

Store at
-20°C**K252a**

www.cellsignal.com

#12754

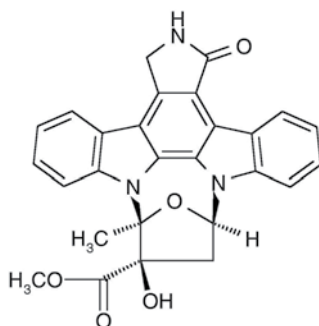
100 µg

Support: 877-678-TECH (8324)
www.cellsignal.com/support**Orders:** 877-616-CELL (2355)
orders@cellsignal.com

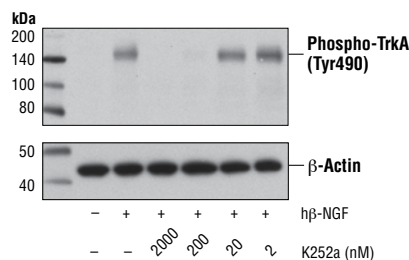
rev. 07/11/14

For Research Use Only. Not For Use In Diagnostic Procedures.

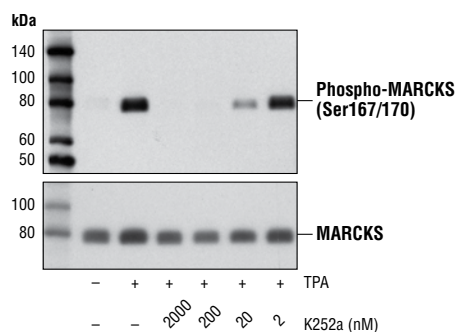
Background: Originally isolated from the soil fungi *Nocardio-pisis sp.*, K252a is a staurosporine analog that inhibits various protein kinases through competition with the ATP binding site (1,2). K252a is a reversible cell-permeable, potent inhibitor of phosphorylase kinase ($IC_{50} = 1.7$ nM), protein kinase A (PKA) ($IC_{50} = 140$ nM), and protein kinase C (PKC) ($IC_{50} = 470$ nM) (3,4). K252a is also known to inhibit protein kinase G and CaM kinase II (5,6). K252a inhibits nerve growth factor induced Trk activation ($IC_{50} = 3$ nM), as well as downstream signaling (5,7,8). K252a is reported to induce apoptosis and cell cycle arrest through cdc25 and cdc2 inhibition (9).

Molecular Formula: $C_{27}H_{21}N_3O_5$ **Molecular Weight:** 467 g/mol**Solubility:** Soluble in DMSO at 100 mg/ml; poorly soluble in ethanol.**Purity:** >99%

Directions for Use: K252a is supplied as a lyophilized powder. For a 1 mM stock, reconstitute the 100 µg in 213.9 µl DMSO. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used as a pretreatment at 0.1-1 µM for 0.5-1 hr prior to treating with a stimulator.



Western blot analysis of extracts from PC-12 cells, serum-starved overnight and untreated or treated with Human β -Nerve Growth Factor (h β -NGF) #5221 (100 ng/ml, 5 min) either with or without K252a pretreatment (1 hr) at the indicated concentrations, using Phospho-TrkA (Tyr490) Antibody #9141 (upper) or β -Actin (D6A8) Rabbit mAb #8457 (lower).



Western blot analysis of extracts from HeLa cells, serum-starved overnight and untreated or treated with TPA #4174 (200 nM, 15 min) either with or without K252a pretreatment (1 hr) at the indicated concentrations, using Phospho-MARCKS (Ser167/170) (D13E4) XP[®] Rabbit mAb #8722 (upper) or MARCKS (D88D11) XP[®] Rabbit mAb #5607 (lower).

Storage: Store lyophilized or in solution at -20°C, desiccated. Protect from light. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

Background References:

- (1) Kase, H. et al. (1986) *J Antibiot (Tokyo)* 39, 1059-65.
- (2) Kase, H. et al. (1987) *Biochem Biophys Res Commun* 142, 436-40.
- (3) Elliott, L.H. et al. (1990) *Biochem Biophys Res Commun* 171, 148-54.
- (4) Davis, P.D. et al. (1992) *J Med Chem* 35, 177-84.
- (5) Koizumi, S. et al. (1988) *J Neurosci* 8, 715-21.
- (6) Hashimoto, Y. et al. (1991) *Biochem Biophys Res Commun* 181, 423-9.
- (7) Berg, M.M. et al. (1992) *J Biol Chem* 267, 13-6.
- (8) Tapley, P. et al. (1992) *Oncogene* 7, 371-81.
- (9) Chin, L.S. et al. (1999) *Cancer Invest* 17, 391-5.

Thank you for your recent purchase. If you would like to provide a review visit www.cellsignal.com/comments.



SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product No. 12754
Product name K252a
Reach registration number This substance/mixture contains only ingredients which have been registered, or are exempt from registration, according to Regulation (EC) No. 1907/2006.
Formula C₂₂H₂₆N₂O₅
Molecular Weight 467.47
Other means of identification 12754M, 12754S

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses This product is intended for research purposes only.
Uses advised against This product is not intended for use in diagnostic procedures or therapeutics. This product is not intended for use in humans or animals.

1.3. Details of the supplier of the safety data sheet

Importer Cell Signaling Technology Europe B.V.
 Schuttersveld 2
 2316 ZA Leiden
 The Netherlands
 TEL: +31 71 562 1060
 FAX: +31 71 586 1065

Manufacturer Cell Signaling Technology, Inc.
 3 Trask Lane
 Danvers, MA 01923
 TEL: +1 978 867 2300
 FAX: +1 978 867 2400

Website www.cellsignal.com
E-mail Address info@cellsignal.eu

1.4. Emergency telephone number

Europe 112

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Skin corrosion/irritation	Category 2 - (H315)
Serious eye damage/eye irritation	Category 2 - (H319)
Specific target organ toxicity - single exposure (STOT SE)	Category 3 - (H335)

For the full text of the H-phrases & EUH-phrases mentioned in this Section, see Section 16

Directives 67/548/EEC and 1999/45/EC

Symbol(s) Xi - Irritant
R-phrases(s) R36/37/38

For the full text of the R-phrases mentioned in this Section, see Section 16

2.2. Label elements



Signal word Warning

Hazard statement(s)
 H315 - Causes skin irritation
 H319 - Causes serious eye irritation
 H335 - May cause respiratory irritation

Precautionary statement(s)

P280 - Wear protective gloves/protective clothing/eye protection/face protection
 P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
 P362 - Take off contaminated clothing and wash before reuse
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
 P312 - Call a POISON CENTER or doctor if you feel unwell
 P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

2.3. Other hazards

None required for material as supplied.

SECTION 3: Composition/information on ingredients

3.1. Substances

Formula C₂₂H₂₆N₂O₅
Molecular Weight 467.47
Synonyms K-252a, Antibiotic SF 2370

Chemical Name	EC No.	CAS No.	Weight %	Classification (67/548)	Classification (1272/2008)	REACH Registration Number
Staurosporine aglycone	-	97161-97-2	100	Xi, R36/37/38	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319) STOT SE 3 (H335)	no data available

For the full text of each R-phrase and H-phrase, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

General advice Use first aid treatment according to the nature of the injury. When symptoms persist or in all cases of doubt seek medical advice.
Inhalation Move to fresh air.
Skin contact Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
Eye contact Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.
Ingestion Clean mouth with water and afterwards drink plenty of water.

4.2. Most important symptoms and effects, both acute and delayed

Main symptoms No information or data specific to the product on this toxicological (health) effect is available.

4.3. Indication of any immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable Extinguishing Media Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable Extinguishing Media No information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective suit. Use personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel Evacuate personnel to safe areas. Ensure adequate ventilation.
For emergency responders Use personal protection recommended in Section 8.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.
Methods for cleaning up Use personal protective equipment. Cover powder spill with plastic sheet or tarp to minimize spreading and keep powder dry. Take up mechanically and collect in suitable container for disposal. Avoid dust formation. Clean contaminated surface thoroughly.

6.4. Reference to other sections

See Section 8 and 13 for further information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Use according to package label instructions. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

7.3. Specific end use(s)

Use as laboratory reagent (PROC15).

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

8.2. Exposure controls

Appropriate engineering controls Showers, eyewash stations, and ventilation systems.

Individual protection measures, such as personal protective equipment Personal protective equipment (PPE) needs to be selected depending on the implemented engineering controls, frequency/duration of work activities and the concentrations of the hazardous substance.

Eye/face protection Safety glasses with side-shields.
Skin protection
Hand protection Impervious gloves.
Other Wear suitable protective clothing.
Respiratory protection In case of inadequate ventilation wear respiratory protection.

Environmental Exposure Controls No information available.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Solid	
Appearance	Powder	
Color	Off-white	
Odor	No information available	
Odor Threshold	No information available	
Property	Values	Remarks - Method
pH		No information available
Melting point/freezing point	233-258 °C	
Initial boiling point and boiling range		No information available
Flash point		No information available
Evaporation rate		No information available
Flammability (solid, gas)		No information available
Upper flammability limit		No information available
Lower flammability limit		No information available

Vapor pressure		No information available
Vapor density		No information available
Relative density		No information available
Solubility	Insoluble	No information available
Partition coefficient: n-octano/water		No information available
Autoignition temperature		No information available
Decomposition temperature		No information available
Viscosity		No information available
Explosive properties		No information available
Oxidizing properties		No information available

9.2. Other information		
Softening point	No information available	
Molecular Weight	467,47	
Solubility in other solvents	No information available	
VOC content	No information available	
Density	No information available	

SECTION 10: Stability and reactivity

10.1. Reactivity

No information available.

10.2. Chemical stability

Stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3. Possibility of hazardous reactions

Hazardous polymerization	Hazardous polymerization does not occur.
Hazardous reactions	None under normal processing.

10.4. Conditions to avoid

None known based on information supplied.

Incompatible materials

No information available.

10.6. Hazardous decomposition products

None under normal use.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

This material should only be handled by, or under the close supervision of, those properly qualified in the handling and use of potentially hazardous chemicals. It should be borne in mind that the toxicological and physiological properties of this compound is not well defined.

Unknown Acute Toxicity	100% of the mixture consists of ingredient(s) of unknown toxicity.
------------------------	--

Information on likely routes of exposure

Page 5 / 8

Inhalation	May cause irritation of respiratory tract.
Eye contact	Irritating to eyes.
Skin contact	Irritating to skin.
Ingestion	There is no data available for this product.

Symptoms	No information available.
Skin corrosion/irritation	Irritating to skin.
Serious eye damage/eye irritation	Irritating to eyes.
Sensitization	No information available.
Mutagenic effects	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	Respiratory system.
STOT - repeated exposure	No information available.
Aspiration Hazard	No information available.
Other information	No information available.

SECTION 12: Ecological information

12.1. Toxicity

Unknown Aquatic Toxicity	100% of the mixture consists of component(s) of unknown hazards to the aquatic environment.
--------------------------	---

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

Bioaccumulation	No information available.
Bioconcentration factor (BCF)	No information available.

12.4. Mobility in soil

No information available.

12.5. Results of PBT and vPvB assessment

No information available.

12.6. Other adverse effects

No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste from residues / unused products	Dispose of in accordance with local regulations.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal.
Other information	Waste codes should be assigned by the user based on the application for which the product was used.

Page 6 / 8

SECTION 14: Transport information

IMDG/IMO

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not regulated

RID

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None
ADR/RID	
14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None

ICAO

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None

IATA

14.1 UN number	Not regulated
14.2 UN proper shipping name	Not regulated
14.3 Transport hazard class(es)	Not regulated
14.4 Packing Group	Not regulated
14.5 Environmental hazards	None
14.6 Special precautions for user	None

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

International inventories	
TSCA	-
DSL/NDL	-
EINECS/ELINCS	-
ENCS	-
IECSG	Complies
KECL	-
PICCS	-
AICS	-

International inventories legend

Page 7 / 8

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
 DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List
 EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
 ENCS - Japan Existing and New Chemical Substances
 IECSG - China Inventory of Existing Chemical Substances
 KECL - Korean Existing and Evaluated Chemical Substances
 PICCS - Philippines Inventory of Chemicals and Chemical Substances
 AICS - Australian Inventory of Chemical Substances

15.2. Chemical safety assessment

No information available.

SECTION 16: Other information

Full text of R-phrases referred to under Sections 2 and 3
 R36/37/38 - Irritating to eyes, respiratory system and skin

Full text of H-Statements referred to under Sections 2 and 3
 H315 - Causes skin irritation
 H319 - Causes serious eye irritation
 H335 - May cause respiratory irritation

Classification procedure:	Calculation method. Bridging principle "Dilution".
Issuing Date:	2014-03-13
Revision Date:	2014-03-13
Reason for revision:	not applicable.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Page 8 / 8