

Population pharmacokinetic/pharmacodynamic modeling demonstrated that the reduction of total and tonic-atonic seizure frequencies, the improvement of the global evaluation of seizure severity and the increase in probability of reduction of seizure frequency were dependent on rufinamide concentrations.

5.2 Pharmacokinetic Properties

Absorption

Maximum plasma levels are reached approximately 6 hours after administration. Peak concentration (C_{max}) and plasma AUC of rufinamide increase less than proportionally with doses in both fasted and fed healthy subjects and in patients, probably due to dose-limited absorption behavior. After a low single doses food increases the absorption of rufinamide by approximately 34% and the peak plasma concentration by 56%, however at high dose steady state there is no notable influence of food on rufinamide exposure.

Distribution

In in vitro studies, only a small fraction of rufinamide (34%) was bound to human serum proteins with albumin accounting for approximately 80% of this binding. This indicates minimal risk of drug-drug interactions by displacement from binding sites during concomitant administration of other drugs. Rufinamide was evenly distributed between erythrocytes and plasma.

Biotransformation

Rufinamide is almost exclusively eliminated by metabolism. The main pathway of metabolism is hydrolysis of the carboxylamide group to the pharmacologically inactive acid derivative CGP 47292. Cytochrome P450-mediated metabolism is very minor. There is no indication of involvement of glutathione conjugation in the biotransformation process.

Rufinamide has demonstrated little or no significant capacity *in-vitro* to act as a competitive or mechanism-based inhibitor of the following human P450 enzymes: CYP1A2, CYP2A6, CYP2C9, CYP2C19, CYP2D6, CYP2E1, CYP3A4/5 or CYP4A9/11-2.

Elimination

The plasma elimination half-life is approximately 6-10 hours in healthy subjects and patients with epilepsy. When given twice daily at 12-hourly intervals, rufinamide accumulates to the extent predicted by its terminal half-life, indicating that the pharmacokinetics of rufinamide are time-independent (i.e., no autoinduction of metabolism).

In a radiotracer study in three healthy volunteers, the parent compound (rufinamide) was the main radioactive component in plasma, representing about 80% of the total radioactivity, with the metabolite CGP 47292 constituting only about 15%.² Renal excretion was the predominant route of elimination for drug related material, accounting for 84.7% of the dose.

Linearity/Non-Linearity

The bioavailability of rufinamide is dependent on dose. As dose increases the bioavailability decreases.

Special Populations

Hepatic Impairment

No studies have been performed in patients with hepatic impairment and therefore rufinamide should not be administered to patients with severe hepatic impairment. Caution should be exercised in treating patients with mild to moderate hepatic impairment. (Section 4.4)

Renal Impairment

The pharmacokinetics of a single 400 mg dose of rufinamide was not altered in subjects with chronic and severe renal failure compared to healthy volunteers. However, plasma levels were reduced by approximately 30% when hemodialysis was applied after administration of rufinamide, suggesting that this may be a useful procedure in case of overdose (Section 4.9).

Gender

Population pharmacokinetic modeling has been used to evaluate the influence of sex on the pharmacokinetics of rufinamide. Such evaluations indicate that sex does not have any clinically relevant affect the pharmacokinetics of rufinamide.³

Pediatric Population

Children generally have lower clearance of rufinamide than adults, and this difference is related to body size. Studies in newborn infants or infants and toddlers under 2 years of age have not been conducted.

Elderly Population

A pharmacokinetic study in elderly healthy volunteers did not

show a significant difference in pharmacokinetic parameters compared with younger adults.

5.3 Preclinical Safety Data

Conventional safety pharmacology studies revealed no special hazards at clinically relevant doses.

Toxicities observed in dogs at exposures similar to human exposure at the maximum recommended dose were liver changes, including bile thrombi, cholestasis and liver enzyme elevations thought to be related to increased bile secretion in this species. No evidence of an associated risk was identified in the rat and monkey repeat dose toxicity studies.

In reproductive and developmental toxicity studies, there were reductions in fetal growth and survival, and some stillbirths secondary to maternal toxicity. However, no effects on morphology and function, including learning or memory, were observed in the offspring. Rufinamide was not teratogenic in mice, rats or rabbits.

Rufinamide was not genotoxic and had no carcinogenic potential. Adverse effects not observed in clinical studies, but seen in animals at exposure levels similar to clinical exposure levels and with possible relevance to human use, was myelofibrosis of the bone marrow in the mouse carcinogenicity study. Benign bone neoplasms (osteomas) and hyperostosis seen in mice were considered a result of the activation of a mouse specific virus by fluoride ions released during the oxidative metabolism of rufinamide.

Regarding the immunotoxic potential, small thymus and thymic involution were observed in dogs in a 13-week study with significant response at the high dose in male. In the 13-week study, female bone marrow and lymphoid changes are reported at the high dose with a weak incidence. In rats, decreased cellularity of the bone marrow and thymic atrophy were observed only in the carcinogenicity study.

Oral administration of rufinamide (doses of 20, 60, 200, and 600 mg/kg per day) to male and female rats prior to mating and throughout mating, and continuing in females up to day 6 of gestation resulted in impairment of fertility (decreased conception rates and mating and fertility indices; decreased numbers of corpora lutea, implantations, and live embryos; increased preimplantation loss; decreased sperm count and motility) at all dosed tested. Therefore, a no-effect dose was not established. The lowest dose tested was associated with a plasma AUC = 0.2 times the human plasma AUC at the max recommended human dose.

6. PHARMACEUTICAL PARTICULARS

6.1 List of Excipients

The excipients used for the rufinamide film-coated tablets are all of pharmacopoeial quality:

Core: Sodium laurylsulfate, Colloidal anhydrous silica / Colloidal silicon dioxide, Magnesium stearate, Croscarmellose sodium, Hypromellose / Hydroxypropyl Methylcellulose, Maize starch / Corn starch, Lactose monohydrate, Microcrystalline Cellulose, Purified water.

Coat: Red iron oxide / Ferric oxide (red), Titanium dioxide, Macrogol / Polyethylene glycol, Talc, Hypromellose / Hydroxypropyl Methylcellulose, Purified water.

6.2 Incompatibilities

None

6.3 Shelf Life

Rufinamide should be used before the expiration date indicated in the package.

6.4 Storage Condition

Store at temperatures not exceeding 30°C.

6.5 Availability

Aluminum /Aluminum blister pack of 10's (box of 60 film-coated tablets)

6.6 Instructions for Use and Handling

No special requirements.

CAUTION

Foods, Drugs, Devices and Cosmetics Act prohibits dispensing without prescription.

ADMINISTRATIVE DATA

MARKETING AUTHORIZATION HOLDER (PRODUCT REGISTRATION HOLDER)

Eisai (Singapore) Pte Ltd

152 Beach Road
#15-07/08 Gateway East
Singapore 189721

MARKETING AUTHORIZATION NUMBER (PRODUCT REGISTRATION NUMBER)

SIN15146P

DATE OF FIRST AUTHORIZATION/RENEWAL OF AUTHORIZATION

16 Jan 2007 in EU

DATE OF REVISION OF PACKAGE INSERT

April 2023

Imported by:

Eisai (Singapore) Pte Ltd

152 Beach Road
#15-07/08 Gateway East
Singapore 189721

Distributed by:

Zuellig Pharma Pte Ltd

15 Changi North Way
#01-01
Singapore 498770

Manufactured by:

Bushu Pharmaceuticals Ltd. Misato Factory

950, Hiroki, Ohaza, Misato-machi, Kodama-gun,
Saltama-ken, Japan

Under License of Eisai Co., Ltd.

Packed by:



Eisai Manufacturing Ltd

European Knowledge Centre
Mosquito Way, Hatfield,
Hertfordshire

AL10 9SN, United Kingdom

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APPROVAL SIGNATURE

DATE

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Item No.	2006070	
EML	EML-INOV/TAB-2300015	
Description	Inovelon Tablets	
Strength	ALL	
Change Description	Address Change	
Component Type	Leaflet	
Dimensions	945 x 185 mm	
Keyline Reference	LEAF004	V 07
Varnish		
Market(s)	NON EU: SINGAPORE	
Language(s)	ENGLISH	
Barcode Type	:	
Pharmacoode	4986	
Proof By	EBR	
Proof Number	1	
Main Body Font Size	9pt	
Printed Colours	1	
Date	22/05/2023	

PRINTING COLOURS

● Black

TECHNICAL COLOURS

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- Keyline (Non-Printing)
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