

Product Name: Sugammadex 100 mg/mL Solution for Injection MSD	Component: English Professional Information Date Approved: 24 October 2023
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SCHEDULING STATUS

S4

1 NAME OF THE MEDICINE

SUGAMMADEX™ 100 mg/mL Solution for Injection MSD

2 QUALITATIVE AND QUANTITATIVE COMPOSITION

Each mL contains 100 mg sugammadex (as the sodium salt).

2 mL contains 200 mg sugammadex (as the sodium salt).

Each mL contains 9,7 mg sodium.

For the full list of excipients, see section 6.1.

3 PHARMACEUTICAL FORM

Solution for Injection

4 CLINICAL PARTICULARS

4.1 Therapeutic indications

SUGAMMADEX 100 mg/mL Solution for Injection MSD is indicated for the routine reversal of neuromuscular blockade induced by rocuronium or vecuronium. SUGAMMADEX 100 mg/mL Solution for Injection MSD is also indicated for the immediate reversal of neuromuscular blockade at 3 minutes after administration of rocuronium. For the paediatric population,

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SUGAMMADEX 100 mg/mL Solution for Injection MSD is only recommended for routine reversal of rocuronium induced blockade in children above 7 years of age.

4.2 Posology and method of administration

Posology

SUGAMMADEX 100 mg/mL Solution for Injection MSD injection should be administered under the supervision of an anaesthetist. SUGAMMADEX 100 mg/mL Solution for Injection MSD injection should be administered intravenously as a single bolus injection. The bolus injection may be given rapidly, within 10 seconds, into an existing IV line.

Special populations

Renal Impairment

For mild and moderate renal impairment (creatinine clearance ≥ 30 and < 80 mL/min): The dose recommendations are the same as for adults without renal impairment. The use of SUGAMMADEX 100 mg/mL Solution for Injection MSD in patients with severe renal impairment including patients requiring dialysis (CrCl < 30 mL/min) is not recommended (see section 4.4). Studies in patients with severe renal impairment do not provide sufficient safety information to support the use of SUGAMMADEX 100 mg/mL Solution for Injection MSD in these patients.

Hepatic impairment

For mild to moderate hepatic impairment: As SUGAMMADEX 100 mg/mL Solution for Injection MSD is mainly excreted renally no dose adjustments are required.

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Studies in patients with hepatic impairment have not been conducted. Caution should be exercised when considering the use of SUGAMMADEX 100 mg/mL Solution for Injection MSD in patients with severe hepatic impairment or when hepatic impairment is accompanied by coagulopathy (see section 4.4).

Elderly (≥ 65 years of age)

After administration of SUGAMMADEX 100 mg/mL Solution for Injection MSD at reappearance of T_2 following a rocuronium induced blockade, the median time to recovery of the T_4/T_1 ratio to 0,9 in adults (18 to 64 years) was 2,2 minutes, in elderly adults (65 to 74 years) it was 2,6 minutes and in very elderly adults (75 years or more) it was 3,6 minutes. Even though the recovery times in elderly tend to be slower, the same dose recommendation as for adults should be followed (see section 4.4).

Obese Patients

In obese patients, the dose of SUGAMMADEX 100 mg/mL Solution for Injection MSD should be based on actual body weight. The same dose recommendations as for adults should be followed.

Paediatric population

The data for the paediatric population are limited (one study only for reversal of rocuronium induced blockade at reappearance of T_2). There is insufficient information on the use of SUGAMMADEX 100 mg/mL Solution for Injection MSD for children < 7 years of age. There is no information on SUGAMMADEX 100 mg/mL Solution for Injection MSD use for neonates.

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Therefore SUGAMMADEX 100 mg/mL Solution for Injection MSD is not recommended for use in these populations.

Children and Adolescents

For reversal of rocuronium induced blockade at reappearance of T₂ in children and adolescents (7 to 17 years) 2 mg/kg SUGAMMADEX 100 mg/mL Solution for Injection MSD is recommended.

Immediate reversal in children and adolescents has not been investigated and is therefore not recommended.

SUGAMMADEX 100 mg/mL Solution for Injection MSD 100 mg/mL may be diluted to 10 mg/mL to increase the accuracy of dosing in the paediatric population, 7 years and older.

Method of administration

SUGAMMADEX 100 mg/mL Solution for Injection MSD can be injected into the intravenous line of a running infusion with the following intravenous solutions: sodium chloride 9 mg/mL (0,9 %), glucose 50 mg/mL (5 %), sodium chloride 4,5 mg/mL (0,45 %) and glucose 25 mg/mL (2,5 %), Ringer's lactate solution, Ringer's solution, glucose 50 mg/mL (5 %) in sodium chloride 9 mg/mL (0,9 %). For paediatric patients SUGAMMADEX 100 mg/mL Solution for Injection-MSD can be diluted using sodium chloride 9 mg/mL (0,9 %) to a concentration of 10 mg/mL.

SUGAMMADEX 100 mg/mL Solution for Injection MSD has only been administered as a single bolus injection in clinical trials.

The use of an appropriate neuromuscular monitoring technique is recommended to monitor the recovery of the neuromuscular blockade. When certain medicines that may cause displacement interactions are administered parenterally within 7,5 hours of SUGAMMADEX 100 mg/mL

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Solution for Injection MSD, patients should be monitored for signs of recurrence of neuromuscular blockade.

The recommended dose of SUGAMMADEX 100 mg/mL Solution for Injection MSD depends on the level of neuromuscular blockade to be reversed. The recommended dose does not depend on the anaesthetic regimen.

SUGAMMADEX 100 mg/mL Solution for Injection MSD can be used to reverse different levels of rocuronium or vecuronium induced neuromuscular blockade.

Routine Reversal of Neuromuscular Blockade

A dose of 4 mg/kg SUGAMMADEX 100 mg/mL Solution for Injection MSD is recommended if recovery has reached 1 to 2 post-tetanic counts (PTC) (profound blockade) following administration of rocuronium or vecuronium induced blockade (see section 4.4).

A dose of 2 mg/kg SUGAMMADEX 100 mg/mL Solution for Injection MSD is only recommended if spontaneous recovery has reached the reappearance of T₂ (shallow blockade) following rocuronium or vecuronium induced blockade (see section 4.4).

Immediate Reversal

If there is a clinical need for immediate reversal at 3 minutes following administration of rocuronium, a dose of 16 mg/kg SUGAMMADEX 100 mg/mL Solution for Injection MSD is recommended. There is no data to recommend the use of SUGAMMADEX 100 mg/mL Solution for Injection MSD for immediate reversal following vecuronium induced blockade.

4.3 Contraindications

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SUGAMMADEX 100 mg/mL Solution for Injection MSD is contraindicated in patients with known hypersensitivity to sugammadex sodium or to any of the inactive ingredients of SUGAMMADEX 100 mg/mL Solution for Injection MSD.

4.4 Special warnings and precautions for use

SUGAMMADEX 100 mg/mL Solution for Injection MSD is not to be used to reverse depolarising neuromuscular blocking agents.

Waiting times for re-administration with non-depolarising neuromuscular blocking agents (NMBA) after reversal with SUGAMMADEX 100 mg/mL Solution for Injection MSD.

Re-administration of rocuronium or vecuronium after a recommended dose reversal (up to 4 mg/kg sugammadex):

Minimum waiting time	NMBA (e.g. rocuronium and vecuronium) and dose to be administered
5 minutes	1,2 mg/kg rocuronium
4 hours	0,6 mg/kg rocuronium or 0,1 mg/kg vecuronium

When rocuronium 1,2 mg/kg is administered within 30 minutes after reversal with SUGAMMADEX 100 mg/mL Solution for Injection MSD, the onset of neuromuscular blockade may be delayed up to approximately 4 minutes and the duration of neuromuscular blockade may be shortened up to approximately 15 minutes.

Based on PK modelling the recommended waiting time in patients with mild or moderate renal impairment for re-use of 0,6 mg/kg rocuronium or 0,1 mg/kg vecuronium after routine reversal

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with sugammadex should be 24 hours. If a shorter waiting time is required, the rocuronium dose for a new neuromuscular blockade should be 1,2 mg/kg.

Re-administration of rocuronium or vecuronium after immediate reversal (16 mg/kg sugammadex):

A waiting time of 24 hours is recommended.

If neuromuscular blockade is required before the recommended waiting time has passed, a **non-steroidal neuromuscular blocking agent** should be used. The onset of a depolarising neuromuscular blocking agent might be slower than expected because a substantial fraction of post-junctional nicotinic receptors may still be occupied by the neuromuscular blocking agent.

Medicine Hypersensitivity

Doctors should be prepared for the possibility of medicine hypersensitivity reactions (including anaphylactic reactions) and take the necessary precautions.

Renal Impairment

SUGAMMADEX 100 mg/mL Solution for Injection MSD is not recommended for use in patients with severe renal impairment, creatinine clearance < 30 mL/min, including requiring dialysis (see section 5.2).

Because of the estimated prolonged half-life of sugammadex in severe renally impaired patients, a full neuromuscular blockade may not be achieved after re-use of 0,6 mg/kg rocuronium or 0,1 mg/kg vecuronium within 24 hours after sugammadex reversal.

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Marked Bradycardia

Marked bradycardia has been observed within minutes after the administration of SUGAMMADEX 100 mg/mL Solution for Injection MSD for reversal of neuromuscular blockade. Cases of bradycardia with cardiac arrest have been reported (see section 4.8). Patients should be closely monitored for haemodynamic changes during and after reversal of neuromuscular blockade. Treatment with anticholinergic agents such as atropine should be administered if clinically significant bradycardia is observed.

Monitoring Respiratory Function during Recovery

Ventilatory support is mandatory for patients until adequate spontaneous respiration is restored following reversal of neuromuscular block. Even if recovery from neuromuscular blockade is complete, other medicines used in the peri- and post-operative period could depress respiratory function and therefore ventilatory support might still be required.

Should neuromuscular blockade re-occur following extubation, adequate ventilation should be provided.

Effect on Haemostasis

In a study in volunteers, doses of 4 mg/kg and 16 mg/kg of SUGAMMADEX 100 mg/mL Solution for Injection MSD resulted in maximum mean prolongations of aPTT by 17 and 22 % respectively and of PT (INR) by 11 and 22 % respectively. These limited mean aPTT and PT (INR) prolongations were of short duration (\leq 30 minutes).

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Based on the clinical database (n=3 519) there was no clinically relevant effect of SUGAMMADEX 100 mg/mL Solution for Injection MSD alone or in combination with anticoagulants on the incidence of peri- or post-operative bleeding complications.

In a specific study in 1 184 surgical patients who were concomitantly treated with an anticoagulant, small and transient increases were observed in aPTT and PT(INR) associated with sugammadex 4 mg/kg, which did not translate into an increased bleeding risk with sugammadex compared with usual treatment.

In *in vitro* experiments additional aPTT and PT prolongation was noted for sugammadex in combination with vitamin K antagonists, unfractionated heparin, low molecular weight heparinoids, rivaroxaban and dabigatran.

Since bleeding risk has not been studied systematically at higher doses than sugammadex 4 mg/kg, coagulation parameters should be carefully monitored according to routine clinical practice in patients with known coagulopathies and in patients using anticoagulants who receive a dose of 16 mg/kg sugammadex.

Delayed Recovery

Conditions associated with prolonged circulation time such as cardiovascular disease, old age (see section 4.2 for the time to recovery in elderly), or oedematous state (e.g. severe hepatic impairment) may be associated with longer recovery times.

Hepatic Impairment

SUGAMMADEX 100 mg/mL Solution for Injection MSD is not metabolised nor excreted by the liver; therefore dedicated studies in patients with hepatic impairment have not been conducted.

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Hepatic impairment may be accompanied by coagulopathy (see the information on the Effect on Haemostasis above).

Light Anaesthesia

When neuromuscular blockade was reversed intentionally in the middle of anaesthesia in clinical trials, signs of light anaesthesia were noted occasionally (movement, coughing, grimacing and sucking of the tracheal tube). If neuromuscular blockade is reversed, while anaesthesia is continued, additional doses of anaesthetic and/or opioid should be given as clinically indicated.

Use in Intensive Care Unit (ICU)

SUGAMMADEX 100 mg/mL Solution for Injection MSD has not been investigated in patients receiving rocuronium or vecuronium in the ICU setting.

Use for Reversal of Neuromuscular Blocking Agents other than Rocuronium or Vecuronium

SUGAMMADEX 100 mg/mL Solution for Injection MSD should not be used to reverse block induced by non-steroidal neuromuscular blocking agents such as succinylcholine or benzyliisoquinolinium compounds.

SUGAMMADEX 100 mg/mL Solution for Injection MSD should not be used for reversal of neuromuscular blockage induced by **steroidal** neuromuscular blocking agents other than rocuronium or vecuronium, since there are no efficacy and safety data for these situations.

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Limited data are available for reversal of pancuronium induced blockage, but it is advised not to use SUGAMMADEX 100 mg/mL Solution for Injection MSD in this situation.

4.5 Interaction with other medicines and other forms of interaction

The information reported in this section is based on binding affinity between SUGAMMADEX 100 mg/mL Solution for Injection MSD and other medicines, non-clinical experiments, clinical studies and simulations using a model taking into account the pharmacodynamic effect of neuromuscular blocking agents and sugammadex.

Based on these data, no clinically significant pharmacodynamic interaction with other medicines are expected, with the exception of toremifene, fusidic acid and hormonal contraceptives. For these medicines, a clinically relevant interaction could not be excluded.

No clinically relevant interactions were reported during the clinical development. Due to the administration of certain medicines after sugammadex, theoretically rocuronium or vecuronium could be displaced from SUGAMMADEX 100 mg/mL Solution for Injection MSD. As a result recurrence of neuromuscular blockade might be observed. In this situation the patient must be ventilated.

Administration of medicines which caused displacement should be stopped in case of an infusion. In situations when potential displacement interactions can be anticipated, patients should be carefully monitored for signs of re-occurrence of blockade (approximately up to 15 minutes), after parenteral administration of another medicine occurring within a period of 7,5 hours after SUGAMMADEX 100 mg/mL Solution for Injection MSD administration.

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SUGAMMADEX 100 mg/mL Solution for Injection MSD should be used cautiously when co-administered with:

Toremifene

For toremifene, which has a relatively high binding affinity for sugammadex and for which relatively high plasma concentrations might be present, some displacement of vecuronium or rocuronium from the complex with SUGAMMADEX 100 mg/mL Solution for Injection MSD could occur.

The recovery of the train of four ratio, T_4/T_1 to 0,9 could therefore be delayed in patients who have received toremifene on the same day of surgery (see section 4.4).

Intravenous Administration of Fusidic Acid

The use of fusidic acid in the pre-operative phase may cause some delay in the recovery of the T_4/T_1 ratio to 0,9.

No recurrence of neuromuscular blockade is expected in the post-operative phase, since the infusion rate of fusidic acid is over a period of several hours and the blood levels are cumulative over 2 to 3 days.

Hormonal Contraceptives

In a simulation performed with a PK-PD model, it was found that the interaction between 4 mg/kg SUGAMMADEX 100 mg/mL Solution for Injection MSD and a progestogen could lead to a decrease in progestogen exposure (34 % of AUC) similar to the decrease seen when a daily dose of an oral contraceptive is taken 12 hours too late, which might lead to a reduction in effectiveness.

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Therefore, the administration of a bolus dose of SUGAMMADEX 100 mg/mL Solution for Injection MSD is considered to be equivalent to one missed daily dose of **oral** contraceptive steroids. Please refer to the missed dose advice in the package insert of the oral contraceptive, for any action required if an oral contraceptive is taken on the same day that SUGAMMADEX 100 mg/mL Solution for Injection MSD is administered.

In the case of non-oral hormonal contraceptives, the patient must use an additional non-hormonal contraceptive method for the next 7 days.

Interference with Laboratory Tests

SUGAMMADEX 100 mg/mL Solution for Injection MSD has been shown to interfere with the serum progesterone assay.

This interference was observed in plasma samples spiked with a concentration of SUGAMMADEX 100 mg/mL Solution for Injection MSD in the same range as obtained for C_{max} after a dose of 16 mg/kg.

Additional information on special populations

Paediatric Population

No formal interaction studies have been performed. The above-mentioned interactions for adults and the warnings should also be taken into account for the paediatric population.

4.6 Fertility, pregnancy and lactation

Pregnancy

The safety in pregnant women has not been established.

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Breastfeeding

Excretion of sugammadex in human milk has not been studied but can be expected based on the pre-clinical data. Animal studies have shown excretion of sugammadex in breast milk. Caution should be exercised when administering SUGAMMADEX 100 mg/mL Solution for Injection MSD to breastfeeding women.

4.7 Effects on ability to drive and use machines

SUGAMMADEX 100 mg/mL Solution for Injection MSD has no known influence on the ability to drive and use machines.

4.8 Undesirable effects

Summary of the safety profile

The most commonly reported adverse reactions in surgical patients were cough, airway complication, anaesthesia complications, procedural hypotension and procedural complications (Common ($\geq 1/100$ to $< 1/10$)).

The safety of sugammadex has been evaluated in 3 519 unique subjects across a pooled phase I-III safety database. The following adverse reactions were reported in placebo-controlled trials where subjects received anaesthesia and/or neuromuscular blocking agents (1 078 subject exposures to sugammadex versus 544 to placebo):

[Very common ($\geq 1/10$), common ($\geq 1/100$ to $< 1/10$), uncommon ($\geq 1/1\ 000$ to $< 1/100$), rare ($\geq 1/10\ 000$ to $< 1/1\ 000$), very rare ($< 1/10\ 000$)]

System organ class	Frequencies	Adverse reactions (Preferred terms)

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Immune system disorders	Uncommon	Drug hypersensitivity reactions (see section 4.4)
Respiratory, thoracic and mediastinal disorders	Common	Cough
Injury, poisoning and procedural complications	Common	Airway complication of Anaesthesia Anaesthetic complication (see section 4.4) Procedural hypotension Procedural complication

Description of selected adverse reactions

In clinical studies, the investigator reported terms for complications resulting from anaesthesia or surgery were grouped in the adverse event categories below, and included the following:

Airway Complication of Anaesthesia

Airway complications of anaesthesia included bucking against the endotracheal tube, coughing, mild bucking, arousal reaction during surgery, coughing during the anaesthetic procedure or during surgery, or contra breath (spontaneous breath of patient, anaesthetic procedure related).

Anaesthetic Complications

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Anaesthetic complications, indicative of the restoration of neuromuscular function, include movement of a limb or the body or coughing during the anaesthetic procedure or during surgery, grimacing, or sucking on the endotracheal tube.

Procedural Complication

Procedural complications included coughing, tachycardia, bradycardia, movement and increase in heart rate.

Recurrence of Neuromuscular Blockade

In clinical studies with subjects treated with rocuronium or vecuronium, where sugammadex was administered using a dose labelled for the depth of neuromuscular blockade (N=2 022), an incidence of 0,20 % was observed for recurrence of neuromuscular blockade as based on neuromuscular monitoring or clinical evidence.

The use of lower than recommended doses may lead to an increased risk of recurrence of neuromuscular blockade after initial reversal and is not recommended.

In cases where recurrence of neuromuscular blockade is observed, the patient must be ventilated.

Medicine Hypersensitivity Reactions

Hypersensitivity reactions, including anaphylaxis, have occurred in some patients and volunteers (for information on volunteers, see Information on healthy volunteers below). In clinical trials of surgical patients these reactions were reported uncommonly and for post-marketing reports the frequency is unknown.

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These reactions varied from isolated skin reactions to serious systemic reactions (i.e. anaphylaxis, anaphylactic shock) and have occurred in patients with no prior exposure to SUGAMMADEX 100 mg/mL Solution for Injection MSD.

Symptoms associated with these reactions can include: flushing, urticaria, erythematous rash, (severe) hypotension, tachycardia, swelling of tongue, swelling of the pharynx, bronchospasm and pulmonary obstructive events. Severe hypersensitivity reactions can be fatal.

Information on Healthy Volunteers

A randomised, double-blind study examined the incidence of drug hypersensitivity reactions in healthy volunteers given up to 3 repeat doses of placebo (N=76), sugammadex 4 mg/kg (N=151) or sugammadex 16 mg/kg (N=148). Reports of suspected hypersensitivity were adjudicated by a blinded committee. The incidence of adjudicated hypersensitivity was 1,3 %, 6,6 % and 9,5 % in the placebo, sugammadex 4 mg/kg and sugammadex 16 mg/kg groups, respectively. There were no reports of anaphylaxis after placebo or sugammadex 4 mg/kg. There was a single case of adjudicated anaphylaxis after the first dose of sugammadex 16 mg/kg (incidence 0,7 %). There was no evidence of increased frequency or severity of hypersensitivity with repeat dosing of sugammadex.

In a previous study of similar design, there were three adjudicated cases of anaphylaxis, all after sugammadex 16 mg/kg (incidence 2,0 %).

The most common adverse reaction in pooled healthy volunteers was dysgeusia (10 %).

Marked Bradycardia

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In post-marketing, cases of marked bradycardia and bradycardia with cardiac arrest have been observed within minutes after administration of sugammadex (see section 4.4).

Additional Information on Special Populations

Pulmonary Patients

In post-marketing data and in one dedicated clinical trial in patients with a history of pulmonary complications bronchospasm was reported as a possibly related adverse event.

Paediatric Population

A limited database suggests that the safety profile of SUGAMMADEX 100 mg/mL Solution for Injection MSD (up to 4 mg/kg) in paediatric patients above 7 years old, was similar to that in adults.

Reporting of suspected adverse reactions

Reporting suspected adverse reactions after authorisation of the medicine is important. It allows continued monitoring of the benefit/risk balance of the medicine. Healthcare providers are asked to report any suspected adverse reactions to SAHPRA via the “**6.04 Adverse Drug Reactions Reporting Form**”, found online under SAHPRA’s publications:

<https://www.sahpra.org.za/Publications/Index/8>.

4.9 Overdose

SUGAMMADEX 100 mg/mL Solution for Injection MSD can be removed using haemodialysis with a high-flux filter, but not with a low-flux filter. Based upon clinical studies, SUGAMMADEX

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100 mg/mL Solution for Injection MSD concentrations in plasma are reduced with a high-flux filter by about 70 % after a 3- to 6-hour dialysis session.

5 PHARMACOLOGICAL PROPERTIES

A.34 Other

5.1 Pharmacodynamic properties

Sugammadex sodium injection is a modified cyclodextrin. It is a selective relaxant binding agent (SRBA) which forms a complex with the neuromuscular blocking agents rocuronium and vecuronium, and it reduces the amount of neuromuscular blocking agent available to bind to nicotinic receptors in the neuromuscular junction. This results in the reversal of neuromuscular blockade induced by rocuronium and vecuronium.

Sugammadex has been administered in doses ranging from 0,5 mg/kg to 16 mg/kg in dose response studies of rocuronium induced blockade (0,6, 0,9, 1,0 and 1,2 mg/kg rocuronium bromide with and without maintenance doses) and vecuronium induced blockade (0,1 mg/kg vecuronium bromide with or without maintenance doses) at different time points/depths of blockade. In these studies a clear dose-response relationship was observed.

5.2 Pharmacokinetic properties

The sugammadex pharmacokinetic parameters were calculated from the total sum of non-complex-bound and complex-bound concentrations of sugammadex. Pharmacokinetic parameters as clearance and volume of distribution are assumed to be the same for non-complex-bound and complex-bound sugammadex in anaesthetised subjects.

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Distribution

The observed steady-state volume of distribution of sugammadex sodium is approximately 11 to 14 litres in adult patients with normal renal function (based on conventional, non-compartmental pharmacokinetic analysis). Neither sugammadex nor rocuronium bind to plasma proteins or erythrocytes. Sugammadex sodium exhibits linear kinetics in the dose range of 1 to 16 mg/kg when administered as an IV bolus dose.

Metabolism

No metabolites of sugammadex have been observed and only renal excretion of the unchanged product was observed as the route of elimination.

Elimination

In adult anaesthetised patients with normal renal function the elimination half-life ($t_{1/2}$) of sugammadex sodium is about 2 hours and the estimated plasma clearance is about 88 mL/min. A mass balance study demonstrated that > 90 % of the dose was excreted within 24 hours. Ninety six percent (96 %) of the dose was excreted in urine, of which at least 95 % could be attributed to unchanged sugammadex. Excretion via faeces or expired air was < 0,02 % of the dose. Administration of sugammadex sodium to healthy volunteers resulted in increased renal elimination of rocuronium in complex.

Special populations

Renal impairment

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In a pharmacokinetic study comparing patients with severe renal impairment to patients with normal renal function, sugammadex levels in plasma were similar during the first hour after dosing and thereafter the levels decreased faster in the control group. Total exposure to sugammadex was prolonged, leading to approximately 17-fold higher exposure in patients with severe renal impairment. Low concentrations of sugammadex are detectable for at least 48 hours post-dose in patients with severe renal insufficiency.

In a second study comparing subjects with moderate or severe renal impairment to subjects with normal renal function, sugammadex clearance progressively decreased and $t_{1/2}$ was progressively prolonged with declining renal function. Exposure was 2-fold and 5-fold higher in subjects with moderate and severe renal impairment, respectively. Sugammadex concentrations were no longer detectable beyond 7 days post-dose in subjects with severe renal insufficiency. Predicted pharmacokinetic parameters of sugammadex by age group and renal function based on compartmental modelling are presented below:

Selected patient characteristics				Mean predicted PK parameters (CV%)		
Demographics	Renal function Creatinine clearance (mL/min)			Clearance (mL/min)	Volume of distribution at steady- state (L)	Elimination half-life (hr)
Adult	Normal		100	88 (22)	12	2 (21)
40 yrs 75 kg	Impaired	Mild	50	51 (22)	13	4 (22)
		Moderate	30	31 (23)	14	6 (23)
		Severe	10	9 (22)	14	19 (24)

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Elderly	Normal		80	75 (23)	12	2 (21)
75 yrs	Impaired	Mild	50	51 (24)	13	3 (22)
75 kg		Moderate	30	31 (23)	14	6 (23)
		Severe	10	9 (22)	14	19 (23)
Adolescent	Normal		95	77 (23)	9	2 (22)
15 yrs	Impaired	Mild	48	44 (23)	10	3 (22)
56 kg		Moderate	29	27 (22)	10	5 (23)
		Severe	10	8 (21)	11	17 (23)
Child	Normal		51	37 (22)	4	2 (20)
7 yrs	Impaired	Mild	26	19 (22)	4	3 (22)
23 kg		Moderate	15	11 (22)	4	5 (22)
		Severe	5	3 (22)	5	20 (25)

*CV=coefficient of variation

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Inactive ingredients: Water for injection, hydrochloric acid and/or sodium hydroxide.

6.2 Incompatibilities

This medicinal product must not be mixed with other medicinal products except those mentioned in section 6.6.

Physical incompatibility has been reported with verapamil, ondansetron and ranitidine.

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6.3 Shelf life

3 years

6.4 Special precautions for storage

Store at or below 30 °C. Do not freeze. Keep the vial in the outer carton in order to protect from light. When not protected from light, the vial should be used within 5 days.

After first opening and dilution, chemical and physical in-use stability has been demonstrated for 48 hours at 2 to 25 °C. From a microbiological point of view, the diluted product should be used immediately. If not used immediately, in-use storage times and conditions prior to use are the responsibility of the user and would normally not be longer than 24 hours at 2 to 8 °C, unless dilution has taken place in controlled and validated aseptic conditions.

Any unused product or waste material should be disposed of in accordance with local requirements.

6.5 Nature and contents of container

SUGAMMADEX 100 mg/mL Solution for Injection MSD is packed in colourless, glass vials, sealed with grey, chlorobutyl rubber stoppers firmly sealed with aluminium crimp-cap with polypropylene, “flush edge”, flip-off buttons. The rubber stoppers do not contain latex.

Pack sizes: 10 vials of 2 mL.

SUGAMMADEX 100 mg/mL Solution for Injection MSD is a clear and colourless to slightly yellow solution with pH of between 7 and 8.

6.6 Special precautions for disposal and handling

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SUGAMMADEX 100 mg/mL Solution for Injection MSD can be injected into the intravenous line of a running infusion with the following intravenous solutions: sodium chloride 9 mg/mL (0,9 %), glucose 50 mg/mL (5 %), sodium chloride 4,5 mg/mL (0,45 %) and glucose 25 mg/mL (2,5 %), Ringers lactate solution, Ringers solution, glucose 50 mg/mL (5 %) in sodium chloride 9 mg/mL (0,9 %).

The infusion line should be adequately flushed (e.g. with 0,9 % sodium chloride) between administration of SUGAMMADEX 100 mg/mL Solution for Injection MSD and other drugs.

Use in the paediatric population

For paediatric patients SUGAMMADEX 100 mg/mL Solution for Injection MSD can be diluted using sodium chloride 9 mg/mL (0,9 %) to a concentration of 10 mg/mL (see section 6.3).

Any unused medicinal product or waste material should be disposed of in accordance with local requirements.

7 HOLDER OF CERTIFICATE OF REGISTRATION

MSD (Pty) Ltd

117 16th Road

Halfway House

1685

South Africa

8 REGISTRATION NUMBER

58/34/0139

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9 DATE OF FIRST AUTHORISATION/RENEWAL OF THE AUTHORISATION

24 October 2023

10 DATE OF REVISION OF THE TEXT