	33	1.10	11.2

*Two injections of 1.25 mg/kg of TEPA were given to males. Values within parenthesis denote number of pregnant females.

結論		
*in vivo*遺伝毒性	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	・Aravindakshan M, Chauhan PS, Alyar AS and Sundaram K (1975) Evaluation of mutagenic activity of dimethyl sulfoxide in male mice. Proc. Symp. Mutagenicity Carcinog. Teratogenicity of Chem, Baroda, pp 45-55. ・Chauhan PS, Aravindakshan M, Liyar AS and Sundaram K (1975) Evaluation of dimethyl sulfoxide for mutagenicity. Environmental Pollution and Human Health. International Symposium, November 1975.	・Aravindakshan M, Chauhan PS, Alyar AS and Sundaram K (1975) Evaluation of mutagenic activity of dimethyl sulfoxide in male mice. Proc. Symp. Mutagenicity Carcinog. Teratogenicity of Chem, Baroda, pp 45-55. ・Chauhan PS, Aravindakshan M, Liyar AS and Sundaram K (1975) Evaluation of dimethyl sulfoxide for mutagenicity. Environmental Pollution and Human Health. International Symposium, November 1975.
備考		
試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度:情報無し	Purity : no data
注釈	入手源:Merck バッチ番号:情報無し	Source: Merck Batch number: no data
方法		
方法／ガイドライン	他:Erixon and Ahnström, Mut res, 1979, 59, 257-271	other: Erixon and Ahnström, Mut res, 1979, 59, 257-271
試験のタイプ	他:DNA単鎖切断	other:single-strand breaks in DNA
GLP適合	情報無し	no data
試験を行った年	1984年	1984
試験系(種／系統)	マウス	mouse
	NMRI	NMRI
性別(雄:M、雌:F)	雄	male
投与量	25 to 75 mmol/kg (1950 to 5860 mg/kg)	25 to 75 mmol/kg (1950 to 5860 mg/kg)
投与経路	腹腔内	i.p.
試験期間	単回投与	single administration
試験条件	原文参照	The method for determination of single-strand breaks (SSB) in DNA by the technique of alkaline unwinding and hydroxylapatite chromatography has been applied for cell nuclei from organs of mice. Male mice were given DMSO by i.p. administration. Cell nuclei were prepared from various organs and then lysed in alkali. The amount of DNA was determined by fluorometry using 4',6-diamidino-2-phenylindole.2HCl. The relative level of SSB in DNA was determined in liver, kidney, lung, spleen, testis or brain, 0.5-24 h after administration of DMSO. Positive control: mice were injected ip. with MMS (0.45 -1.2 mmol/kg) dissolved in 0.15 M NaCl.
統計学的処理		
結果		
性別及び投与量別の結果		
遺伝毒性効果	あいまいな結果	ambiguous
NOAEL (NOEL)		

LOAEL (LOEL)		
統計的結果		
注釈	DMSOは、高用量の75 mmol/kgで腎臓のDNAにおいてのみ、実施した時間設定でSSBを誘発した。より低用量(25 and 50 mmol/kg)では腎臓への影響が観察されなかった。また、0.1 mmol/kgで投与0.5、4、24時間後に他の臓器でも同様の影響は観察されなかった。	DMSO induced SSB only in DNA of kidney, 0.5 hr (only time point tested) after treatment with the high dose of 75 mmol/kg . No effect was observed in kidney at lower dose levels (25 and 50 mmol/kg). No effect as well was obseved in the other organs, 0.5, 4 and 24 after the administration of 0.1 mmol/kg.
結論		
*in vivo*遺伝毒性	あいまいな結果	ambiguous
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠	試験した最高用量(75 mmol/kg = 5460 mg/kg)は、in vivo遺伝毒性試験のOECDで推奨されている限界用量(2000 mg/kg)を大幅に超す用量であった。陽性の影響は二次的な腎毒性とみなされた。従って、高用量で観察された影響は疑わしい有意性である。	The highest dose level tested (75 mmol/kg = 5460 mg/kg) is largely in excess of the OECD recommended limit dose (2000 mg/kg) for in vivo genotoxicity testing test and the positive effect could be secondary to a nephrotoxicity. The effects observed at this high dose are of doubtful significance.
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	Walles SAS and Erixon K (1984) Single-strand breaks in DNA of various organs of mice induced by methyl methanesulfonate and dimethylsulfoxide determined by the alkaline unwinding technique. Carcinogenesis, 5(3), 319-23.	Walles SAS and Erixon K (1984) Single-strand breaks in DNA of various organs of mice induced by methyl methanesulfonate and dimethylsulfoxide determined by the alkaline unwinding technique. Carcinogenesis, 5(3), 319-23.
備考		

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度:情報無し	Purity : no data
注釈		
方法		
方法／ガイドライン	他	other
試験のタイプ	ショウジョウバエSLRL試験	Drosophila SLRL test
GLP適合	非適合	no
試験を行った年	1974年	1974
試験系(種／系統)	ショウジョウバエ Drosophila melanogaster	Drosophila melanogaster
	他:Berlin wild males and Basc females	other: Berlin wild males and Basc females
性別(雄:M、雌:F)	雄	male
投与量	0.1, 1.0, 5.0% (v/v)	0.1, 1.0, 5.0% (v/v)
投与経路	他:腹腔内注射	other: intra-abdominal injection
試験期間	単回投与	Single dose
試験条件	原文参照	DMSO was injected intraabdominally into 1-2-day-old males at concentrations of 0.1, 1 and 5%; the volume injected was 0.2 µl per fly. Rod-X and ring-X bearing males were used to test for sex-linked recessive lethals and for sex chromosome loss, respectively. Controls consisted of males that were not injected, and males that received saline injections. One day after treatment, each male was individually crossed with three 4-day-old virgin females. In order to collect postmeiotic and premeiotic germ cell stages separately, males were mated every two days to a new set of females. Males were mated five times to obtain broods A to E. Mortality and sterility of treated males were recorded during the breeding program. Treminon 10e-5M was used as positive control.
統計学的処理		
結果		
性別及び投与量別の結果		
遺伝毒性効果	陰性	negative
NOAEL (NOEL)		
LOAEL (LOEL)		
統計的結果		
注釈	原文参照	Increased mortality was observed in all injected males; DMSO did not enhance mortality when compared to saline. Intraabdominal injection of DMSO did not induce sex-linked recessive lethals and did not raise the frequency of sex chromosome loss above the spontaneous level. Data from later broods showed lower frequencies of sex chromosome loss than those from the first brood. This tendency was also observed in untreated controls.
結論		
*in vivo*遺伝毒性	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions

信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	Mollet, P., Graf, U., Wurgler, F. E. (1974) Toxicity and mutagenicity of dimethyl sulfoxide in two strains of Drosophila melanogaster. Arch. Genet. (Zur), 47 (3), 184-190.	Mollet, P., Graf, U., Wurgler, F. E. (1974) Toxicity and mutagenicity of dimethyl sulfoxide in two strains of Drosophila melanogaster. Arch. Genet. (Zur), 47 (3), 184-190.
備考		

試験物質名	ジメチルスルホキシド	Dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	純度:情報無し	Purity : no data
注釈		
方法		
方法/ガイドライン	他	other
試験のタイプ	体細胞突然変異試験	Somatic mutation assay
GLP適合	情報無し	no data
試験を行った年	1993年	1993
試験系(種/系統)	ショウジョウバエ Drosophila melanogaster	Drosophila melanogaster
	他	other
性別(雄:M、雌:F)	雌雄	male/female
投与量	12.8, 128 mM	12.8, 128 mM
投与経路	経口投与	oral feed
試験期間	3日間	3 days
試験条件	原文参照	DMSO and 180 other chemicals were tested in the w/w+ eye mosaic test which detects somatic cell recombination in adults as a result of treatment during the larval stage. The w/w+ system monitors mosaic light spots in the eyes of adult females. Between 12 and 15 pairs of flies were allowed to mate and lay eggs in bottles on food supplemented with 12.8 mM or 128 mM DMSO. Parental flies were discarded and larval feeding with DMSO continued until hatching. Newly hatched females were removed to fresh medium and scored 1-5 days later. Etherized flies were scored under a disecting microscope. Eye spots separated by at least four normal ommatidia were counted as independent events. A minimum of 250 flies were evaluated for each dose tested; at least two separate experiments were conducted at the same dose levels.
統計学的処理		
結果		
性別及び投与量別の結果		
遺伝毒性効果	陰性	negative
NOAEL (NOEL)		
LOAEL (LOEL)		
統計的結果		
注釈	w/w+ 眼モザイク試験で、DMSOで処理したショウジョウバエ幼生の体細胞DNAに遺伝的な組み換えの証拠は得られなかった。同様の陰性結果は、並行して実施した対照群でも観察された。試験した他の180物質のうち92物質は陽性の結果であった。	There was no evidence of genetic recombination in the DNA of somatic cells of DMSO-treated Drosophila larvae tested in the w/w+ eye mosaic test. A similar negative result was also observed in the parallel control group. 92 of the 180 other chemicals tested were positive.
結論		
*in vivo*遺伝毒性	陰性	negative
注釈		
信頼性	(2)制限付きで有効	(2) valid with restrictions
信頼性の判断根拠		
出典	OECD SIDS Dossier, 2008	OECD SIDS Dossier, 2008
引用文献(元文献)	Vogel EW and Nivard MJM (1993) Performance of 181 chemicals in a Drosophila assay predominantly monitoring intrachromosomal mitotic recombination. Mutagenesis, 8: 57-81.	Vogel EW and Nivard MJM (1993) Performance of 181 chemicals in a Drosophila assay predominantly monitoring intrachromosomal mitotic recombination. Mutagenesis, 8: 57-81.
備考		

5-8 発がん性
CARCINOGENICITY

試験物質名	データなし	no data
CAS番号		
純度等		
注釈		
方法		
方法/ガイドライン		
試験のタイプ		
GLP適合	いいえ	no
試験を行った年		
試験系(種/系統)	ラット	rat
	Sprague-Dawley	Sprague-Dawley
性別(雄:M、雌:F)	雌	female

投与量	50 ppm	50 ppm
各用量群(性別)の動物数		
溶媒(担体)		
投与経路	飲水	drinking water
処理頻度	自由摂取	ad libitum
対照群と処理		
試験条件	暴露期間 : 18ヶ月間 暴露後の期間 : なし	Exposure period : 18 months Post exposure period : none
試験条件	※英文参照	Breast tumors were induced in three groups of 50, 48-day-old, virgin, female, Sprague-Dawley rats with one gavage feeding of 7,12-dimethylbenz-(a)anthracene in one milliliter of sesame oil. With this technique, in this laboratory, palpable tumors begin to appear in four to eight weeks, and essentially all animals develop malignant breast tumors. All the groups received DMBA on the 48th day of lite. Group I was started on DMSO, 50 ppm in the drinking water, three days prior to tumor induction to determine if this would increase the absorption and effect of the DMBA. Group II was started on DMSO, 50 ppm in the drinking water, three days after tumor induction. Group III received no DMSO and served as untreated controls. The animals were checked daily and dead animais removed for autopsy and histological evaluation. All animals were examined at monthly intervals, and all tumors were measured and recorded. All animals were fed Purina Laboratory Chow ad libitum.
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
眼科学的所見(発生率、重篤度)		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
腫瘍発生までの時間		
用量反応性		
統計的結果		
注釈	12から18ヶ月の期間まで3群の間の体重にはほとんど差はなかった。その時点でDMSOを摂取したラットの体重は対照群と比べ若干大きかった。ラットの実際の体重を腫瘍重量から分離することはできないので、これはⅠ及びⅡ群の一部は大きな腫瘍を有したが生存したのに対し、大きな腫瘍を有したⅢ群のラットは死亡したという事実により示されるアーティファクトであろう。 18ヶ月間終了時に3つの群での生存率には有意な差はなかった。Ⅰ群の78%、Ⅱ群の74%及びⅢ群の82%が18ヶ月の試験期間中に死亡した。	There is little difference for the body weight between the three groups until the 12- to 18-month period; at which time the weight of rats receiving DMSO was somewhat greater than that of the controls. Because there was no way of separating actual rat weight from tumor weight, this could be an artifact introduced by the fact that some of Groups I and II were alive with large tumors, while rats in Group III with large tumors were dead. There was no significant difference in survival in the three groups at the end of the 18-month period. 78% of Group I, 74% of Group II, and 82% of Group III died during the 18-month study period.
注釈	Ⅰ群の1匹を除く全例、及びⅡ及びⅢ群の各2匹を除く全例が実験終了時又は死亡時までに腫瘍を発生した。3匹のラットが腫瘍を生じずに実験終了時までに死亡し、試験終了時に触診可能な腫瘍を有さなかったラットは僅か2匹のみであった。腫瘍誘発前にDMSOを摂取したⅠ群では242個、あるいはラット当たり平均4.84個の腫瘍がみられた。腫瘍誘発後にDMSOを摂取したⅡ群では221個、又はラット当たり平均4.42個の腫瘍がみられた。DMSOを摂取しなかったⅢ群では265個、又はラット当たり平均5.3個の腫瘍がみられた。	All but one rat in Group I and all but two rats in each of Groups II and III developed tumors by the end of the experiment, or the time of death. Three rats died before the end of the experiment without tumors, and there were only two rats at the end of the study period which did not have palpable tumors. There were 242, or a mean of 4.84 tumors per rat, in Group I, which received DMSO prior to tumor induction. In Group II, which received DMSO after tumor induction, there were 221, or a mean of 4.42 tumors per rat. In Group III, which received no DMSO, there were 265, or a mean of 5.3 tumors per rat.
注釈	病理学的には腫瘍は乳腺の腺がんであった。それらは急速に成長し、2-3ヶ月でラットを死に至らしめる。3つの群間で組織学的に腫瘍や臓器に差はなかった。Ⅰ群とⅢ群における腫瘍数の差は統計的に有意ではない。Ⅱ群とⅢ群との間の腫瘍数の差は強く示唆されたが、0.05%水準では全く差はなかった。	Pathologically the tumors are adenocarcinoma of the mammary gland. They grow rapidly and kill the rat in two to three months. Histologically there was no difference in the tumors or organs among the three groups. The difference between the number of tumors in Group I and Group III is not statistically significant. The difference between the number of tumors in Group II and Group III is strongly suggestive but not quite significant at the 0.05 per cent level.

結論		
実験動物における発がん性の有無	陰性	negative
注釈	結論： ジメチルベンズアントラセン（DBMA)の発がん性に及ぼすDMSOの影響がラットで検討された。50匹の雌SDラット、2群にDBMA20 mgを強制経口投与した。DMSO（飲水中50 ppm)はDBMA投与3日前、又は3日後に投与を開始し、18ヶ月間投与した。第3の群にはDMSOを与えず、無処置対照群とした。DMSOはDBMAによって誘発される腫瘍の潜時に対し、また腫瘍の頻度にも有益な影響も有害な影響も示さなかった。DMSOを摂取しているラットはより体重が増加し、18ヶ月間の試験終了時には対照群よりも腫瘍は少なかった。これにより、処置群と対照群との間で統計的に有意な差には達しなかったが、DMSOは腫瘍数を減少させることが示唆された。	Conclusion : The effects of DMSO on the tumorigenic activity of dimethylbenz[a]anthracene (DMBA) was investigated in rats. Two groups of 50 female Sprague–Dawley rats were given 20 mg DMBA by gavage. DMSO (50 ppm the drinking water) was started 3 days before or 3 days after DMBA administration and administered for 18 months. A third group received no DMSO and served as untreated controls. DMSO had no beneficial or deleterious effect on the latency of the tumours induced by DMBA nor on the tumour frequency. Rats receiving DMSO weighed more and had fewer tumors than did the controls at the end of the 18–month study period. This was suggestive that DMSO decreased the total number of tumors, although the difference between treated and control rats did not reach statistical significance
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献（元文献）	(84)	(84)
備考		

試験物質名	データなし	no data
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン		
試験のタイプ		
GLP適合	いいえ	no
試験を行った年		
試験系（種／系統）	マウス	mouse
	ICR	ICR
性別（雄：M、雌：F）	雌	female
投与量	20 µg	20 µg
各用量群（性別）の動物数		
溶媒（担体）		
投与経路	経皮	dermal
処理頻度	3回/週	3 time per week
対照群と処理	あり、無処置対照群	yes, concurrent no treatment
試験条件	暴露期間 ： > 400日 暴露後の期間 ： なし	Exposure period : >400 days Post exposure period : none
試験条件	※英文参照	DMSO was used as a solvent in a mouse skin carcinogenicity and tumour– promotion study.The dorsal skin of the mice was shaved initially and when necessary throughout the test. Twenty ICR/Ha Swiss mice received dermal application of 0.1 ml DMSO, 3 times weekly over a period of 400 days, after a primary treatment with DMBA (applied once only, 20µg in 0.1 mlacetone.Animals were examined regularly and scored, and the findings were charted once monthly. Skin lesions were diagnosed as papillomas when they reached 1 mm and persisted for 30 days or more. Animals in poor health or with large tumor masses were killed. Except for the cranial region, animais were completely autopsied at the end of the experiment or at death. Necropsies were performed on all animals, and samples of all abnormal–appearing tissues and organs were excised for histopathological diagnosis. All tissue sections were fixed in 10% formalin, processed, blocked in paraffin, and stained with hematoxylin and eosin for histopathological examination.
試験条件	※英文参照	Female ICR/Ha Swiss mice (ARS/Sprague Dawley, Madison, Wis.) were vaccinated against ectromelia, and treatments were begun when they were 6–8 wk old. The mice were housed in stainless steel cages, five to a cage, on sterile, hardwood chips, fed Purina laboratory chow and water ad libitum, and weighed monthly. The animal rooms were maintained at 22° –24° C.
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見（重篤度、所見の発現時期と持続時間）		
眼科学的所見（発生率、重篤度）		
血液学的所見（発生率、重篤度）		

血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
腫瘍発生までの時間		
用量反応性		
統計的結果		
注釈	平均生存時間は400日以上 (生存率 > 50%)であった。剖検時に皮膚腫瘍はみられなかった。	The mean survival time was higher than 400 days (> 50% of survival). At necropsy no skin tumours was observed.
結論		
実験動物における発がん性の有無	陰性	negative
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(129)	(129)
備考		

試験物質名		
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン		
試験のタイプ		
GLP適合		
試験を行った年		
試験系(種／系統)	マウス	mouse
	その他: C3H 及び CD1	other: C3H and CD1
性別(雄:M、雌:F)	雄	male
投与量		
各用量群(性別)の動物数		
溶媒(担体)		
投与経路	経皮	dermal
処理頻度		
対照群と処理		
試験条件	※英文参照	Both single-stage and two-stage trials on mouse skin were used to help clarify the ambiguities concerning DMSO tumorigenesis.
試験条件	※英文参照	In single-stage studies, DMSO was compared to acetone as solvent for the complete carcinogen benzo[a]pyrene (BP). In initial two-stage trials, DMSO was compared to acetone as solvent for phorbol-12-myristate-13-acetate (PMA). In subsequent two-stage trials, DMSO was applied before promotion with PMA in acetone to avoid DMSO-PMA interactions in vitro. These prepromotion trials included application of DMSO both at the initiation-promotion site (back) and at a distant from initiation-promotion (abdomen) to determine whether the solvant acted directly or indirectly on initiated cells. In addition, other trials tested DMSO as a promoter per se and whether DMSO affected tumorigenesis when used as the solvant for the initiator 7,12-dimethylbenz[a]antracene (DMBA).
試験条件	※英文参照	The general procedure was as follows: Male mice were purchased at 5-7 weeks of age and housed 7-5 each in shoe-box plastic cages with food (Purina Rat Chow) and water ad libitum. The inbred C3H mice were obtained from The Jackson laboratory, and the outbred CD-1 mice from Charles Riverm Breeding Laboratories. Fur was clipped from the initiation and promotion sites (back and/or abdomen) at the stars of treatment and as required subsequently by regrowth of hair.
試験条件	※英文参照	In single-stage work, 125 mg BP was applied respectively twice a week in a volume of 40 µl solvant. In two-stage work, initiation was with from 25 to 100 µg DMBA in 40-80 µl vehicle, and promotion was with 1-5 µg PMA in 40 µl solvant twice a week. Prepromotion treatment with DMSO in doses of 40-80 µl occurred from less than 1 minute to 1 day before promotion. All treatments were delivered by micropipette in multiples of 20 µl.

試験条件	※英文参照	All tumors equal to or greater than 1 mm in diameter were counted weekly and used to calcule incidence (percent mice with tumors) and average number of tumors/mouse (ANT /M). Results are presented primarily in terms of ANT/M ± SE. Most trials were terminated by week 12 when tumor numbers were adequate for statistical analysis, but few could be classified as carcinomas. Body weights were measured at week intervals for use as an indication of general animal status. Multiple trials were used to validate results. Data were examined statistically by Student's t-tests, ANOVA, and linear regression as appropriate.
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
眼科学的所見(発生率、重篤度)		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
腫瘍発生までの時間		
用量反応性		
統計的結果		
注釈	一段階モデル (C3Hマウス)においてDMSOがBPの溶媒であった際には腫瘍数は2倍になった。二段階モデル (CD-1マウス)においてDMSOがイニシエーターとしての役割を果たすDMBAの溶媒であった場合には腫瘍数は影響を受けなかった。 二段階モデルではDMSOが強力なプロモーターであるPMAの溶媒である場合、又はPMAの前にイニシエーション部位 (背中)の皮膚にDMSOを適用した場合に、腫瘍数は対照群の1/3に減少した。 しかしながら、PMAの前にDMSOをイニシエーションから離れた部位の腹部に適用した場合、腫瘍数は倍増した。	When DMSO was the solvent for BP in the single-stage model (C3H mice), tumor numbers doubled. When DMSO was the solvent for DMBAserving as initiator in the two-stage model (CD-1 mice), tumor numbers were unaffected. In the two-stage model, when DMSO was the solvent for the potent promoter PMA or was applied to skin at the initiation site (the back) before PMA, tumor numbers were reduced to one-third of control. However, when DMSO was applied before PMA to the abdomen, a site remote from initiation, tumor numbers doubled.
結論		
実験動物における発がん性の有無		
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(105)	(105)
備考		

試験物質名	データなし	no data
CAS番号		
純度等		
注釈		
方法		
方法/ガイドライン		
試験のタイプ		
GLP適合	いいえ	no
試験を行った年		
試験系(種/系統)	ラット	rat
	Sprague-Dawley	Sprague-Dawley
性別(雄:M、雌:F)	データなし	no data
投与量		
各用量群(性別)の動物数		
溶媒(担体)		
投与経路	経皮	dermal
処理頻度	週に3回	3 times a week
対照群と処理		
試験条件	暴露期間 : 少なくとも26週間 暴露後の期間 : データなし	Exposure period : at least 26 weeks Post exposure period : no data

試験条件	※英文参照	Sprague-Dawley rats were kept in plastic cages, 10 in each, and fed animal fodder and water ad libitum. The carcinogen used was 9,10-dimethylbenzanthracene (DMBA) (Gurr). 40 animals were treated 3 times a week with DMBA dissolved in DMSO, the dose was 0.02 ml of a 1% solution (group 1). Another 40 rats (group 2) were similarly treated, using acetone as solvent. Group 3 (40 animals) received only DMSO, 0.02 ml. The carcinogen was applied on the skin between the flanks with a precision pipette. The animals were observed weekly and the number of tumours counted. Specimens were taken from all tumeurs for histological examination at the end of the experiment. The specimens were fixed in neutral buffered formalin and stained with haematoxylin-eosin.
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
眼科学的所見(発生率、重篤度)		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
腫瘍発生までの時間		
用量反応性		
統計的結果		
注釈	腫瘍数、担腫瘍動物数、最初の腫瘍が現れるまでの時間である潜時は表1に示されている。	The The number. of tumours, number of tumeur bearing animais and time of latency, of the time of the appearance of the first tumour, are shown in Table 1.
注釈	群 DMBA + DMSO / DMBA + acetone / DMSO 潜時 (週間) 34 / 26 / - 腫瘍数 10/40 / 34/40 / 0/40 担腫瘍動物数 乳頭腫 32 / 141 / - 扁平細胞がん 4 / 26 / - 肉腫 4 / - / - その他 4 / 5 / -	Group DMBA + DMSO / DMBA + acetone / DMSO Time of latency (weeks) 34 / 26 / - Number of tumours 10/40 / 34/40 / 0/40 Number of tumour bearing animals Papillomas 32 / 141 / - Squamous cell carcinomas 4 / 26 / - Sarcomas 4 / - / - Other 4 / 5 / -
注釈	1群: 生じた大部分の腫瘍は乳頭腫であった - 線維性の茎を被っている表皮の過形成からなる線維乳頭腫または間質部分がまばらな棘乳頭腫のいずれかであった。 2群: アセトンを溶媒として使用したこの群で生じた腫瘍は組織学的には1群で生じた腫瘍と有意な差はなかった。3群: DMSOのみで処置したこの群には腫瘍性又は前腫瘍性変化は検出されなかった。	Group 1: Most tumours produced were papillomas - either fibropapillomas, composed of a hyperplastic epidermis covering a fibrous stalk, or. acanthopapillomas, where the stromal part was scarce Group 2: Histologically, the tumours produced in this group, where acetone was used as solvent, did not significantly differ from those produced in group 1. Group 3: No neoplastic or preneoplastic changes were detected in this group, treated with DMSO alone.
結論	¥	
実験動物における発がん性の有無		
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(174)	(174)
備考		

試験物質名	データなし	no data
CAS番号		
純度等		
注釈		
方法		
方法/ガイドライン		
試験のタイプ		
GLP適合	いいえ	no
試験を行った年		
試験系(種/系統)	マウス	mouse
	その他: CBA x C57Bl	other: CBA x C57Bl
性別(雄:M、雌:F)	雄	male
投与量		
各用量群(性別)の動物数		

溶媒（担体）		
投与経路	経皮	dermal
処理頻度	週1回	once a week
対照群と処理		
試験条件	暴露期間 ： 少なくとも13週間 暴露後の期間 ： なし	Exposure period : at least 13 weeks Post exposure period : none
試験条件	※英文参照	Experients were carried out on male CBA x C57BL hybrid mice weighing 20–22 g at the beginning of the experiment. 20–methylcholanthrene (MC) was used as 0.25 and 0.5% solutions in benzene or DMSO, which were applied in a volume of 0.02 ml to the previously shaved skin of the interscapular region once a week until the end of the experiment. The following parameters were determined: the time of appearance of the first papilloma and of the first carcinoma, the mean latent period of development of each type of tumor, and the mean number of papillomas per mouse.The mice of group 1 were treated with a 0.25% solution of MC in DMSO, and those of group 2 (control to group 1) with a 0.25% solution of MC in benzene. The mice of group 3 were treated with a 0.5% solution of MC in DMSO, and those of group 4 (control to group 3) with the same concentration of MC in benzene.
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見（重篤度、所見の発現時期と持続時間）		
眼科学的所見（発生率、重篤度）		
血液学的所見（発生率、重篤度）		
血液生化学的所見（発生率、重篤度）		
尿検査所見（発生率、重篤度）		
死亡数（率）、死亡時間		
剖検所見（発生率、重篤度）		
臓器重量		
病理組織学的所見（発生率、重篤度）		
実際に摂取された量		
腫瘍発生までの時間		
用量反応性		
統計的結果		
注釈	Ⅰ群の動物における最初の乳頭腫は対応する対照群 (2)よりも3週間早く検出され、最初のがんは同対照群よりも1週間早く発見された。平均潜伏期間は乳頭腫に対しては0.8週短く、がんに対しては0.4週短かったが、これらの差は統計的に有意ではなかった。3群では2回のMC投与で最初の乳頭腫及び最初のがんの出現は1週間早く観察され、平均潜伏期間は乳頭腫及びがんの両方に対して有意に短く（約1週間)なった。対照群と実験群との間でマウス当たりの平均腫瘍数には有意差はみられなかった。	The first papilloma in the animals of group 1 was discovered 3 weeks earlier, and the first carcinoma one week earlier than in the corresponding control group (2). The mean latent period was 0.8 week less for the papillomas and 0.4 week less for the carcinomas, but these differences are not statistically significant. In group 3, with twice the MC concentration, the appearance of the first papilloma and the first carcinoma was observed 1 week sonner and the mean latent period was significantly shorter (also by 1 week) for bothe papillomas and carcinomas. No significant differences were found in the mean number of papillomas per mouse between the control and experimental groups.
結論		
実験動物における発がん性の有無		
注釈	結論 ： DMSO中0.25%のMC溶液の適用後に発がんが加速化する傾向がみられたが、MC濃度の2倍の増加ではより明確な発がん性の促進がみられた。本実験における皮膚腫瘍へのDMSOの促進作用は皮膚角質層を通してのDMSOの急速な透過により生じる発がん物質の有効量の増加により説明が可能である。	Conclusion : After application of a 0.25% solution of MC in DMSO there was thus only a tendency for carcinogenesis to be speeded up, but a twofold increase in the MC concentration was accompanied by a more definite acceleration of carcinogenesis. The accelerating action of DMSO on cutaneous carcinogenesis in this experiment can be explained by the increase in the effective dose of the carcinogen resulting from its more rapid penetration through the stratum corneum of the skin.
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献（元文献）	(82)	(82)
備考		

試験物質名		
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン		

試験のタイプ		
GLP適合	データなし	no data
試験を行った年		
試験系（種／系統）	マウス	mouse
	その他： hr/hr Oslo	other: hr/hr Oslo
性別（雄：M、雌：F）	雌雄	male/female
投与量		
各用量群（性別）の動物数		
溶媒（担体）		
投与経路	経皮	dermal
処理頻度	週1回	once a week
対照群と処理		
試験条件	暴露期間 ： 5週間 暴露後の期間 ： 70週間	Exposure period : 5 weeks Post exposure period : 70 weeks
試験条件	※英文参照	AnimalsHairless mice of both sexes of the hr/hr Oslo strain reared by Garnie Bomholt Gaard, Aarhus, Denmark, were used. Spontaneous skin tumors have not been observed in these animais. All the mice were housed in plastic cages in the same room, with constant 12 h light/darkness rhythm, 6–8 in each box, and fed a standard diet and water ad libitum. Treated and control animais were kept in the same room. The cages were cleaned and fresh water supplied three times a week.Application of carcinogen in varions solvent mixtures20–Methylcholanthrene (MCA) was obtained from Eastman Organic Chemicals, and DMSO from Merck AG. The mice were randomly allocated to three experimental groups, and all were treated 5 times at one week intervals with applications of 0.2 ml of the various solutions studied. Group 1 (53 animals) received the mixed solvent alone, consisting of 50% reagent grade acetone and 50% DMSO. Group 2 (47 animals) received in each application 470 nmol MCA dissolved in acetone; and Group 3 (56 animais) received the same amount of MCA dissolved in 50% acetone/50% DMSO.ObservationThe animals were examined once a week during an observation period of 75 weeks. Bach outgrowth was recorded and registered as a tumor when present for more than two observations.
試験条件	※英文参照	Whenever possible (i.e. except when precluded by extensive autolysis) an autopsy was made and all lesions were examined histologically. The malignant tumors were diagnosed clinically as soon as they developed by assessing the degree of in–filtration by palpation. All tumors registered as malignant were histologically verified. Infiltration below the musculus paniculus was used as the criterion of malignancy for epiderrnal tumors.Statistical evaluationThe results are presented as tumor rates (the percentage of tumor–bearing and cancer–bearing animals in relation to the number of animals alive at appearance of the first tumor), and the adjusted tumor yields (the cumulative occurrence of all skin tumors and of cancers with respect to time, adjusted for mortality and for group size at start).To evaluate differences in tumor rates statistically, the method for 'non–incidental' tumors described by Peto, which cakes care of varying mortality rates among the experimental groups, has been used. The survival curves have been evaluated with the 2–sided logrank test.
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見（重篤度、所見の発現時期と持続時間）		
眼科学的所見（発生率、重篤度）		
血液学的所見（発生率、重篤度）		
血液生化学的所見（発生率、重篤度）		
尿検査所見（発生率、重篤度）		
死亡数（率）、死亡時間		
剖検所見（発生率、重篤度）		
臓器重量		
病理組織学的所見（発生率、重篤度）		
実際に摂取された量		
腫瘍発生までの時間		
用量反応性		
統計的結果		

注釈	アセトン/DMSO中MCAで処置した群は他の2群よりも高い死亡率を示した。溶媒に50%DMSOを混合すると腫瘍及びがんの頻度及びがんの発生への有意な抑制効果を示したが、腫瘍発生への影響はみられなかった。すなわち、溶媒中の50%DMSOはMCA誘発性の皮膚のがん化に中程度だが有意な抑制作用を有していた。	The group treated with MCA in acetone/DMSO had a higher mortality than the two other groups. The admixture of 50% DMSO to the solvent had a significant inhibitory effect on tumor and cancer rates and on cancer yield, whereas no effect could be observed on the tumor yield. Hence, 50% DMSO in the solvent has a moderate, but significant, inhibitory effect on MCA-induced skin carcinogenesis
結論		
実験動物における発がん性の有無		
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(174)	(174)
備考		

5-9 生殖・発生毒性(受胎能と発生毒性を含む)
REPRODUCTIVE TOXICITY(Including Fertility and Development Toxicity)

A. 受胎能
FERTILITY

試験物質名	ジメチルスルホキシド	Dimethyl sulfoxide
CAS番号	67-68-5	67-68-5
純度等	供給源: ARKEMA France バッチ番号 : 28/08/06 純度: 99.977%	Source: ARKEMA France Batch no. : 28/08/06 Purity: 99.977%
注釈		
方法		
方法/ガイドライン	その他: OECDガイドライン421	other: OECD Guide-line 421
試験のタイプ	その他: 生殖/発生毒性スクリーニング試験	other: reproduction/developmental toxicity screening test
GLP適合	はい	yes
試験を行った年	2006	2006
試験系(種/系統)	ラット	rat
	Sprague-Dawley	Sprague-Dawley
性別(雄:M、雌:F)	雌雄	male/female
投与量	100、300 及び 1000 mg/kg/日	100, 300 and 1000 mg/kg/day
各用量群(性別)の動物数		
溶媒(担体)		
投与経路	強制経口	gavage
試験期間	10週間	10 weeks
交配前暴露期間		
試験条件	暴露期間 : * 雄:交配前2週間、交配期間 (2週) 及び屠殺まで。 * 雌: 交配前2週間、交配期間 (2週)、妊娠 (3週)、及び分娩後21日までの哺育期間 処理頻度 : 7日/週 対照群 : あり、媒体対照	Exposure period : * Males: during 2w before mating, the mating period (2w) and until sacrifice. * Females: during 2w before mating, the mating period (2w), pregnancy (3w), and lactation until day 21 pp inclusive Frequency of treatm. : 7 days per week Control group : yes, concurrent vehicle
試験条件	※英文参照	CLINICAL EXAMINATIONS - Morbidity and mortality: at least twice a day - Clinical signs: at least once a day - Body weight: . males: on day 1, then once a week until sacrifice . females: on day 1, then once a week until mated, then on days 0, 7, 14 and 20 pc and on days 1 and 4 pp and then weekly until day 21 pp. - Food consumption . males: once a week (except during the mating period) until sacrifice . females: once a week during the premating period and then on the following intervals: days 0-7, 7-14, 14-20 pc, and days 1-7, 7-14 and 14-21 pp. MATING - Mating procedure: one female was placed with one male from the same dose-level group. The estrous cycle stage was determined from a fresh vaginal lavage (stained with methylene blue), each morning during the mating period, until the females mated PARTURITION Females were allowed to drop their litters normally and rear their progeny until sacrifice

試験条件	※英文参照	OBSERVATIONS OF THE PROGENY DURING THE POST-PARTUM PERIOD - Litter size: total litter size and numbers of pups of each sex were recorded as soon as possible after birth. The litters were observed daily. - Clinical signs: daily - Body weight: days 1 and 4 pp and then weekly until day 21 pp PATHOLOGY - Sacrifice . males: after the end of the mating period, . females: on day 22 pp, . females which had not delivered by day 25 pc: on day 25 pc . females which did not mate: 24 days after the end of the mating period, . pups: on day 22 pp. - Organ weights: Epididymides, kidneys, Liver, Prostate, Seminal vesicles and Testes - Macroscopic post-mortem examination: on all parent animals. In all females, the number of implantation sites and corpora lutea were recorded. - Pups: gross external examination before sacrifice - Preservation of tissues: ovaries, prostate, seminal vesicles, uterus (horns and cervix), vagina, liver and kidneys, in 10% buffered formalin. Testes and epididymides, in Bouin's fluid - Microscopic examination: ovaries, testes and epididymides of all males and females in the control and high-dose groups.
試験条件	※英文参照	ANIMALS - Number: 12 males and 12 females per dose - Strain : Sprague-Dawley Crl CD (SD) IGS BR - Breeder: Charles River Laboratories France, L'Arbresle, France - Age at the beginning of the treatment period: 10 weeks old - Weight at the beginning of the treatment period: 372 g (range: 333 g to 396 g) for the males and 241 g (range: 211 g to 280 g) for the females - Acclimation: 6-days before the beginning of the treatment period ENVIRONMENTAL CONDITIONS - Temperature : 22 ± 2° C - Relative humidity : 50 ± 20% - Light/dark cycle : 12h/12h (7:00 - 19:00) - Ventilation : about 12 cycles/hour of filtered, non-recycled air. HOUSING The animals were housed individually in polycarbonate cages or in wire-wesh cages. Autoclaved wood shavings were provided as nesting material, a few days before delivery and during the lactation period
試験条件	※英文参照	FOOD and WATER - Food: SSNIFF R/M-H pelleted maintenance diet ad libitum - Water: filtered '0.22 µm filter) tap water ad libitum TREATMENT - Vehicle: purified water, obtained by reverse osmosis - Dosage form preparation: solution in the vehicle at 20, 60 and 200 mg/mL, expressed as active substance. - Volume: 5 ml/kg - Chemical analysis of the dosage forms: On weeks 1, 4 and 9
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見（重篤度、所見の発現時期と持続時間）		
妊娠率（妊娠個体数/交配数）		
交尾前期間（交配までの日数及び交配までの性周期回数）		
妊娠期間（妊娠0日から起算）		
妊娠指数（生存胎仔数/着床痕数）		
哺乳所見		
性周期変動		
精子所見		
血液学的所見（発生率、重篤度）		
血液生化学的所見（発生率、重篤度）		
尿検査所見（発生率、重篤度）		
死亡数（率）、死亡時間		
剖検所見（発生率、重篤度）		
着床数		

黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
膣開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果		
注釈	投与量フォームの化学分析 - 濃度: 設定濃度及び実際の濃度の間は満足いく一致(±8%)	CHEMICAL ANALYSES OF THE DOSAGE FORMS - Concentration: satisfactory agreement (± 8%) between the nominal and actual concentrations
注釈	臨床検査 - 死亡率 .雄: いずれの群にも死亡例なし .雌: いずれの群にも死亡例なし 300 mg/kg/日で処置した雌1例は交配の証拠がみられなかったので、交配期間終了後に屠殺した。 300 mg/kg/日で交配した雌2例、処置した1例、及び1000 mg/kg/日で処置した1例を分娩しなかったため屠殺した。 - 臨床症状 雄及び雌では試験中に投与に関連した臨床症状はみられなかった。 - 体重 .雄: 投与に関連した影響なし .雌: 全用量レベルで交配前期間に対照群よりも体重増加は軽度に低下した(-11%、-26%、-22%)が、妊娠及び哺育期間中の体重増加量は対照群と同程度であった。 - 摂餌量: 摂餌量に変化なし	CLINICAL EXAMINATIONS - Mortality . Males: no deaths in any group. . Females: no deaths in any group. One female treated at 300 mg/kg/day was sacrificed after the end of the pairing period as no evidence of mating has been observed. Two mated females, one treated at 300 mg/kg/day and one treated at 1000 mg/kg/day were sacrificed after no delivery. - Clinical symptoms No treatment-related clinical signs were observed during the study in males and females. - Body weight . Males: no effect related to treatment . Females: at all dose-levels, they gained slightly less weight (-11%, -26%, -22%) during the pre-pairing period than the controls, although weight gains during gestation and lactation were similar to the controls. - Food consumption: no change in food consumption
注釈	交配及び繁殖能のデータ - 交配率: 投与に関連した影響なし - 繁殖指数: 投与に関連した影響なし - 妊娠期間: 投与に関連した影響なし - 分娩データ: 投与に関連した影響なし 生後の児の観察 - 死亡率: 100 mg/kg/日で分娩後1-4日に死亡した児動物数は対照群の値よりも統計的に有意に高かった。死亡児は6つの腹に分布したが、300又は1000 mg/kg/日投与群の死亡児数に有意な増加はなく、生存率はなお93%であり、分娩後4日以降には死亡例はなく、これは投与に関連したものではないと考えられた。 - 臨床症状: 投与に関連した影響なし - 児の体重: 投与に関連した影響なし - 性比: 投与に関連した影響なし	MATING AND FERTILITY DATA - Mating index: no treatment-related effect - Fertility index: no treatment-related effect - Duration of gestation : no treatment-related effect - Delivery data: no treatment-related effect OBSERVATION OF THE PUPS AFTER BIRTH - Mortality: At 100 mg/kg/day, the number of pups dying between days 1 and 4 post-partum was statistically significantly higher than control values. The dead pups were distributed among six litters although as the number of dead pups in the groups treated at 300 or 1000 mg/kg/day was not significantly increased and as the viability index was still 93% and as there were no more deaths after day 4 post-partum, this was considered not to be related to treatment. - Clinical signs: no treatment-related effect - Pup body weight: no treatment-related effect - Sex ratio: no treatment-related effect
注釈	病理所見 * 親世代: - 臓器重量 毒性学的意義はないと考えられるマイナーな差異が1000 mg/kg/日投与の雄と対照群の肝臓、前立腺及び精巣重量にみられた。 - 肉眼的剖検所見 : 投与に関連した影響なし - 顕微鏡検査: .精巣のステージング: 投与に関連した影響はみられなかった。 .卵巣: 投与に関連した影響はみられなかった。 * 児動物: 児動物の剖検所見は1000 mg/kg/日投与群で腎盂の拡張を有する児の頻度の最高値に限定された。しかしながら、この影響は統計的に有意ではなく、歴史的な値の範囲内で、100又は300 mg/kg/日で投与した群では用量相関性はなかった。	PATHOLOGY * Parental generation: - Organ weights Minor differences, considered to be of no toxicological significance, were observed in the weights of liver between males given 1000 mg/kg/day and controls and of prostate and testis. - Macroscopic post-mortem examination : no treatment-related effect - Microscopic examination: . Testicular Staging: No treatment-related changes were observed. . Ovaries: No treatment-related changes were observed. * pups: Pup necropsy findings were limited to a highest incidence of pups with dilated renal pelvis in the group treated at 1000 mg/kg/day. However, this effect was not statistically significant, in the range of the historical values and there was no dose-relationship between the groups treated at 100 or 300 mg/kg bw/d.

注釈	腎盂拡張を示す児動物又は腹の数: 用量レベル 0 (対照群) 100 300 1000 (mg/kg/日) ---------- # 評価した児動物 94 96 76 88 # 影響のあった児 (%)(a) 2 (2.1) 4 (4.2) 2 (2.6) 8 (9.1) # 評価した腹 12 12 10 1 # 影響のあった腹 (%)(a) 2(16.7) 3(25.0) 2(20.0) 4(36.4) ---------- 記述された以外: 統計的有意差なし (a) Fisher の正確検定	Number of pups or litters presenting dilated renal pelvis: Dose-level 0 (Control) 100 300 1000 (mg/kg/day) ---------- # pups evaluated 94 96 76 88 # pups affected (%)(a) 2 (2.1) 4 (4.2) 2 (2.6) 8 (9.1) # Litters evaluated 12 12 10 1 # Litters affected (%)(a) 2(16.7) 3(25.0) 2(20.0) 4(36.4) ---------- Except where stated: no statistical significance (a) Fisher exact test
結論		
PIに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈	結果: 交配及び繁殖能に関して、又は児の離乳前の成長に関して影響なし。親動物の毒性に対するNOAELは1000 mg/kg/日、生殖能及び子孫への毒性影響に対するNOELは1000 mg/kg/日であった。	Result : No effects on mating and fertility or on pre-weaning development of the progeny. The NOAEL for parental toxicity was 1000 mg/kg/day, the NOEL for reproductive performormance and for toxic effects on the progeny was 1000 mg/kg/day.
注釈	結論 : 雌雄のSDラットへの100、300又は1000 mg/kg/日でのジメチルスルホキシド(DMSO)の経口投与は全ての用量で動物は十分に耐えた。雌雄の生殖能にも親ラットの子孫へも、1000 mg/kg/日までの用量では物質投与に関連した影響はみられなかった。親の毒性、生殖能 (交配及び繁殖能)、及び児の毒性影響に対する無影響量 (NOEL)は1000 mg/kg/日であると考えられる。	Conclusion : The oral administration of DIMETHYL SULFOXIDE (DMSO) at 100, 300 or 1000 mg/kg/day to male and female Sprague Dawley rats, was well tolerated at all dose-levels. There were no substance-induced effects on the male and female reproductive performance, nor on the progeny of the parental rats up to 1000 mg/kg/day. The no observed effect level (NOEL) for parental toxicity, reproductive performance (mating and fertility) and for toxic effects on the progeny is considered to be 1000 mg/kg/day.
注釈	注釈: 腎盂拡張の歴史的対照値: 胎児の頻度(%) 腹の頻度(%) 平均 S.D. 最大値 平均 S.D. 最大値 1.149 2.06 12.64 6.966 11.30 68.18 MARTA (1993) Historical Control Data for Development and Reproductive Toxicity Studies using the CrI:CD®BR Rat. Charles River laboratories.: http://www.criver.com/flex_content_area/documents/rm_rm_r_tox_studies_crlcd_br_rat.pdf).	Remark : Historical control values for the distended renal pelvis: Fetal incidence(%) Litter incidence(%) AVG S.D. MAX AVG S.D. MAX 1.149 2.06 12.64 6.966 11.30 68.18 MARTA (1993) Historical Control Data for Development and Reproductive Toxicity Studies using the CrI:CD®BR Rat. Charles River laboratories.: http://www.criver.com/flex_content_area/documents/rm_rm_r_tox_studies_crlcd_br_rat.pdf).
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		
引用文献(元文献)	(10)	(10)
備考	フラグ : 製品安全性データセット、SIDSエンドポイントにとって重量な試験	Flag : Material Safety Dataset, Critical study for SIDS endpoint

試験物質名	ジメチルスルホキシド	Dimethylsulfoxyde
CAS番号	67-68-5	67-68-5
純度等	供給源: Sigma Aldrich バッチ : 29356-089 純度 : > 99%	Source: Sigma Aldrich Batch : 29356-089 Purity : > 99%
注釈		
方法		
方法／ガイドライン	その他: OECDガイドライン 413	other: OECD guide-line 413
試験のタイプ	その他: 生殖器官毒性	other: reproductive organs toxicity
GLP適合	はい	yes
試験を行った年	2000	2000
試験系(種／系統)	ラット	rat
	Sprague-Dawley	Sprague-Dawley
性別(雄:M、雌:F)	雌雄	male/female
投与量	0.310、0.964 及び 2.783 mg/l	0.310, 0.964 and 2.783 mg/l
各用量群(性別)の動物数		
溶媒(担体)		
投与経路		
試験期間		13 weeks
交配前暴露期間		

試験条件	暴露期間 : 13週間 処理頻度 : 6時間/日、7日/週 対照群 : あり、媒体対照	Exposure period : 13 weeks Frequency of treatm. : 6 hours/day, 7 days/week Control group : yes, concurrent vehicle
試験条件	※英文参照	During the 90-day inhalation toxicity study reported in section 5.4, the oestrus cycle of female rats was monitored, male rats were subjected to sperm investigations (count, motility and morphology) and the reproductive organs of both sexe were examined histologically.
統計学的処理		
結果		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
妊娠率(妊娠個体数/交配数)		
交尾前期間(交配までの日数及び交配までの性周期回数)		
妊娠期間(妊娠0日から起算)		
妊娠指数(生存胎仔数/着床痕数)		
哺乳所見		
性周期変動		
精子所見		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
尿検査所見(発生率、重篤度)		
死亡数(率)、死亡時間		
剖検所見(発生率、重篤度)		
着床数		
黄体数		
未熟卵胞数		
臓器重量		
病理組織学的所見(発生率、重篤度)		
実際に摂取された量		
用量反応性		
同腹仔数及び体重		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
離乳までの分娩後生存率		
新生仔所見(肉眼的な異常)		
生後発育及び発育率		
膣開口又は精巣下降(包皮分離)		
生殖器-肛門間距離などその他の観察事項		
臓器重量		
統計的結果		
注釈	結果 : 2.783 mg/l まで投与に関連した影響なし	Result : No treatment related effects were observed up to 2.783 mg/l
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)		
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)		
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		
引用文献(元文献)	(75)	(75)
備考	フラグ : SIDSエンドポイントにとって重要な試験	Flag : Critical study for SIDS endpoint

B. 発生毒性
DEVELOPMENTAL TOXICITY

試験物質名	ジメチルスルホキシド	dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	供給源: Elf Aquitaine Production バッチ番号: T8315 純度: 99.89%	Source: Elf Aquitaine Production Batch number: T8315 Purity: 99.89%
注釈		
方法		
方法/ガイドライン	OECD ガイドライン 414「催奇形性」	OECD Guide-line 414 "Teratogenicity"
GLP適合	はい	yes
試験を行った年	1997	1997
試験系(種/系統)	ラット	rat
	Sprague-Dawley	Sprague-Dawley

性別(雄:M、雌:F)	雌	female
投与量	200、1000、5000 mg/kg	200, 1000, 5000 mg/kg
各用量群(性別)の動物数		
投与経路	強制経口	gavage
試験期間	妊娠20日に屠殺	sacrifice on day 20 of gestation
交配前暴露期間		
試験条件	暴露期間 : 10日、妊娠6-15日 処理頻度 : 毎日 対照群 : あり、媒体対照	Exposure period : 10 days, days 6-15 of gestation Frequency of treatm. : daily Control group : yes, concurrent vehicle
試験条件	※英文参照	Three groups of 25 mated female rats received DMSO by gavage at the dose levels of 200, 1000, and 5000 mg/kg/day as a solution in purified water. DMSO was administered each day from day 6 to day 15 of gestation. A control group of 25 mated females was given the vehicle alone. Day 0 of pregnancy was designated as the day of confirmed mating. Clinical signs including mortality and evidence of abortion were checked daily. Food consumption and body weight were recorded at designated intervals during pregnancy. On day 20 of pregnancy, females were killed. The gravid uterus was weighed and fetuses removed by hysterectormy. Females were examined macroscopically. Litter parameters were recorded: number of corpora lutea, implantation sites, early and late resporptions, and dead and live fetuses. Fetuses were weighed, sexed, and submitted to external examination and then to soft tissue or skeletal examinations.
試験条件	※英文参照	- Animals and husbandry One hundred time-mated Sprague-Dawley rats, Crl CD¿ (Sd) BR, were obtained from Charles River (Saint-Aubin-lès-Elbeuf, France), day 0 post-coitum (p.c.) designated the day when vaginal plug was observed. Rats were housed individually in solid-bottomed polycarbonate cages lined with autoclaved sawdust (SICSA, Alfortville, France). Animals were housed in a protected unit, where relative humidity was set at 50 + 20% and temperature at 21 + 2° C and 18 + 3° C, respectively. Maintenance pelleted diet, type A04C (rats) or A110C (rabbits) (UAR, Villemoisson-sur-Orge, France) and filtered tap water were available ad libitum.
統計学的処理		
結果		
死亡数(率)、死亡時間		
用量あたり妊娠数		
流産数		
早期/後期吸収数		
着床数		
黄体数		
妊娠期間(妊娠0日から起算)		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
剖検所見(発生率、重篤度)		
臓器重量(総子宮量への影響)		
病理組織学的所見(発生率、重篤度)		
同腹仔数及び体重		
生存数(生存胎仔数及び胎仔数)		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
生後発育		
分娩後生存率		
肉眼的異常(外表観察、内臓標本、骨格標本)		
実際に投与された量		
用量反応性		
統計的結果		

注釈	母動物のデータ: 投与群又は対照群には臨床症状は観察されなかった。いずれの群にも母動物の死亡例又は流産は生じなかった。投与期間中、5000 mg/kg群の雌では摂餌量の低値（対照群に比べて−11%)が認められた。 5000 mg/kg/日を投与した妊娠雌の体重増加量は投与期間中、対照群よりも軽度に低下した。41 g 対 60 g（すなわち、−32%、p<0.001)。これは妊娠20日に平均絶対体重で対照群と比べて−4%（365 g 対 382 g)の低値であった。 いずれの雌にも剖検時に肉眼的所見は認められなかった。	Maternal data: There were no clinical signs observed in treated or control groups. No maternal deaths or abortions occurred in any group. Lower food consumption (−11% compared to control) was noted in females of the 5000 mg/kg group during the treatment period. The body weight gain of the gravid females given 5000 mg/kg/d was slightly lower that of controls, during the treatment period: 41 g vs. 60 g (i.e. −32%, p<0.001); this resulted in mean absolute body weight on day 20 of pregnancy lower by −4% (365g vs. 382g) compared to controls). No macroscopic findings were noted at necropsy in any of the females.
注釈	腹のデータ: 着床前及び着床後の胚損失は全ての群で同様であった。胎児数又は性比に投与に関連した影響はみられなかった。5000 mg/kg/日群では胎児の体重は対照群よりも軽度に低値を示した。3.54 g 対. 3.79g (−7%, p< 0.05)で、部分的には母動物の摂餌量及び体重増加量の減少の間接的な結果であった。	Litter data: Pre− and post−implantation losses were similar in all groups. No treatment−related effects were observed on the number of fetuses or the sex ratio. In the 5000 mg/kg/day group, fetal body weights were slightly lower than that of controls: 3.54 g vs. 3.79g (−7%, p< 0.05), an indirect consequence, at least in part, of decreased maternal food consumption and body weight gain.
注釈	胎児検査: いずれの群の胎児にも外表の奇形や異常はみられなかった。軟組織の変異は統計的に有意ではないが、軽度に増加した腎盂の拡張の頻度であり、200 mg/kg/日のみで統計的に有意であり（下表)、5000 mg/kg体重/日での尿管拡張の頻度の軽度増加を伴っていた。いずれのケースも頻度は歴史的対照値の範囲内であった。顕微鏡検査で腎盂の拡張を示す胎児の腎臓は対照群と投与群で同一の形態的構造を有し、(片側性変化の場合には)反対側の腎臓も影響のあった腎臓と同一の構造を有していた。	Fetal examination: No external malformations or anomalies were observed in fetuses from any group. The soft tissue variations were confined to a slightly, not statistically significant, increased incidence of dilated renal pelvis (Table below) only statistically significant at 200 mg/kg bw/d, associated at 5000 mg/kg bw/d with a slightly increased incidence of dilated ureter(s). In both cases, the incidences were in the range of the historical control values. At microscopic examination, the fetal kidneys displaying dilatation of the renal pelvis had the same morphological structure in the control and in the treated groups and the contralateral kidney (in the case of unilateral change) had the same structure as the affected kidney.
注釈	顕著な腎臓の所見のまとめ ――――――――――――――――――――――――― 用量レベル (mg/kg/日) 0 200 1000 5000 ――――――――――――――――――――――――― # 評価した胎児 114 147 133 139 # 評価した腹 18 22 21 22 腎臓の腎盂の拡張 # 影響のあった胎児 (%) (a) 2(1.8) 13(8.8)* 7(5.3) 7(5.0) # 影響のあった腹 (%)(a) 1(5.6) 7(31.8) 6(28.6) 6(27.3) 尿管の拡張 # 影響のあった胎児 (%) (a) 3(2.6) 8(5.4) 2(1.5) 10(7.2) # 影響のあった腹 (%) (a) 2(11.1) 5(22.7) 2(9.5) 8(36.4) 両所見を伴った # 影響のあった胎児 2 5 2 3 ――――――――――――――――――――――――― 記述された以外：統計的に有意差なし ＊：p< 0.05 (a) Fisher の正確検定	Summary of remarkable kidney findings ――――――――――――――――――――――――― Dose−level (mg/kg/day) 0 200 1000 5000 ――――――――――――――――――――――――― # Fetuses evaluated 114 147 133 139 # Litters evaluated 18 22 21 22 Dilatation of pelvis of kidney(s) # fetuses affected (%) (a) 2(1.8) 13(8.8)* 7(5.3) 7(5.0) # Litters affected (%)(a) 1(5.6) 7(31.8) 6(28.6) 6(27.3) Dilatation of ureter(s) # fetuses affected (%) (a) 3(2.6) 8(5.4) 2(1.5) 10(7.2) # litters affected (%) (a) 2(11.1) 5(22.7) 2(9.5) 8(36.4) Both finding associated # Fetuses affected 2 5 2 3 ――――――――――――――――――――――――― Except where stated: no statistical significance ＊：p< 0.05 (a) Fisher exact test
注釈	投与に関連した軟組織の奇形はみられなかった。投与に関連した骨格の変異又は奇形はいずれの群にもなかった。肋骨の骨化の低下又は遅延の頻度増加が5000 mg/kg群の胎児にみられた。この骨格異常はこの群でみられた胎児体重の低値の結果であると思われる。	No treatment−related soft tissue malformations were observed. There were no treatment−related skeletal variations or malformations in any group. An increased incidence of reduced or delayed ossification of ribs was observed in fetuses of the 5000 mg/kg group. This skeletal anomaly is considered to be a consequence of the lowered fetal body weights observed for this group.
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL 母動物毒性 ： = 1000 mg/kg 体重	NOAEL maternal tox. : = 1000 mg/kg bw
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL 催奇形性 ： = 1000 mg/kg 体重	NOAEL teratogen. : = 1000 mg/kg bw
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		

注釈	注釈 : 腎盂及び尿管の拡張の歴史的対照値: 胎児の頻度(%) 腹の頻度(%) 平均値 S.D. 最大値 平均値 S.D. 最大値 腎盂拡張 1.149 2.06 12.64 6.966 11.30 68.18 尿管の拡張 2.874 5.48 28.28 12.394 20.92 78.26 MARTA (1993) Historical Control Data for Development and Reproductive Toxicity Studies using the CrI:CD®BR Rat. Charles River laboratories. http://www.criver.com/flex_content_area/documents/rm_rm_r_tox_studies_crlcd_br_rat.pdf).	Remark : Historical control values for the distended renal pelvis and ureters: Fetal incidence(%) Litter incidence(%) AVG S.D. MAX AVG S.D. MAX Distended renal pelvis 1.149 2.06 12.64 6.966 11.30 68.18 Distended ureters 2.874 5.48 28.28 12.394 20.92 78.26 MARTA (1993) Historical Control Data for Development and Reproductive Toxicity Studies using the CrI:CD®BR Rat. Charles River laboratories. http://www.criver.com/flex_content_area/documents/rm_rm_r_tox_studies_crlcd_br_rat.pdf).
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		
引用文献(元文献)	(72)	(72)
備考	フラグ : 製品安全性データセット、SIDSエンドポイントにとって重要な試験	Flag : Material Safety Dataset, Critical study for SIDS endpoint

試験物質名	ジメチルスルホキシド	dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	供給源: Elf Aquitaine Production バッチ番号: T8315 純度: 99.89%	Source: Elf Aquitaine Production Batch number: T8315 Purity: 99.89%
注釈		
方法		
方法／ガイドライン	その他: OECD ガイドライン 414に準じた用量設定試験	other: range-finding study according to OECD guideline 414
GLP適合	はい	yes
試験を行った年	1996	1996
試験系(種／系統)	ラット	rat
	Sprague-Dawley	Sprague-Dawley
性別(雄:M、雌:F)	雌	female
投与量	1000、 5000、10,000 mg/kg	1000, 5000 , 10,000 mg/kg
各用量群(性別)の動物数		
投与経路	強制経口	gavage
試験期間	妊娠20日に屠殺	sacrifice on day 20 of gestation
交配前暴露期間		
試験条件	暴露期間 : 10日、妊娠6-15日 処理頻度 : 毎日 対照群 : あり、媒体対照	Exposure period : 10 days, days 6-15 of gestation Frequency of treatm. : daily Control group : yes, concurrent vehicle
試験条件	※英文参照	Three groups of seven mated female rats received DMSO by gavage at the dose levels of 1000, 5000, and 10,000 mg/kg/day as a solution in purified water. A constant volume dosage of 10 ml/kg was used for each group. DMSO was administered each day from day 6 to day 15 of gestation. A control group of seven mated females was given the vehicle alone. Day 0 of pregnancy was designated as the day of confirmed mating.
試験条件	※英文参照	Clinical signs including mortality and evidence of abortion were checked daily. Food consumption and body weight were recorded at designated intervals during pregnancy. On day 20 of pregnancy, females were killed, examined macroscopically and fetuses removed by Caesarean section. Litter parameters were recorded: number of corpora lutea, implantation sites, resorptions, and dead and live fetuses. Fetuses were weighed, sexed, and submitted to external examination.
統計学的処理		
結果		
死亡数(率)、死亡時間		
用量あたり妊娠数		
流産数		
早期/後期吸収数		
着床数		
黄体数		
妊娠期間(妊娠0日から起算)		
体重、体重増加量		
摂餌量、飲水量		

臨床所見(重篤度、所見の発現時期と持続時間)		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
剖検所見(発生率、重篤度)		
臓器重量(総子宮量への影響)		
病理組織学的所見(発生率、重篤度)		
同腹仔数及び体重		
生存数(生存胎仔数及び胎仔数)		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
生後発育		
分娩後生存率		
肉眼的異常(外表観察、内臓標本、骨格標本)		
実際に投与された量		
用量反応性		
統計的結果		
注釈	母動物のデータ: 投与群又は対照群には臨床症状はみられなかった。母動物の死亡例又は流産はいずれの群にも生じなかった。 5000 mg/kg群の雌では投与中(妊娠6-15日)に摂餌量(25g 対 29g、-14%)及び体重増加量(44g 対 65g、-32%、ns)の減少が認められた。 DMSO 10,000 mg/kgを投与した雌では妊娠期間を通して摂餌量(23g 対 29g、-21%)及び体重増加量(33g 対 65g、-50%、p<0.01)の低下が認められた。剖検では1000、5000又は10,000 mg/kgのDMSO群の雌のいずれにも肉眼所見は認められなかった。	Maternal data: There were no clinical signs observed in treated or control groups. No maternal deaths or abortions occured in any group. Lower food consumption (25g vs. 29g, -14%) and body weight gain (44g vs. 65g, -32%, ns) were noted during treatment (day 6-15 of pregnancy) in females of the 5000 mg/kg group. Lower food consumption (23g vs. 29g, -21%) and body weight gain (33g vs. 65g, -50%, p<0.01) were noted throughout the gestation period in females administered 10,000 mg/kg DMSO. No macroscopic findings were noted at necropsy in any of the females of the 1000, 5000, or 10,000 mg/kg DMSO groups.
注釈	腹のデータ: 動物当たりの平均の黄体数及び着床部位数は対照群と投与群との間で若干の変動を示したが、これらの差は用量に相関したものではなく、DMSOによる投与に起因したものではありえなかった。 後期吸収胚又は死亡胎児はいずれの群にも認められなかった。動物当たりの早期吸収胚の割合の高値、及び着床後胚損失の総計の高値が5000及び10,000 mg/kg群にみられた。 動物当たりの平均生存胎児数は対照群と投与群との間で変動を示した。これらの差に用量相関性はなく、DMSOの投与に起因した差ではなかった。 生存胎児の割合は5000及び10,000 mg/kg群では軽度に低かった。98.8%に対して、それぞれ88.9%及び87.9%であった。 5000及び10,000 mg/kg群では軽度から中等度の胎児体重の低値(3.86 gに対して、2.91g [ns] 及び3.70g [p<0.01]) が認められ、母動物の摂餌量及び体重増加量への投与に関連した影響と一致していた。 性比は対照群と投与群で同様であった。 胎児の検査: いずれの群の胎児にも外表の異常や奇形はみられなかった。	Litter data: The mean number of corpora lutea and implantation sites per animal showed some variations between control and treated groups; these differences were not dose related and could not be ascribed to treatment with DMSO. No late resorptions or dead fetuses were noted in any group. Higher rates of early resorptions per animal, and higher total post implantation loss were observed in the 5000 and 10000 mg/kg groups. The mean number of live fetuses per animal presented variations between control and treated groups; these differences were not dose-related and could not be ascribed to treatment with DMSO. The rate of live fetuses was slightly lower in the 5000 and 10000 mg/kg groups: 88.9% and 87.9% respectively vs. 98.8% (p<0.05 or 0.01). Slight to moderately lower fetal body weights were noted in the 5000 and 10000 mg/kg groups (2.91g [ns] and 3.70g [p<0.01] vs. 3.86g) in line with the treatment-related effect on maternal food consumption and body weight gain. The sex ratio was similar in control and treated groups. Fetal examination: No external anomalies or malformations were observed in fetuses from any group.
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL 母動物毒性 : = 1000 mg/kg 体重	NOAEL maternal tox. : = 1000 mg/kg bw
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL 催奇形性 : = 1000 mg/kg 体重	NOAEL teratogen. : = 1000 mg/kg bw
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(71)	(71)
備考		

試験物質名	ジメチルスルホキシド	dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	供給源: Aldrich バッチ番号: 35345 純度: 99.98%	Source: Aldrich Batch number: 35345 Purity: 99.98%
注釈		
方法		
方法／ガイドライン	OECDガイドライン 414 "催奇形性"	OECD Guide-line 414 "Teratogenicity"
GLP適合	はい	yes
試験を行った年	2001	2001

試験系(種／系統)	ウサギ	rabbit
	ニュージーランド白色	New Zealand white
性別(雄:M、雌:F)	雌	female
投与量	100、300 及び 1000 mg/kg/日	100, 300 and 1000 mg/kg/day
各用量群(性別)の動物数		
投与経路	強制経口	gavage
試験期間	交尾後29日に屠殺	sacrifice on day 29 post coitum
交配前暴露期間		
試験条件	暴露期間 : 交尾後7-28日 処理頻度 : 毎日 対照群 : 媒体対照	Exposure period : day 7 to day 28 post coitum, inclusive Frequency of treatm. : daily Control group : yes, concurrent vehicle
試験条件	※英文参照	Three groups of 24 mated New Zealand White female rabbits, received daily the test item, DIMETHYL SULFOXIDE (batch No. 35345.041; purity: 99.98%) by oral administration (gavage) at 100, 300 or 1000 mg/kg/day from day 7 to day 28 post-coitum inclusive. A group of 24 mated females was given the vehicle alone (purified water) and acted as a control group. Clinical signs and mortality were checked daily. Body weight, food consumption and water consumption were recorded at designated intervals. On day 29 post-coitum, the does were sacrificed and subjected to macroscopic examination. The gravid uterus was weighed to allow calculation of the net body weight change. The fetuses were removed by hysterectomy. The litter parameters were recorded, namely: number of corpora lutea, implantation sites, early and late resorptions, dead and live fetuses. The fetuses were weighed, sexed and submitted to external examination. A detailed examination of the soft tissue was performed by fresh dissection. Then the fetuses were submitted to a detailed examination of the skeleton (bone and cartilage) following alizarin/alcian blue staining.
試験条件	※英文参照	Animals and husbandry: One hundred time-mated KBL New Zealand White rabbits were obtained from Charles River (Châtillon-sur-Chalaronne, France), day 0 designated the day when mating was observed (by visual assessment). Rabbits were housed individually in stainless steel cages. Animals were housed in a protected unit, where relative humidity was set at 50 + 20% and temperature at 21 + 2° C and 18 + 3° C, respectively. Maintenance pelleted diet, A110C (rabbits) (UAR, Villemoisson-sur-Orge, France) and filtered tap water were available ad libitum.
統計学的処理		
結果		
死亡数(率)、死亡時間		
用量あたり妊娠数		
流産数		
早期/後期吸収数		
着床数		
黄体数		
妊娠期間(妊娠0日から起算)		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
剖検所見(発生率、重篤度)		
臓器重量(総子宮量への影響)		
病理組織学的所見(発生率、重篤度)		
同腹仔数及び体重		
生存数(生存胎仔数及び胎仔数)		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
生後発育		
分娩後生存率		
肉眼的異常(外表観察、内臓標本、骨格標本)		
実際に投与された量		
用量反応性		
統計的結果		

注釈	母動物のデータ 死亡率 試験物質投与による死亡例はなかった。 臨床症状 いずれの群にも臨床症状はなかった。 体重及び摂餌量 体重、摂餌量及び摂水量は100 mg/kg/日では投与に取る影響を受けなかった。 300 mg/kg/日群では投与の最初の2日間に摂餌量の軽度の減少のみがみられた。 1000 mg/kg/日では投与期間の前半 (妊娠7-15日)に摂餌量及び体重増加量の中程度の減少がみられた。	Maternal data Mortality There was no mortality attributed to treatment with the test item. Clinical signs There were no clinical signs of toxicity in any group. Body weight and food consumption The body weight, food consumption and water consumption were not affected by the treatment at 100 mg/kg/day. In the 300 mg/kg/day group, there was only a slight reduction of food consumption during the first 2 days of treatment. At 1000 mg/kg/day, there was a moderate reduction of food consumption and body weight gain, during the first part of the treatment period (days 7-15 of pregnancy).
注釈	妊娠動物の平均体重増加量は以下のようにまとめられる: 平均体重増加量 (g) 用量レベル (mg/kg/日) 0 100 300 1000 投与期間全体: D7-D29 294 341 354 270 投与期間の最初: D7-D9 43 16 18 -25# 投与期間の前半:D7-15 75 113 96 47 投与期間の後半::D15-D29 194 230 58 224 正味の体重変化量 -230 -183 -139 -256 #: p<0.001	The mean body weight gain of the pregnant animals is summarized as follows: Mean body weight gain (g) Dose-level (mg/kg/day) 0 100 300 1000 Whole treatment period: D7-D29 294 341 354 270 First days of treatment: D7-D9 43 16 18 -25# First part of treatment:D7-15 75 113 96 47 Second part of treatment:D15-D29 194 230 58 224 Net body weight change -230 -183 -139 -256 #: p<0.001
注釈	妊娠動物の平均摂餌量は以下のようにまとめられる: 平均摂餌量 (g/日) 用量レベル (mg/kg/日) 0 100 300 1000 投与期間全体: D7-D29 143 142 144 130 投与期間の最初: D7-D9 179 162 147** 122# 投与の前半:D7-15 153 156 145 127* 投与の後半:D15-D29 129 136 144 133 *: p<0.05, **: p<0.01, #: p<0.001	The mean food consumption of the pregnant animals is summarized as follows: Mean food consumption (g/day) Dose-level (mg/kg/day) 0 100 300 1000 Whole treatment period: D7-D29 143 142 144 130 First days of treatment: D7-D9 179 162 147** 122# First part of treatment:D7-15 153 156 145 127* Second part of treatment:D15-D29 129 136 144 133 *: p<0.05, **: p<0.01, #: p<0.001
注釈	肉眼検査 試験物質の投与による剖検所見はいずれの用量でもみられなかった。 腹のデータ 着床前又は着床後の胚損失、胎児体重又は性比に関して投与に関連した影響はみられなかった。 胎児の検査 試験物質の投与による、又は毒性学的意義があると考えられる外表、軟組織又は骨格検査で奇形や変異は認められなかった。	Macroscopic examination No macroscopic findings were observed at any dose-level, that were ascribed to treatment with the test item. Litter Data No treatment-related effects were observed on the pre- or post-implantation loss, the fetal weight or the sex ratio. Fetal examinations No malformations or variations were noted at external, soft tissue or skeletal examination that were ascribed to treatment with the test item or considered to be of toxicological significance.
結論		
PIに対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL 母動物毒性 : = 300 mg/kg 体重	NOAEL maternal tox. : = 300 mg/kg bw
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL 催奇形性 : = 1000 mg/kg 体重	NOAEL teratogen. : = 1000 mg/kg bw
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈	催奇形性なし	not teratogenic
注釈	結論 : 100、300又は1000 mg/kg/日で交尾後7-28日に強制経口により妊娠ウサギに毎日投与した場合、ジメチルスルホキシドは100 mg/kg/日では母動物毒性を生じず、300及び1000 mg/kg/日ではごく軽度ないし軽度の母動物毒性を生じた。 胚胎児の発生は影響を受けず、いずれの用量レベルでも催奇形影響はみられなかった。 従って、胚胎児発生への有害影響の無影響レベルは1000 mg/kg/日と確定した。	Conclusion : DIMETHYL SULFOXIDE, when administered daily to pregnant rabbit by gavage from day 7 to day 28 post-coitum at 100, 300 or 1000 mg/kg/day produced no signs of maternal toxicity at 100 mg/kg/day and was minimally to slightly maternotoxic at 300 and 1000 mg/kg/day. The embryofetal development was not affected and there were no teratogenic effects at any dose-level. Consequently, the No Effect Level for adverse effects on the embryofetal development was established at 1000 mg/kg/day.
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		
引用文献(元文献)	(16)	(16)
備考	フラグ : 製品安全性データセット、SIDSエンドポイントにとって重要な試験	Flag : Material Safety Dataset, Critical study for SIDS endpoint

試験物質名	ジメチルスルホキシド	dimethylsulfoxide
CAS番号	67-68-5	67-68-5
純度等	供給源: Aldrich バッチ番号: S02246 純度: 99.98%	Source: Aldrich Batch number: S02246 Purity: 99.98%
注釈		
方法		
方法／ガイドライン	その他: OECDガイドライン414に準じた用量設定試験	other: range-finding study according to OECD guideline 414
GLP適合	いいえ	no
試験を行った年	2001	2001
試験系(種／系統)	ウサギ	rabbit
	ニュージーランド白色	New Zealand white
性別(雄:M、雌:F)	雌	female
投与量	200、1000 及び 5000 mg/kg 体重	200, 1000 and 5000 mg/kg bw
各用量群(性別)の動物数		
投与経路	強制経口	gavage
試験期間	交尾後29日に屠殺	sacrifice on day 29 post coitum
交配前暴露期間		
試験条件	暴露期間 : 交尾後7-28日 処理頻度 : 毎日 対照群 : 媒体対照	Exposure period : day 7 to day 28 post coitum, inclusive Frequency of treatm. : daily Control group : yes, concurrent vehicle
試験条件	※英文参照	Three groups of six mated female rabbits of the KBL New Zealand white strain, received the test substance, DIMETHYL SULFOXIDE (batch No. 35245-070), daily by oral administration from day 7 to day 28 post-coitum at 200, 1000 or 5000 mg/kg/day. One group of six mated females received the vehicle alone (purified water) under the same experimental conditions and acted as a control group. Clinical signs and mortality were checked daily. Body weight, food consumption and water consumption were recorded at designated intervals.
試験条件	※英文参照	On day 29 post-coitum, all the surviving dams were sacrificed and subjected to a macroscopic examination. Animals found dead or killed prematurely were also subjected to a macroscopic examination and examination of the uterine contents. The kidneys were sampled. The uterus was weighed to allow calculation of the net (corrected) body weight change and the fetuses were removed by hysterectomy. The lifter parameters were recorded: number of corpora lutea, implantation sites, early and late resorptions, dead and live fetuses. The fetuses were weighed and then subjected to fetal external examination. The kidneys were sampled.
統計学的処理		
結果		
死亡数(率)、死亡時間		
用量あたり妊娠数		
流産数		
早期/後期吸収数		
着床数		
黄体数		
妊娠期間(妊娠0日から起算)		
体重、体重増加量		
摂餌量、飲水量		
臨床所見(重篤度、所見の発現時期と持続時間)		
血液学的所見(発生率、重篤度)		
血液生化学的所見(発生率、重篤度)		
剖検所見(発生率、重篤度)		
臓器重量(総子宮量への影響)		
病理組織学的所見(発生率、重篤度)		
同腹仔数及び体重		
生存数(生存胎仔数及び胎仔数)		
性比		
生存率(生後4日目生存仔数/総分娩仔数)		
生後発育		
分娩後生存率		

肉眼的異常(外表観察、内臓標本、骨格標本)		
実際に投与された量		
用量反応性		
統計的結果		
注釈	母動物のデータ 死亡率 200及び1000 mg/kg/日の用量レベルで投与に関連した死亡例はなかった。 5000 mg/kg/日群では、死亡例1匹は試験物質の投与に関連したものと考えられた。 臨床症状 毒性の臨床症状はいずれの群にも記録されなかった。 流産 いずれの群にも流産はみられなかった。	Maternal data Mortality There was no treatment-related death at the 200 and 1000 mg/kg/day dose-levels. In the 5000 mg/kg/day group, one death was considered to be related to treatment with the test substance. Clinical signs No clinical signs of toxicity were recorded in any group. Abortions There were no abortions in any groups.
注釈	体重、摂餌量及び摂水量 200及び1000 mg/kg/日の用量レベルでは体重、摂餌量及び摂水量に投与に関連した影響は記録されなかった。 5000 mg/kg/日群において、体重の顕著な減少、摂餌量の顕著な減少及び摂水量の中等度の減少がみられた。 肉眼的所見 いずれの群にも投与に関連した肉眼的所見はなかった。	Body weight, food consumption and water consumption No treatment-related effect was recorded on body weight, food consumption and water consumption at the 200 and 1000 mg/kg/day dose-levels. In the 5000 mg/kg/day group, there was a marked body weight loss, a marked reduction of food consumption and a moderate reduction of water consumption. Macroscopic findings There were no treatment-related macroscopic findings in any groups.
注釈	腹のデータ 着床前損失への投与に関連した影響はなかった。200及び1000 mg/kg/日群では着床後損失への影響はなかった。5000 mg/kg/日では着床後損失に顕著な影響がみられた。4匹の生存妊娠雌全例が子宮摘出時に子宮内容物の早期全胚吸収を示した。200及び1000 mg/kg/日群では胎児体重への直接的な影響はみられなかった。 胎児の検査 200及び1000 mg/kg/日群では外表の奇形や変異はなかった。	Litter data There was no treatment-related effect on pre-implantation loss. There was no effect on post-implantation loss in the 200 and 1000 mg/kg/day groups. At 5000 mg/kg/day, there was a dramatic effect on post-implantation loss: all four surviving pregnant females displayed early, total resorption of uterine contents at hysterectomy. There was no direct effect on fetal body weight in the 200 and 1000 mg/kg/day groups. Examination of the fetuses There were no external malformations or variations in the 200 and 1000 mg/kg/day groups.
結論		
Pに対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL 母動物毒性 : = 1000 mg/kg 体重	NOAEL maternal tox. : = 1000 mg/kg bw
F1に対するNOAEL (NOEL)又はLOAEL (LOEL)	NOAEL 胎児毒性 : = 1000 mg/kg 体重	NOAEL Embryotoxicity : = 1000 mg/kg bw
F2に対するNOAEL (NOEL)又はLOAEL (LOEL)		
注釈	結論 : 妊娠雌ウサギに交尾後7-28日まで毎日投与した場合に、ジメチルスルホキシド(バッチ番号35245-070)は200及び1000 mg/kg/日ではよく耐えた。5000 mg/kg/日の用量レベルでは重篤な母動物毒性 (体重変化、摂餌量及び摂水量への顕著な変化)が記録され、その結果妊娠雌全例に子宮内容物の全胚吸収を生じた。	Conclusion : DIMETHYL SULFOXIDE (batch N° 35245-070), when administered daily to pregnant females rabbits, from day 7 to day 28 post-coitum, was well tolerated at 200 and 1000 mg/kg/day. Severe matemotoxicity was recorded at the 5000 mg/kg/day dose-level (marked effect on body weight change, food consumption and water consumption) resulting in total resorption of uterine contents in all pregnant females.
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(15)	(15)
備考		

5-10その他関連情報
OTHER RELEVANT INFOMATION

試験物質名	ジメチルスルホキシド	Dimethylsulfoxyde
CAS番号	67-68-5	67-68-5
純度等	供給源: Sigma Aldrich バッチ : 29356-089 純度 : > 99%	Source: Sigma Aldrich Batch : 29356-089 Purity : > 99%
注釈		
方法		
方法／ガイドライン	エンドポイント : 免疫毒性 方法 : その他: OPPTSの調和されたガイダンスノート 780-7800	Endpoint : Immunotoxicity Method : other: OPPTS harmonised guidance note 780-7800

GLP適合	はい	yes
試験を行った年	1998	1998
試験条件	種 : ラットrat 性 : 雄/雌 系統 : Sprague-Dawley 投与経路 : 吸入 暴露期間 : 28日間 処理頻度 : 1日6時間、7 投与量 : 0.310 mg/l、0.964 mg/l 及び 2.783 対照群 : あり、無処置対照群	Species : rat Sex : male/female Strain : Sprague-Dawley Route of admin. : Inhalation Exposure period : 28 day(s) Frequency of treatm. : 6 hours a day, 7 Doses : 0.310 mg/l, 0.964 mg/l and 2.783 Control group : yes, concurrent no treatment
試験条件	※英文参照	As part of a 13-week inhalation toxicity study, three satellite groups of rats (each of 5 males and 5 females) of the Crl:CD-BR strain were exposed to DMSO, 6 hours a day, 7 days a week, for 28 days using a snout-only exposure system. A fourth group, acting a control, was exposed to air only. A further group of satellite animals was not exposed to DMSO, but used as a positive control in the immunotoxicological investigations. The study mean analysed chamber concentrations of DMSO were 0.310 mg/l, 0.964 mg/l and 2.783 mg/l for Groups 2 (Low dose), 3 (Intermediate dose) and 4 (High dose) respectively. The study was designed to comply with OECD (Testing of Chemicals) and US EPA OPPTS guidelines.
試験条件	※英文参照	SRBC-specific antibody secreting cells (ASCs) were enumerated using a modification of the Jerne plaque forming cell (PFC) assay. A single antigenic challenge with 2x108 SRBC in 1 ml of 0.9% saline was administered by i.v. injection to the animals 4 days prior to termination. Administration of the SRBC was staggered to allow conduct of PFC assays. To act as a positive control, 2 days prior to termination, animals were injected i.p. with cyclophosphamide at a dose of 50 mg/kg in 0.9% saline. Prior to assay, petri dishes were coated with a 1% (w/v) solution of bacteriological agar dissolved in Earle's Balanced Salt Solution (EBSS). The pre-coated plates could be stored at 4° C for up to 1 week before use. On the day of assay splenocyte suspensions were prepared from the animals by mechanical dissociation. Spleen cells were washed by centrifugation and resuspension in EBSS, counted and adjusted to the desired cell concentrations.
試験条件	※英文参照	The pre-coated petri dishes were allowed to equilibrate before use at 37° C, in an incubator containing a 5% CO2 humidified atmosphere. A suspension of SRBC from the same batch used to immunise the animals was prepared by washing in 0.9% saline and diluting them with EBSS to give a 20% (v/v) suspension. Guinea pig serum complement was adsorbed against the SRBC to remove any heterophillic antibodies, adsorbed complement was diluted with EBSS and stored on ice until use. Finally, a 0.5% (w/v) solution of bacteriological agar in EBSS was prepared, and any complement inhibitors present in the agar inactivated by addition of 1.6 ml of a 30 mg/ml solution of DEAE-dextran per 100 ml agar. Once prepared, the agar was maintained in a water bath set at 47° C until use. For the assay, sufficient 5 ml polypropylene test tubes were labelled to allow triplicate preparations of each cell dilution for every animal, these were placed in a water bath set at 47° C. Shortly before the actual assay the 0.5% agar and 20% SRBC were added to each tube and vortex mixed.
試験条件	※英文参照	Immediately before pouring the tube, the appropriate spleen cell suspension and diluted complement were added. The tube was then mixed and carefully poured onto the surface of the agar-overlaid petri dish. The poured dish was gently agitated to ensure an even distribution of the plaque-mixture and allowed to set on a levelled base. Plates were then transferred to an incubator at 37° C, containing a 5% CO2 humidified atmosphere. After 2 hours the plates were removed and fixed by adding 2 ml of 0.25% glutaraldehyde in PBS. Plates were examined immediately or stored for up to 7 days at 4° C before counting the plaques. Plaques were visualised using a dissecting microscope with sub-stage illumination.
結果		

結果	免疫毒性学的な調査はDMSOへの吸入暴露は対照群と比べて雄ラットでは抗体分泌細胞数の明らかな増加を生じた。脾臓の抗体分泌細胞の総数の変化 (PFC/脾臓)脾臓の総細胞数(PFC/10e6細胞)の変化に関連した抗体分泌細胞の相対数における変化も測定した。DMSOは雄ラットではPFC/10e6及びPFC脾臓の両方を増加させ、その影響は脾臓細胞数の単純に広範囲のスペクトルに及ぶ増加ではなく、純粋な亢進によるものであると考えられる。	Immunotoxicological investigations indicated that inhalation exposure to DMSO led to an apparent increase in the number of antibody secreting cells in male rats, compared with controls. Changes in the total number of antibody secreting cells in the spleen (PFC/spleen) and also changes in the relative numbers of antibody secreting cells, associated with changes in other spleen cell populations (PFC/10e6 cells) were measured. Since DMSO increased both PFC/10e6 cells and PFC/spleen in male rats, the effect is likely to be a genuine enhancement, not simply a broad spectrum increase in spleen cell numbers.
結果	本試験で報告されたPFC反応の動物間のばらつきの程度は大きいことは特筆する価値がある。これは非近交系集団であるSDラットの遺伝的背景にほぼ明確に関連している。適応性の免疫反応は強い遺伝的関連性を持つことが知られており、他の供給源からの研究は非近交系の種は毒性学では一般的なモデルであるがそれらは免疫反応には固有の変動を有する(Luster et al 1988, ICICIS group investigators 1998)ことを示した。 雄ラットでみられた大きな変動、雌ラットではその影響を欠くこと、及び免疫毒性に関連する他のエンドポイント (脾臓及び胸腺重量、リンパ球数)への影響を欠いていることに基づき、これらのデータはDMSOは免疫系には影響を及ぼさないことを示唆する。	It is worth noting that there was a high degree of inter-animal variation in the PFC response reported in this study. This is almost certainly linked to the genetic background of the Sprague-Dawley rats, which are an outbred population. The adaptive immune response is known to have strong genetic linkage and work from other sources has shown that whilst outbred species are popular models in toxicology they have an inherent variability in immune responses (Luster et al 1988, ICICIS group investigators 1998). Based in the high variability observed in male rats, the lack of effects in female rats and the lack of effect on the other end-points relevant for immunotoxicity (spleen and thymus weights, lymphocyte count), these data suggest that DMSO has no effect on the immune system.
結論		
結論		
注釈		
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		
引用文献(元文献)	(75)	(75)
備考		

試験物質名		
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン	エンドポイント : 免疫毒性	Endpoint : Immunotoxicity
GLP適合		
試験を行った年		
試験条件	種 : マウス 性 : 雄 系統 : その他: MRL/lpr、C3H/lpr 及び BXSB 投与経路 : 飲水 投与量 : 3% DMSO 又は 3% DMSO2 対照群 : あり、媒体対照	Species : mouse Sex : male Strain : other: MRL/lpr, C3H/lpr and BXSB Route of admin. : drinking water Doses : 3% DMSO or 3% DMSO2 Control group : yes, concurrent vehicle
試験条件	※英文参照	Autoimmune strain MRL/lpr, C3H/lpr, and male BXSB mice were placed on a continuous treatment regimen with 3% DMSO or 3% DMS02 in the drinking water, ad libitum, commencing at 1 to 2 months of age, before spontaneous autoimmune lymphoproliferative disease development could be detected. This represented doses of 8-10 g/kg/day of DMSO and 6-8 g(kg/day of DMS02. Plasma antinuclear antibodies were analyzed employing an indirect immunofluorescence assay with chicken erythrocyte nuclei as substrate. Serum IgG was measured by radial immunodiffusion utilizing a quantitative immunodiffusion kit. Direct antibody plaque formation was measured using spleen cells from C3H/lpr mice that had been injected ip with 5 X 10e8 washed sheep erythrocytes (SRBC) 5 days previously.
結果		
結果	両方の化合物ともにMRL/lprマウスの平均寿命を5.5ヶ月から10ヶ月齢以上に伸ばすことが示された。全ての系統が抗核抗体反応の減少及びリンパ腺腫、脾腫及び貧血の進展の有意な減少を示した。しかし、血清IgGレベル及び脾臓のIgM抗体プラーク形成は対照群の値と変わらなかった。全身性の免疫抑制又は抗増殖作用の関与の徴候はなく、投与した動物は健康を保ち、毒性の徴候はなく元気であった。これらの結果はDMSO及び主要なin vivo代謝物のDMSO2はともに高用量ではマウスの自己免疫性リンパ増殖性疾患の進行に対し有意な防御を与えることを証明する。	Both compounds were observed to extend the mean life span of MRL/lpr mice from 5.5 months to over 10 months of age. All strains showed decreased antinuclear antibody responses and significant diminution of lymphadenopathy, splenomegaly, and anemia development. Serum IgG levels and spleen IgM antibody plaque formation, however, did not differ from control values. There was no indication of involvement of systemic immunosuppressive or antiproliferative effects, and treated animals were observed to remain healthy and vigorous with no signs of toxicity. These results demonstrate that high doses of both DMSO and its major in vivo metabolite, DMSO2, provide significant protection against the development of murine autoimmune lymphoproliferative disease.

結果	雄MRL/1prマウスにおける免疫疾患に及ぼす経口DMSOの影響 --- パラメータ　水対照群（18週齢）　3% DMSO(a（18週齢）　3% DMSO 43週齢） --- 生存率　10/17　8/8　6/9 強いANA反応(d　10/10　3/8　1/6 ヘマトクリット (%)　47.7±1.0　419±0.46　47.8±0.91 脾臓重量 (mg)　5459±51.6　201.8±24.9(b　243.2±44.5(c 胸腺重量 (mg)　366.1±42.8　167.0±23.6(c　88.9±28.7(b リンパ節重量 (mg)　3680±330　996±350(b　102±43(b --- a) 18週齢で終了したマウスは24日齢で飲水中3% DMSO v/v で投与を開始した、43週齢で終了したマウスは35-45日齢で3% DMSOの投与を開始した。データは平均値± SEM.で表されている。 b) 水対照群とP < 0.001で差あり c) 水対照群とP < 0.005で差あり d) 血清抗核抗体 (ANA) 反応を間接的免疫蛍光アッセイで評価した。	EFFECT OF ORAL DMSO ON IMMUNE DISEASE IN MALE MRL/1pr MICE --- Parameter　Water controls (18 weeks old)　3% DMSO(a (18 weeks old)　3% DMSO (43 weeks old) --- Survivals　10/17　8/8　6/9 Strong ANA response(d　10/10　3/8　1/6 Hematocrit (%)　47.7±1.0　419±0.46　47.8±0.91 Spleen wt (mg)　5459±51.6　201.8±24.9(b　243.2±44.5(c Thymus wt (mg)　366.1±42.8　167.0±23.6(c　88.9±28.7(b Noie wt (mg)　3680±330　996±350(b　102±43(b --- a) Mice terminated at 18 weeks of age were started on 3% DMSO v/v in the drinking water at 24 days of age, Mice terminated at 43 weeks of age were started on 3% DMSO at 35 to 45 days of age. Data are expressed as means ± SEM. b) Different from water control at P < 0.001. c) Different from water control at P < 0.005. d) Serum antinuclear antibody (ANA) responses were evaluated by indirect immunofluorescence assay.
結論		
結論		
注釈		
信頼性	(1) 制限なく信頼性あり	(1) valid without restriction
信頼性の判断根拠		
出典		
引用文献（元文献）	(141)	(141)
備考		

試験物質名		
CAS番号		
純度等		
注釈		
方法		
方法／ガイドライン	エンドポイント ： 免疫毒性	Endpoint : Immunotoxicity
GLP適合		
試験を行った年		
試験条件	種 ： マウス 性 ： 雌 系統 ： その他: SW 投与経路 ： ip 暴露期間 ： 36日間 処理頻度 ： 毎日 投与量 ： 100% DMSOを 2.5 g/kg 1週間、翌週は1.3 g/kg を1日おきに(マウスが脆弱に見えたため) 及び 次の3週間は 2.5 g/kgを毎日。 対照群 ： あり、媒体対照	Species : mouse Sex : female Strain : other: SW Route of admin. : ip Exposure period : 36 day(s) Frequency of treatm. : daily Doses : 2.5 g/kg 100% DMSO for one week, 1.3 g/kg every other day for the next week (because they appeared weak) and 2.5 g/kg daily for the following 3 weeks. Control group : yes, concurrent vehicle
試験条件	※英文参照	Two groups of 8 female SW mice were injected i.p. daily with 2.5 g/kg 100% DMSO for one week, 1.3 g/kg every other day for the next week (because they appeared weak) and 2.5 g/kg daily for the following 3 weeks. Control mice received identical amounts of sterile saline by the same route. All mice were immunized sc with 0.05 ml 5% sheep red blood cells on days 13 and 24, and bled twice by caudal incision on days 20 and 29. Anti-SRBC hemagglutination titers were determined by doubling dilutions; leukocyte counts, hematocrits, and organ weights (liver, lungs, spleen, thymus, kidneys, and heart) were measured by standard methods. The experiment ended after 36 days of treatment.
結果		
結果	DMSO処置したマウスではヘマトクリットが有意に減少した(p<=0.002) が、依然正常範囲内であった。ヒツジ赤血球に対する一次及び二次抗体反応、白血球数、体重及び心臓、肺、脾臓、胸腺、及び腎臓の大きさは影響を受けなかった。 DMSO処置は有意な肝臓肥大を生じた (p=0.02)。DMSOは新規の抗原に対するマウスの液性免疫応答に対して有害性を示さないと結論される。	In DMSO-treated mice, haematocrits were significantly decreased (p<=0.002) but still within the normal range. The primary and secondary antibody response to sheep red blood cells, leukocytes counts, body weight, and the size of the heart, lungs, spleen, thymus, and kidneys were not affected. DMSO treatment resulted in significant liver enlargement (p=0.02). It is concluded that DMSO is not deleterious to the humoral immune response in mice responding to a new antigen.
結論		
結論		
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献（元文献）	(42)	(42)
備考		

5-11 ヒト暴露の経験
EXPEIENCE WITH HUMAN EXPOSURE

試験物質名		
CAS番号		
純度等		
注釈		
製造／加工／使用情報		
研究デザイン	暴露の経験： ヒトー医療データ	Type of experience : Human - Medical Data
仮説検証		
データ収集方法		
被験者の説明		
暴露期間		
測定又は評価曝露データ		
結果		
統計的結果		
発病頻度		
相関		
分布		
研究提供者等		
注釈	注釈： 75%DMSO溶液に48時間を5回誘導暴露（毎回5%ラウリル硫酸ナトリウムで24時間前処置を先行させた)後に、25%DMSOで惹起した23名の被験者では皮膚感作性反応はみられなかった。 臨床試験： 皮膚感作性	Remark : No skin sensitization reaction was observed in 23 subjects after five 48-hour induction exposures to 75% DMSO solution (each one preceded by a 24-hour pre-treatment with 5% sodium lauryl sulphate) and challenge with 25% DMSO solution. Clinical study: skin sensitization
結論		
結論		
注釈	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性		
信頼性の判断根拠		
出典		
引用文献(元文献)	(117)	(117)
備考		

試験物質名		
CAS番号		
純度等		
注釈		
製造／加工／使用情報		
研究デザイン	暴露の経験： ヒトー医療データ	Type of experience : Human - Medical Data
仮説検証		
データ収集方法		
被験者の説明		
暴露期間		
測定又は評価曝露データ		
結果		
統計的結果		
発病頻度		
相関		
分布		
研究提供者等		
注釈	注釈： 静脈内に投与したDMSOは大きな発作及び脳の腫脹による死亡及び神経障害から実験動物を保護することが可能である。脳の外傷を被った患者での研究でも同様の効果が示唆される。安定した脊髄損傷患者7名に投与するのに静脈内DMSO投与を使用した。薬物関連性のヘモグロビン血症及びヘモグロビン尿症のために、患者は尿中β2ミクログロブリン排泄量の連続測定により腎尿細管機能不全の微妙な証拠の有無について検討した。10-40%のDMSOの短時間注入後には尿細管の蛋白排泄の増加も糸球体濾過の減少も観察されなかった。有意な短期間腎毒性は静脈内DMSOではみられなかった。 臨床試験: 腎機能への影響	Remark : DMSO administered intravenously can protect experimental animals with massive stroke and brain swelling from mortality and neurologic impairment. Studies in patients suffering from cerebral trauma also suggest considerable efficacy. Intravenous DMSO was used to treat seven patients with stable spinal cord injuries. Because of drug-associated hemoglobinemia and hemoglobinuria, the patients were studied for subtle evidence of renal tubular dysfunction by serial measurements of urinary beta-2-microglobin excretion. No increases in tubular protein excretion or decreases in glomerular filtration rate were observed following short-term infusions of 10-40% DMSO. No significant short-term nephrotoxicity was observed from intravenous DMSO. Clinical study: effects on the renal function
結論		
結論		
注釈		
信頼性	(2) 制限付きで信頼性あり	(2) valid with restrictions
信頼性の判断根拠		
出典		
引用文献(元文献)	(25)	(25)
備考		

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