

# Solriamfetol and Maintenance of Wakefulness Outcomes in Patients With Narcolepsy and Obstructive Sleep Apnea

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# Introduction

Solriamfetol (Sunosi®) is a dopamine-norepinephrine reuptake inhibitor with agonistic properties at the trace amine-associated receptor 1 (TAAR1) and serotonin 1A (5HT<sub>1a</sub>) receptor<sup>1</sup>

Solriamfetol is approved in the United States, Canada, and select European countries to treat EDS associated with OSA (37.5–150 mg/day) and narcolepsy (75–150 mg/day)<sup>2-4</sup>

In the Treatment of Obstructive Sleep Apnea and Narcolepsy Excessive Sleepiness (TONES) Trials, solriamfetol led to improvements in objective sleepiness, as measured by the Maintenance of Wakefulness Test (MWT)

## Objective

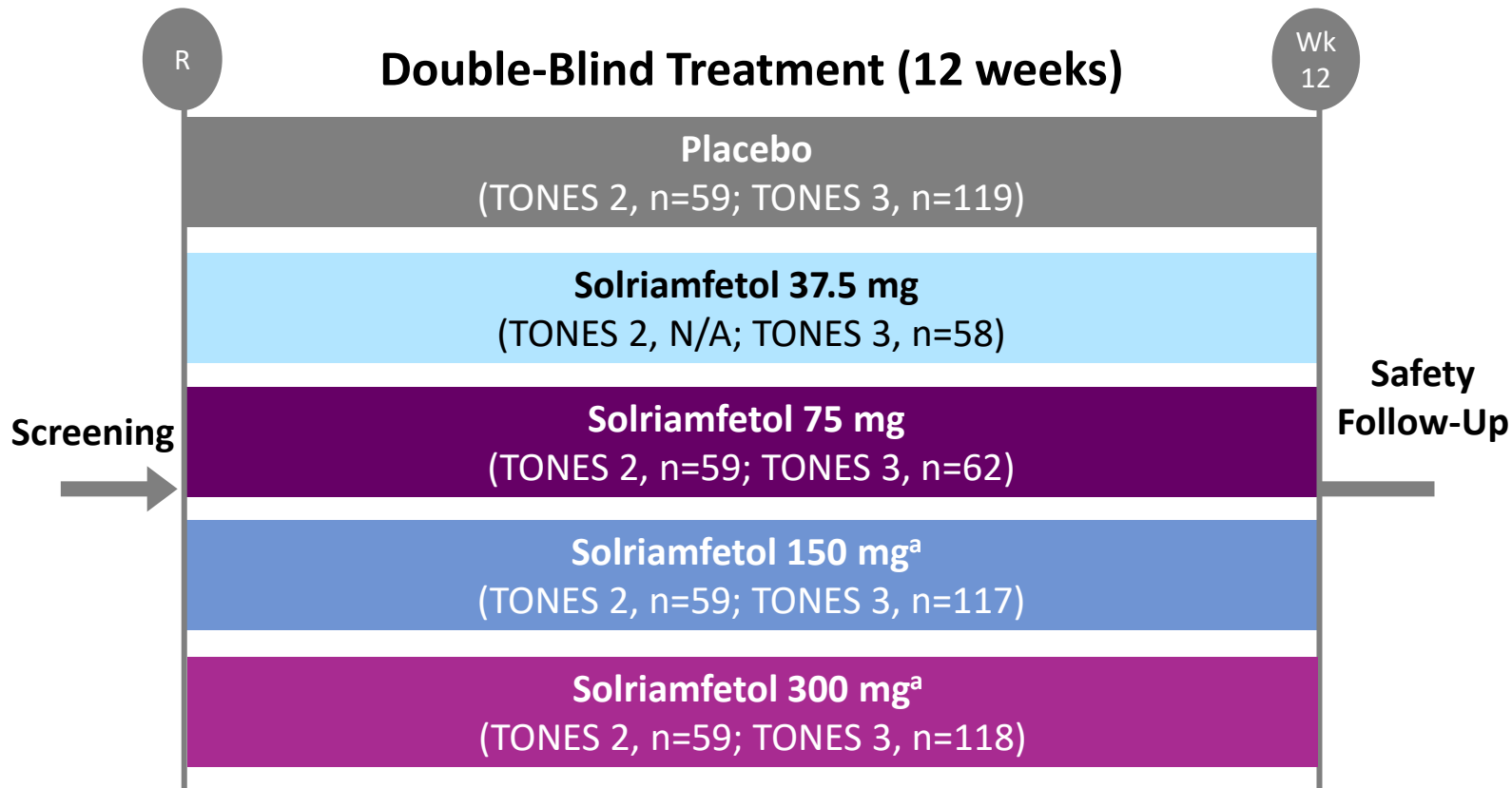
- Post-hoc analysis of the proportion of participants in TONES 2 (narcolepsy) and 3 (OSA) who:
  - 1) Achieved improvements in sleep latency on MWT of  $\geq 5$ ,  $\geq 10$ ,  $\geq 15$ , and  $\geq 20$  minutes
  - 2) Achieved mean sleep latencies of  $\geq 20$ ,  $\geq 30$ , and 40 minutes

1. Gursahani H, et al W. *Sleep*. 2022;45(suppl 1): A329. 2. Sunosi® (solriamfetol) tablets [prescribing information]. New York, NY: AxsomeTherapeutics, Inc; 2022.

3. Sunosi®(solriamfetol) tablets Summary of Product Characteristics. KøbenhavnS, Denmark: AtnahsPharma Netherlands B. V.; 2023.

4. Sunosi [product monograph including patient medical information]. Malta: AxsomeMalta Ltd.; 2022.

# Methods: Design of TONES 2 and 3



- Randomized, placebo-controlled, parallel-group study
- Participants were adult males and females 18–75 years of age who were diagnosed with **narcolepsy** (TONES 2) or **OSA** (TONES 3)
  - Concomitant use of wake-promoting agents/stimulants was not allowed
- Coprimary endpoints were change from baseline to week 12 in mean sleep latency on the first 4 administrations of a 40-minute MWT

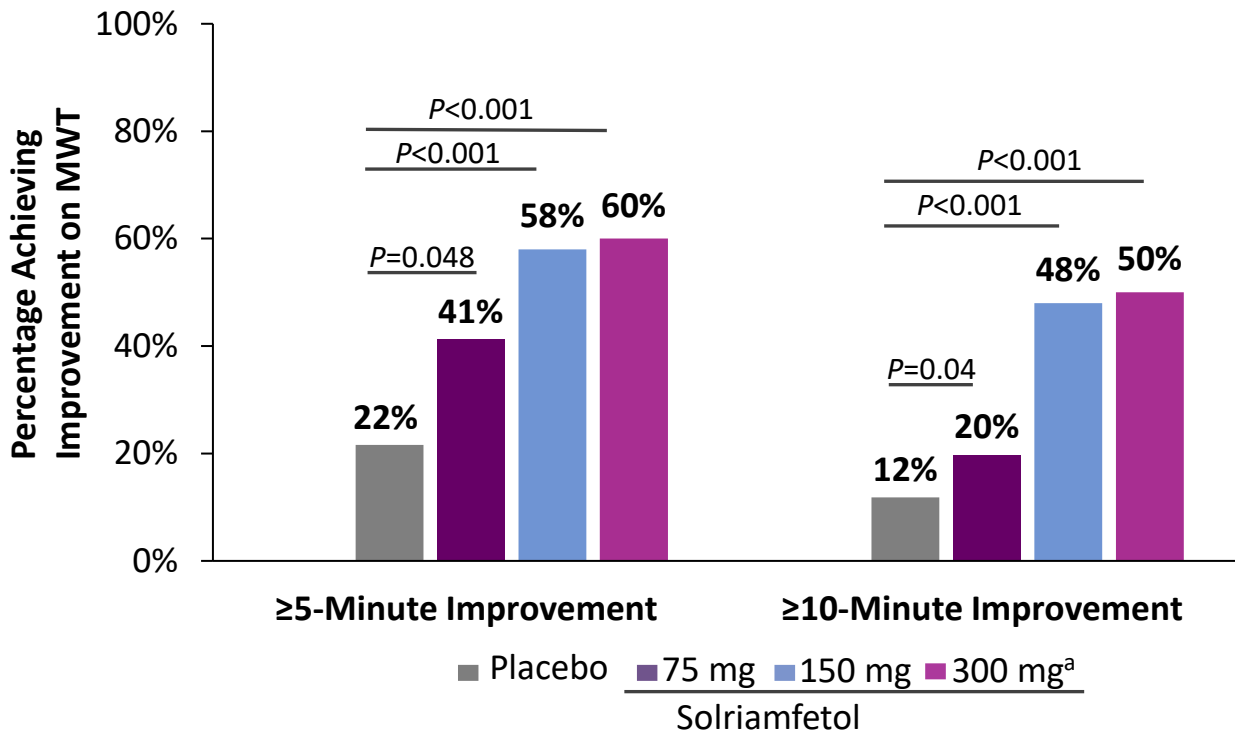
# Key Findings: Baseline Sociodemographic and Clinical Characteristics

	TONES 2 (Narcolepsy) <sup>1</sup>				TONES 3 (OSA) <sup>2</sup>				
	Placebo n = 59	Solriamfetol			Placebo n = 119	Solriamfetol			
		75mg n = 59	150mg n = 59	300 mg n = 59		37.5 mg n = 58	75 mg n = 62	150 mg n = 117	300 mg n = 118
Mean age, years (SD)	36.0 (15.2)	36.5 (12.8)	38.1 (13.0)	34.3 (11.5)	54.1 (11.4)	57.1 (10.2)	54.4 (11.5)	52.7 (10.6)	53.2 (10.6)
Male gender, n (%)	24 (40.7)	22 (37.3)	17 (28.8)	19 (32.2)	77 (64.7)	39 (67.2)	35 (56.5)	72 (61.5)	74 (62.7)
Race, n (%)									
White	47 (79.7)	46 (78.0)	48 (81.4)	48 (81.4)	87 (73.1)	45 (77.6)	46 (74.2)	93 (79.5)	90 (76.3)
Black/African American	10 (16.9)	12 (20.3)	6 (10.2)	5 (8.5)	26 (21.8)	10 (17.2)	14 (22.6)	18 (15.4)	21 (17.8)
Asian	0	0	3 (5.1)	3 (5.1)	4 (3.4)	3 (5.2)	1 (1.6)	3 (2.6)	6 (5.1)
Other	2 (3.4)	1 (1.7)	2 (3.4)	3 (5.1)	2 (1.6)	0	1 (1.6)	3 (2.6)	1 (0.8)
Mean BMI, kg/m <sup>2</sup> (SD)	29.1 (6.0)	27.9 (5.4)	27.9 (5.8)	28.1 (6.3)	33.1(5.2)	34.1 (5.3)	33.4 (5.7)	33.3 (4.8)	32.9 (5.6)
Mean MWT sleep latency, minutes (SD)	6.1 (5.6)	7.5 (5.4)	7.7 (5.6)	8.7 (6.2)	12.4 (7.2)	13.6 (8.1)	13.1 (7.2)	12.5 (7.2)	12.0 (7.3)

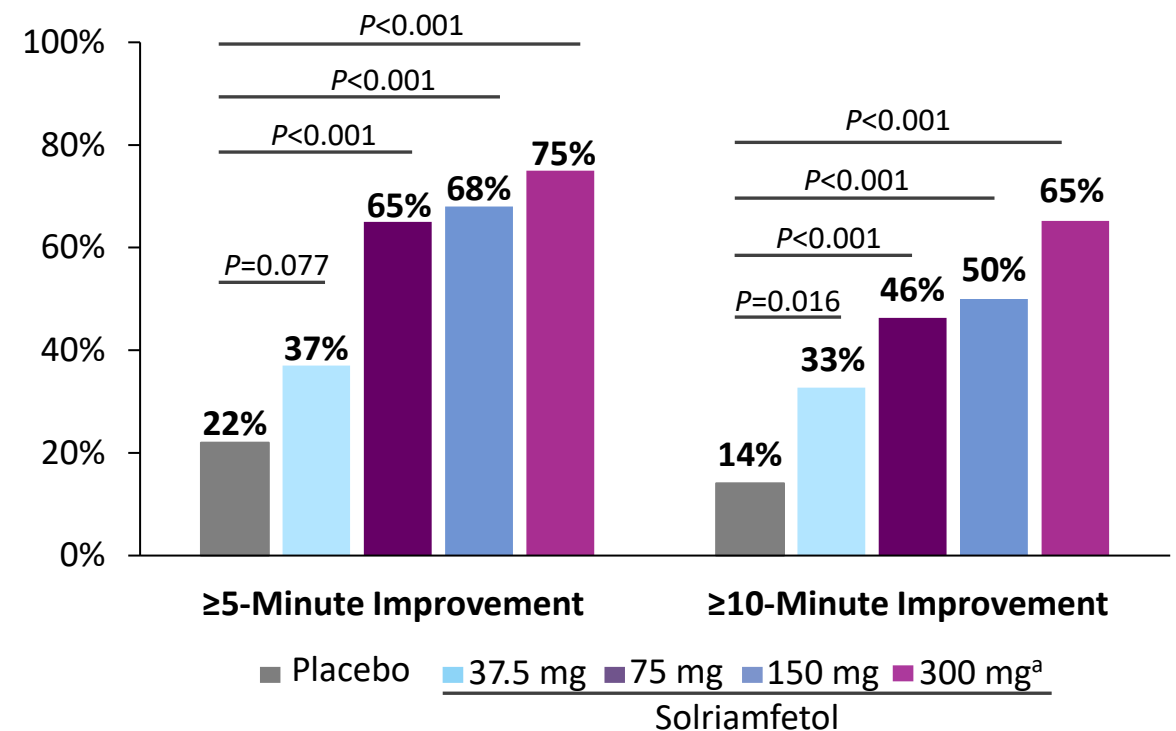
- Mean MWT sleep latencies at baseline across placebo and solriamfetol groups ranged from 6.1 to 8.7 minutes in participants with narcolepsy and 12.0 to 13.6 minutes in those with OSA

# Key Findings: Participants With Narcolepsy and OSA Who Achieved Improvement on the MWT at Week 12

TONES 2 (Narcolepsy)



TONES 3 (OSA)

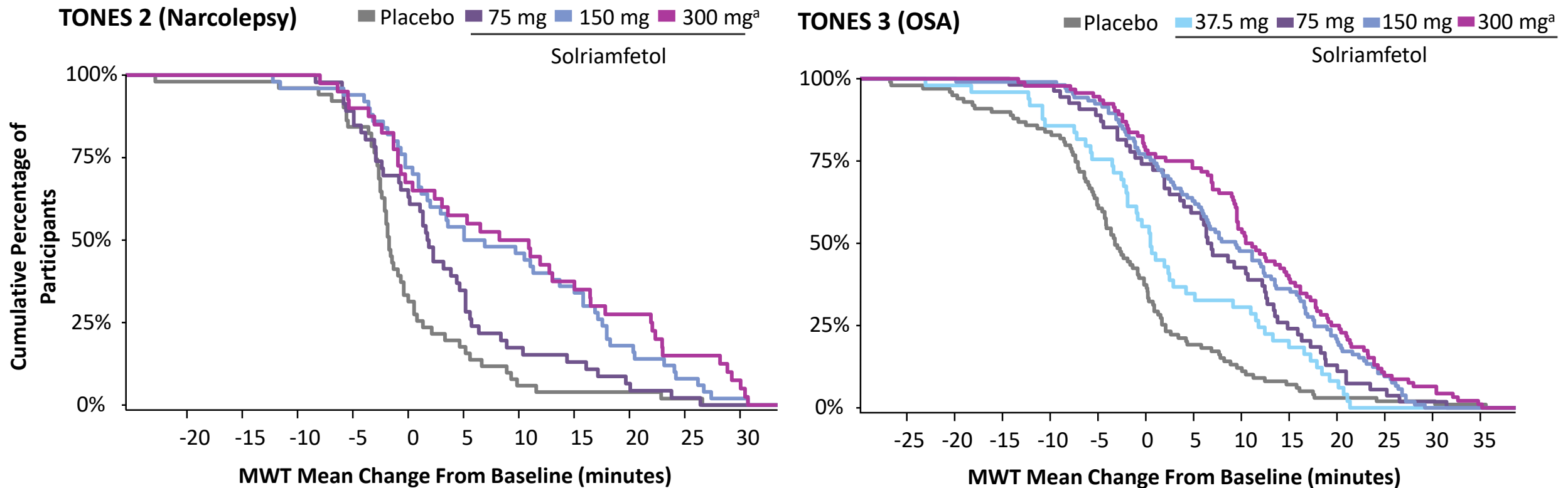


- Larger proportions of patients with narcolepsy and OSA randomized to solriamfetol achieved ≥5- and ≥10-minute increases in sleep latency than placebo
  - A significantly greater proportion of participants randomized to solriamfetol 75 mg (OSA only; P≤0.03), 150 mg (all; P≤0.03), and 300 mg (all; P≤0.002) achieved ≥15- and ≥20-minute improvement in MWT compared with placebo

<sup>a</sup>Not an approved dose.

MWT, Maintenance of Wakefulness Test; OSA, obstructive sleep apnea; TONES, Treatment of Obstructive Sleep Apnea and Narcolepsy Excessive Sleepiness.

# Key Findings: Cumulative Proportions of Participants With Mean MWT Changes From Baseline to Week 12 by Treatment Group



- Solriamfetol leads to larger mean changes in sleep latency in a dose-dependent manner in participants with narcolepsy or OSA

<sup>a</sup>Not an approved dose.  
MWT, Maintenance of Wakefulness Test; OSA, obstructive sleep apnea; TONES, Treatment of Obstructive Sleep Apnea and Narcolepsy Excessive Sleepiness.

# Key Findings: MWT Sleep Latency

Proportions of Participants Who Achieved $\geq 20$ -, $\geq 30$ -, and 40-Minute Mean Sleep Latency on the MWT at Week 12						
Treatment	TONES 2 (Narcolepsy)			TONES 3 (OSA)		
	$\geq 20$ -Minute	$\geq 30$ -Minute	40-Minute	$\geq 20$ -Minute	$\geq 30$ -Minute	40-Minute
<b>Solriamfetol</b>						
37.5 mg	NA	NA	NA	37%	22%	10%
75 mg	19%	15%	0%	54%	28%	11%
150 mg	41%	24%	6%	63%	34%	10%
300 mg <sup>a</sup>	45%	30%	13%	63%	44%	15%
<b>Placebo</b>						
	12%	2%	0%	24%	11%	2%

<sup>a</sup>Not an approved dose.

MWT; Maintenance of Wakefulness Test; OSA, obstructive sleep apnea.

Overall, a greater proportion of participants with narcolepsy and OSA achieved sleep latencies of  $\geq 20$ ,  $\geq 30$ , and 40 minutes with solriamfetol than placebo

# Conclusion

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- In this post-hoc analysis, solriamfetol was associated with:
  - Significant improvements in MWT sleep latency ( $\geq 5$ ,  $\geq 10$ ,  $\geq 15$ , and  $\geq 20$  minutes) in participants with narcolepsy and OSA
  - Substantial portion of participants with sleep latencies consistent with normal range (20-40 mins)
- These findings indicate that solriamfetol significantly enhances wakefulness in patients with narcolepsy or OSA





# Acknowledgements

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