

Powerful Efficacy in Reducing ARR, GdE Lesions, and New/Enlarging T2 Lesions vs Avonex^{1a} Data on Brain Volume and Cognitive Processing Speed (SDMT) in Secondary, Exploratory Endpoints and Post Hoc Analysis^{2,3} Safety Profile Comparable to Avonex in Overall Incidence of Adverse Reactions¹⁶

≥90% of Patients Treated With ZEPOSIA Stayed on Therapy Through Completion of Pivotal Trials^c

^aStudy designs: SUNBEAM (1 year; N=1346) and RADIANCE (2 years; N=1313) were multicenter, randomized, double-blind, double-dummy, active treatment-controlled studies of daily oral ozanimod 0.46 mg (not approved for maintenance dose) or 0.92 mg vs weekly Avonex (interferon beta-1a), 30-µg intramuscular injection. Primary endpoint: ZEPOSIA reduced ARR vs Avonex by 48% at 1 year (0.18 vs 0.35, respectively) and by 38% at 2 years (0.17 vs 0.28, respectively). Secondary endpoints: ZEPOSIA reduced the number of new or enlarging T2 lesions by 48% at 1 year and by 42% at 2 years and reduced the number of GdE lesions vs Avonex by 63% at 1 year and 53% at 2 years. 9 of 10 patients showed no confirmed 3-month disability progression. There was no significant difference in 3-month confirmed disability between ZEPOSIA and Avonex.¹³

⁶Adverse reactions: Overall incidence of adverse reactions for ZEPOSIA vs Avonex at 1 year was 59.8% and 75.5%, respectively, and at 2 years was 74.7% and 83.0%, respectively. Across 2 head-to-head trials, the most common adverse reactions with an incidence of at least 2% in patients treated with ZEPOSIA and at least 1% greater than Avonex, respectively, were as follows: upper respiratory infection, 26% (vs 23%); hepatic transaminase elevation, 10% (vs 5%); orthostatic hypotension, 4% (vs 3%); back pain, 4% (vs 3%); hypertension, 4% (vs 2%); and abdominal pain upper, 2% (vs 1%). Data are not an adequate basis for comparison of rates between ZEPOSIA and the active control. Upper respiratory infection includes nasopharyngitis, upper respiratory tract infection, pharyngitis, respiratory tract infection, rhinorrhea, tracheitis, and laryngitis. Hepatic transaminase elevation includes alanine aminotransferase increased, gamma-glutamyl transferase increased, aspartate aminotransferase increased, hepatic enzyme increased, liver function test abnormal, and transaminase increased. Hypertension includes hypertension, essential hypertension, and orthostatic hypertension. Overall discontinuation rates for ZEPOSIA vs Avonex at 1 year were 6% and 8%, respectively, and at 2 years were 3.0% so 0.7% for Avonex and the rate at 2 years for ZEPOSIA was 0.9% vs 0.9% for Avonex. Malignancy rates: The rate of malignancies at 1 year for ZEPOSIA was 0.9% vs 0.5% for Avonex.¹³

^cIn the 1-year SUNBEAM trial, 94% of patients who received ZEPOSIA (n=447) and 92% who received Avonex (n=448) completed the study. In the 2-year RADIANCE trial, 90% of patients who received ZEPOSIA (n=433) and 85% who received Avonex (n=441) completed the study.

ARR=annualized relapse rate; GdE=gadolinium enhancing; SDMT=Symbol Digit Modalities Test.

Indication

ZEPOSIA is indicated for the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.

IMPORTANT SAFETY INFORMATION

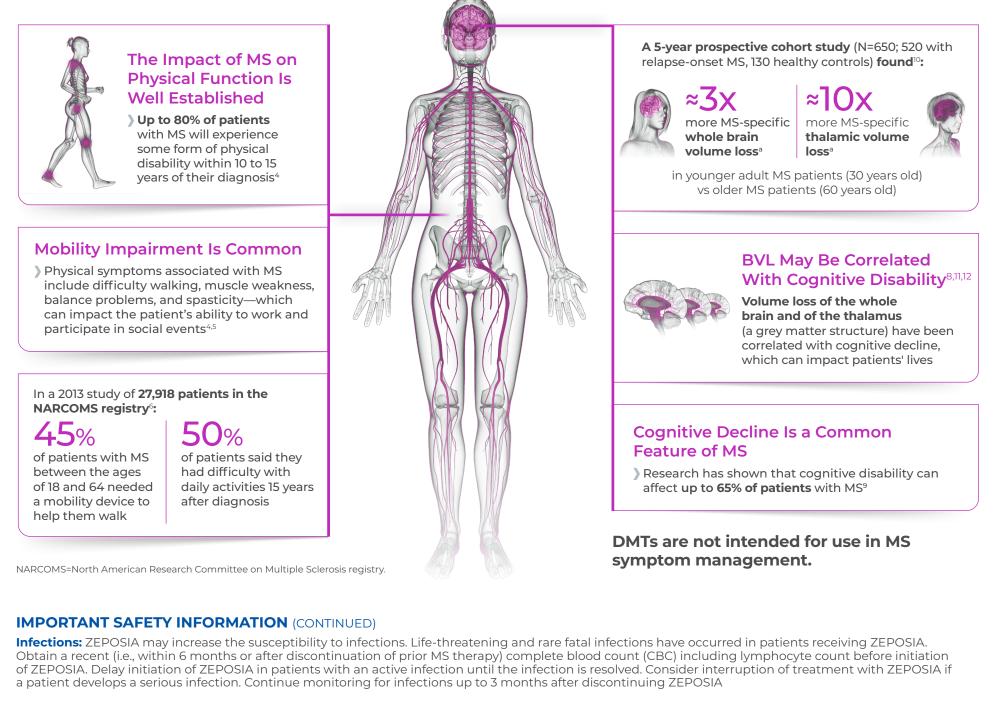
Contraindications:

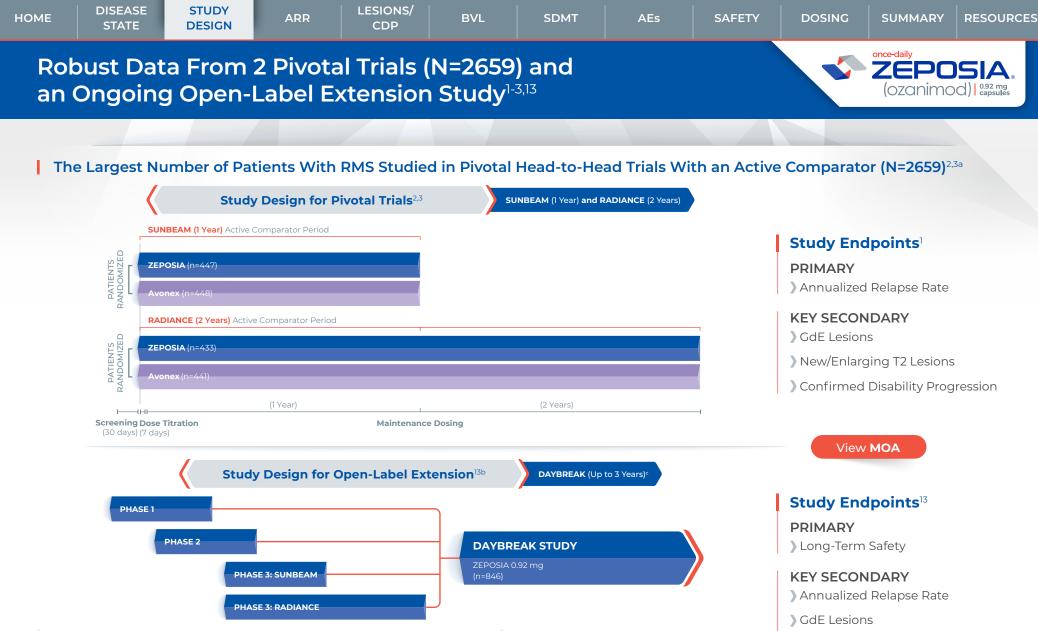
- Patients who in the last 6 months, experienced myocardial infarction, unstable angina, stroke, transient ischemic attack (TIA), decompensated heart failure requiring hospitalization, or Class III/IV heart failure or have a presence of Mobitz type II second or third-degree atrioventricular (AV) block, sick sinus syndrome, or sino-atrial, unless the patient has a functioning pacemaker
- · Patients with severe untreated sleep apnea
- · Patients taking a monoamine oxidase (MAO) inhibitor



НОМЕ	DISEASE STATE	STUDY DESIGN	ARR	LESIONS/ CDP	BVL	SDMT	AEs	SAFETY	DOSING	SUMMARY	RESOURCES
------	------------------	-----------------	-----	-----------------	-----	------	-----	--------	--------	---------	-----------

Both Cognitive Impairment and Physical Disability Can Play a Prevalent Role in the Lives of Patients With MS⁴⁻⁹





The patient population evaluated in this analysis included those who received ZEPOSIA 0.92 mg (n=846) and completed the randomized Phase 1, 2, or 3 trials¹³

Endpoints were analyzed descriptively in the DAYBREAK study¹³

New/Enlarging T2 Lesions

^a2659 patients includes all 3 arms of the study: the 0.92-mg dose of ZEPOSIA, the 0.46-mg dose of ZEPOSIA (not approved for maintenance dose), and the 30-µg dose of Avonex.²³ ^bDAYBREAK is an ongoing open-label extension (OLE) trial that enrolled participants from multiple randomized phase 1 to 3 studies, including SUNBEAM and RADIANCE, and is presented as an interim analysis with a data cutoff of December 20, 2019.

^cStudy period includes DAYBREAK Day 1 through last treatment date or the data-cutoff date.

RMS=relapsing multiple sclerosis.

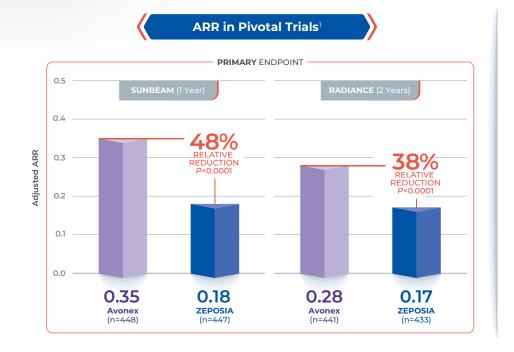
IMPORTANT SAFETY INFORMATION (CONTINUED)

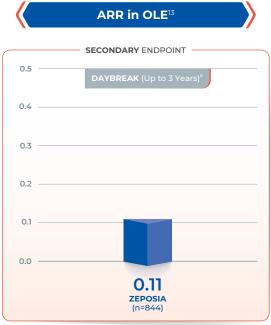
Infections (Continued):

• Herpes zoster was reported as an adverse reaction in ZEPOSIA-treated patients. Herpes simplex encephalitis and varicella zoster meningitis have been reported with sphingosine 1-phosphate (SIP) receptor modulators. Patients without a healthcare professional-confirmed history of varicella (chickenpox), or without documentation of a full course of vaccination against varicella zoster virus (VZV), should be tested for antibodies to VZV before initiating ZEPOSIA. A full course of vaccination for antibody-negative patients with varicella vaccine is recommended prior to commencing treatment with ZEPOSIA



In the Open-Label Extension Study, Patients Treated With ZEPOSIA Up to 3 Years^a Had an ARR of 0.11¹³





A relapse was defined as the occurrence of new or worsening neurological symptoms persisting for more than 24 hours attributable to MS and immediately preceded by a relatively stable or improving neurological state of at least 30 days.

^aStudy period includes DAYBREAK Day 1 through last treatment date or the data-cutoff date.

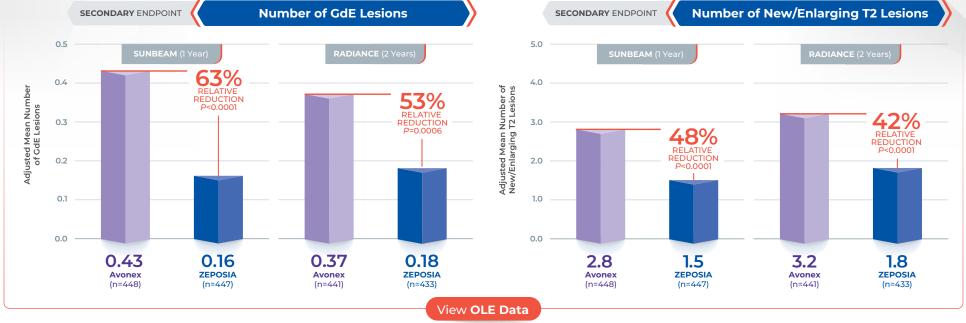
DAYBREAK is an ongoing open-label extension trial that enrolled participants from multiple randomized phase 1 to 3 studies, including SUNBEAM and RADIANCE, and is presented as an interim analysis with a data cutoff of December 20, 2019. Endpoints were analyzed descriptively.¹³

IMPORTANT SAFETY INFORMATION (CONTINUED)

Infections (Continued):

- Cases of fatal cryptococcal meningitis (CM) were reported in patients treated with another S1P receptor modulator. If CM is suspected, ZEPOSIA should be suspended until cryptococcal infection has been excluded. If CM is diagnosed, appropriate treatment should be initiated.
- Progressive Multifocal Leukoencephalopathy (PML) is an opportunistic viral infection of the brain that typically occurs in patients who are immunocompromised, and that usually leads to death or severe disability. No cases of PML were identified in active-controlled MS clinical trials with ZEPOSIA. PML has been reported in patients treated with SIP receptor modulators and other MS therapies and has been associated with some risk factors. If PML is suspected, withhold ZEPOSIA and perform an appropriate diagnostic evaluation. If confirmed, treatment with ZEPOSIA should be discontinued
- In clinical studies, patients who received ZEPOSIA were not to receive concomitant treatment with antineoplastic, non-corticosteroid immunosuppressive, or immune-modulating therapies used for treatment of MS. Concomitant use of ZEPOSIA with any of these therapies would be expected to increase the risk of immunosuppression. When switching to ZEPOSIA from immunosuppressive medications, consider the duration of their effects and their mode of action to avoid unintended additive immunosuppressive effects
- Use of live *attenuated* vaccines should be avoided during and for 3 months after treatment with ZEPOSIA. If live *attenuated* vaccine immunizations are required, administer at least 1 month prior to initiation of ZEPOSIA





In the 1-year SUNBEAM study, brain MRIs were performed at baseline, Month 6, and Month 12. In the 2-year RADIANCE study, brain MRIs were performed at baseline, Month 12, and Month 24.23

9 of 10 Patients Showed No Confirmed 3-Month Disability Progression



7.6% of patients treated with ZEPOSIA (n=67/880) experienced 3-month confirmed disability progression (CDP), as measured by EDSS, similar to Avonex (7.8%; n=69/889) (*P*=NS)¹³

POOLED ANALYSIS

CDP was defined as at least a 1-point increase from baseline EDSS confirmed after 3 months and after 6 months. CDP was prospectively evaluated in a pooled analysis from the SUNBEAM and RADIANCE studies.

EDSS=Expanded Disability Status Score; NS=nonsignificant.

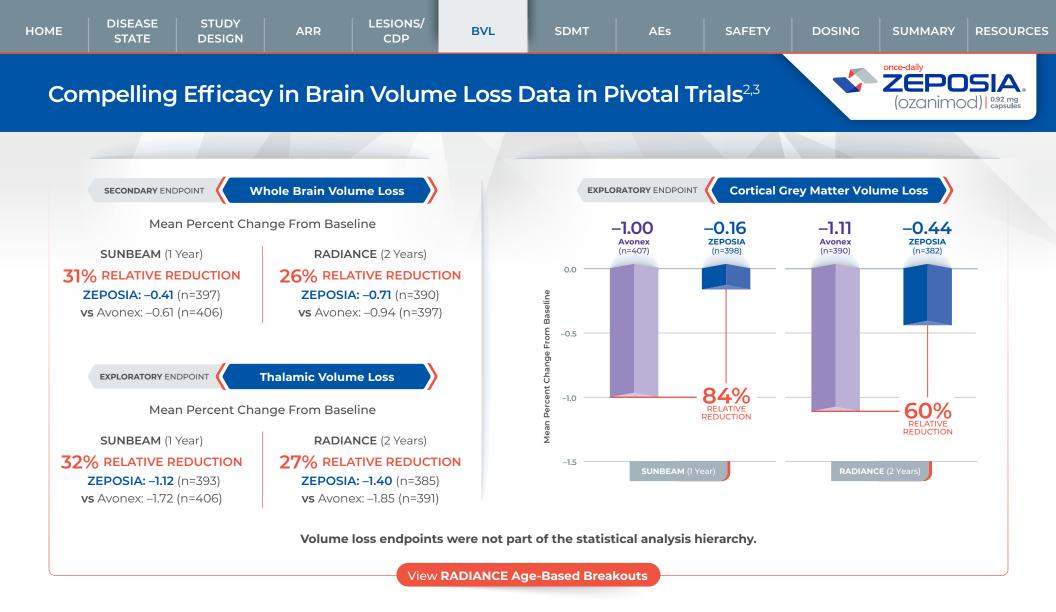
IMPORTANT SAFETY INFORMATION (CONTINUED)

Bradyarrhythmia and Atrioventricular Conduction Delays: Since initiation of ZEPOSIA may result in a transient decrease in heart rate and atrioventricular conduction delays, dose titration is recommended to help reduce cardiac effects. Initiation of ZEPOSIA without dose escalation may result in greater decreases in heart rate. If treatment with ZEPOSIA is considered, advice from a cardiologist should be sought for those individuals:

- with significant QT prolongation
- with arrhythmias requiring treatment with Class 1a or III anti-arrhythmic drugs

• with ischemic heart disease, heart failure, history of cardiac arrest or myocardial infarction, cerebrovascular disease, and uncontrolled hypertension

• with a history of Mobitz type II seconddegree or higher AV block, sick-sinus syndrome, or sinoatrial heart block

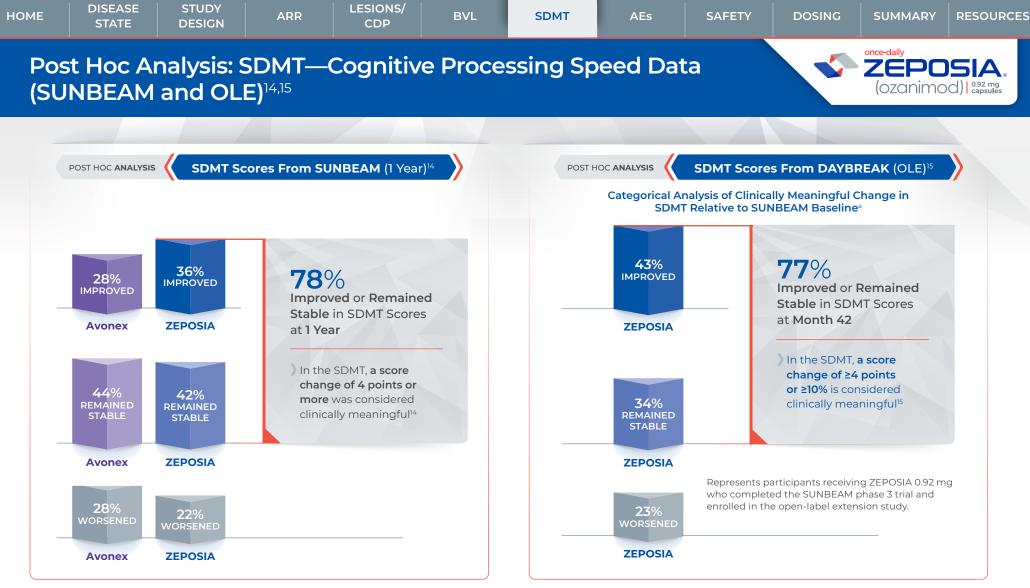


In the 1-year SUNBEAM study, brain MRIs were performed at baseline, Month 6, and Month 12.² In the 2-year RADIANCE study, brain MRIs were performed at baseline, Month 12, and Month 24.³

IMPORTANT SAFETY INFORMATION (CONTINUED)

Liver Injury: Elevations of aminotransferases may occur in patients receiving ZEPOSIA. Obtain liver function tests, if not recently available (i.e., within 6 months), before initiation of ZEPOSIA. Patients who develop symptoms suggestive of hepatic dysfunction should have hepatic enzymes checked and ZEPOSIA should be discontinued if significant liver injury is confirmed. Caution should be exercised when using ZEPOSIA in patients with history of significant liver disease

Fetal Risk: There are no adequate and well-controlled studies in pregnant women. Based on animal studies, ZEPOSIA may cause fetal harm. Women of childbearing potential should use effective contraception to avoid pregnancy during treatment and for 3 months after stopping ZEPOSIA



ZEPOSIA: n=427 at Month 12 for SDMT; Avonex: n=426 at Month 12 for SDMT

ZEPOSIA: n=376 at Month 42 for SDMT

This endpoint was not part of the statistical analysis hierarchy for SUNBEAM and was analyzed descriptively in DAYBREAK.

The MSFC was a secondary endpoint made up of 3 components: 9-hole peg test (arm/hand function), timed 25-foot walk (ambulation), and SDMT (cognitive function).^{2,14,16}

SDMT is a tool that measures cognitive processing speed.¹⁷

^aData cutoff for this interim analysis was December 20, 2019.

MSFC=Multiple Sclerosis Functional Composite.

IMPORTANT SAFETY INFORMATION (CONTINUED)

Increased Blood Pressure: Increase in systolic pressure was observed after about 3 months of treatment and persisted throughout treatment. Blood pressure should be monitored during treatment and managed appropriately. Certain foods that may contain very high amounts of tyramine could cause severe hypertension in patients taking ZEPOSIA. Patients should be advised to avoid foods containing a very large amount of tyramine while taking ZEPOSIA

Respiratory Effects: ZEPOSIA may cause a decline in pulmonary function. Spirometric evaluation of respiratory function should be performed during therapy, if clinically indicated

HOME	DISEASE STATE	STUDY DESIGN	ARR	LESIONS/ CDP	BVL	SDMT	AEs	SAFETY	DOSING	SUMMARY	RESOURCES

Safety Profile Comparable to Avonex in Overall Incidence of Adverse Reactions,^{2,3} With Generally Similar Safety Demonstrated in the Ongoing, Open-Label Extension Study¹³



	SUNE	BEAM	RADIANCE		
	Avonex n=445	ZEPOSIA n=448	Avonex n=440	ZEPOSIA n=434	
Overall incidence of adverse reactions	75.5%	59.8%	83.0%	74.7 %	
Severe adverse reactions	2.2%	1.6%	4.3%	3.5%	
Serious adverse reactions	2.5%	2.9 %	6.4%	6.5%	

Adverse Reactions With an Incidence of at Least 2% in Patients Treated With ZEPOSIA and at Least 1% Greater Than Avonex^{1a}

SUNBEAM AND RADIANCE: POOLED DATA										
Adverse Reactions	Avonex n=885	ZEPOSIA n=882								
Upper respiratory infection ^b	23%	26%								
Hepatic transaminase elevation ^c	5%	10%								
Orthostatic hypotension	3%	4%								
Urinary tract infection	3%	4%								
Back pain	3%	4%								
Hypertension ^d	2%	4%								
Abdominal pain upper	1%	2%								

Adverse reactions are sorted by decreasing incidence in patients treated with ZEPOSIA. For adverse reactions pertaining to liver function tests, increases were transient and generally resolved without discontinuation.¹ Elevations of 3-fold the ULN or greater occurred in 5.5% of patients taking ZEPOSIA and in 3.1% of patients taking Avonex. The majority (79%) continued treatment with ZEPOSIA with values returning to less than 3 times the ULN within approximately 2 to 4 weeks.¹

^aData are not an adequate basis for comparison of rates between ZEPOSIA and the active control.

^bIncludes the following terms: nasopharyngitis, upper respiratory tract infection, pharyngitis, respiratory tract infection, bronchitis, rhinitis, respiratory tract infection viral, viral upper respiratory tract infection, rhinorrhea, tracheitis, and laryngitis.

cIncludes the following terms: alanine aminotransferase increased, gamma-glutamyl transferase increased, aspartate aminotransferase increased, hepatic enzyme increased, liver function test abnormal, and transaminases increased.

^dIncludes hypertension, essential hypertension, and orthostatic hypertension.

eStudy period includes DAYBREAK Day 1 through last treatment date or the data-cutoff date.

AE=adverse event; ALC=absolute lymphocyte count; GGT=gamma-glutamyl transferase; SIP=sphingosine-1-phosphate; TEAE=treatment-emergent adverse event; ULN=upper limit of normal.

IMPORTANT SAFETY INFORMATION (CONTINUED)

Macular edema: SIP modulators have been associated with an increased risk of macular edema. Patients with a history of uveitis or diabetes mellitus are at increased risk. Patients with a history of these conditions should have an ophthalmic evaluation of the fundus, including the macula, prior to treatment initiation and regular follow-up examinations. An ophthalmic evaluation is recommended in all patients at any time if there is a change in vision. Continued use of ZEPOSIA in patients with macular edema has not been evaluated; potential benefits and risks for the individual patient should be considered if deciding whether ZEPOSIA should be discontinued

Please see Important Safety Information throughout and full Prescribing Information and Medication Guide.

Data Up to 3-Years^e: Summary of TEAEs in DAYBREAK in Patients Treated With ZEPOSIA¹³

PRIMARY ENDPOINT DAYBREAK OLE	
	ZEPOSIA n=846
Any TEAE	80.6%
Severe TEAEs	4.6%
Serious TEAEs	9.5%
TEAEs leading to permanent treatment discontinuation	1.7%

TEAEs in ≥4% of patients treated with ZEPOSIA	ZEPOSIA n=846
Nasopharyngitis	17.1%
Headache	14.1%
Upper respiratory tract infection	9.5%
Lymphopenia	8.2%
ALC decreased	8.2%
Back pain	6.6%
Urinary tract infection	5.0%
GGT increased	4.7 %
Hypertension	4.3%

TEAEs are sorted by decreasing incidence in patients treated with ZEPOSIA





Rates of Serious Infections and Malignancies Consistent vs Avonex¹

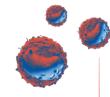
The rate of serious infections at 1 year for ZEPOSIA was 1.1% vs 0.7% for Avonex and the rate at 2 years for ZEPOSIA was 0.9% vs 0.9% for Avonex. The rate of malignancies at 1 year for ZEPOSIA was 0.2% vs 0% for Avonex and the rate at 2 years for ZEPOSIA was 0.9% vs 0.5% for Avonex.²³

Overall Infections

In SUNBEAM and RADIANCE, the overall rate of infections with ZEPOSIA (35%) was similar to Avonex (34%).¹ ZEPOSIA causes a reduction in peripheral blood lymphocyte count and may increase the risk of infection¹

Controlled Lymphocyte Reductions

ALC was consistently maintained near the lower limit of normal across both pivotal trials, and the mean ALC for both SUNBEAM and RADIANCE was $\approx 0.8 \times 10^9/L^{23,18}$

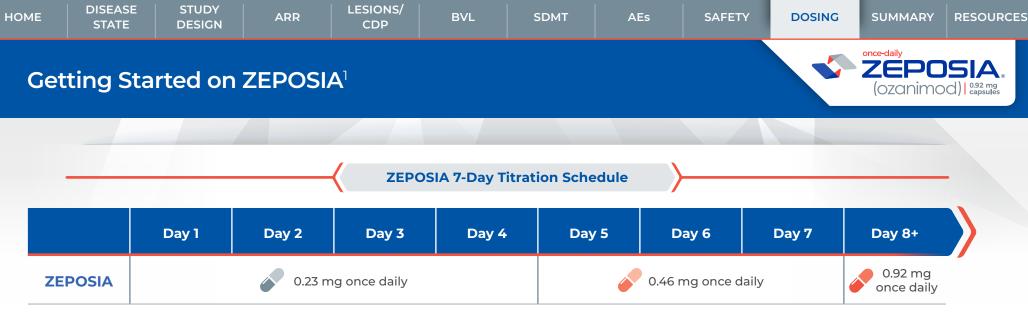


View ALC Data

Herpetic Infections: In active-controlled MS trials, herpes zoster was reported as an adverse reaction in 0.6% of patients treated with ZEPOSIA 0.92 mg and in 0.2% of patients taking Avonex.¹

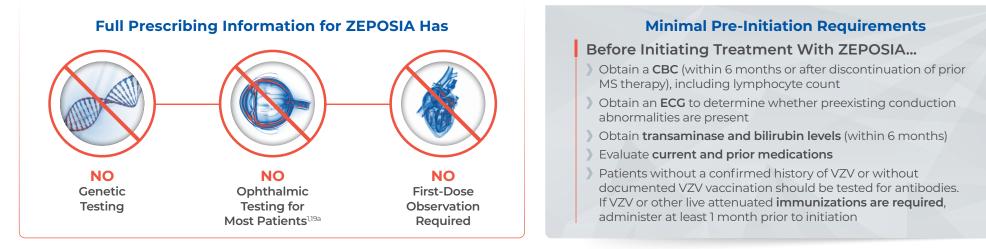
IMPORTANT SAFETY INFORMATION (CONTINUED)

Posterior Reversible Encephalopathy Syndrome (PRES): Rare cases of PRES have been reported in patients receiving a SIP receptor modulator. If a ZEPOSIA-treated patient develops unexpected neurological or psychiatric symptoms or any symptom/sign suggestive of an increase in intracranial pressure, a complete physical and neurological examination should be conducted. Symptoms of PRES are usually reversible but may evolve into ischemic stroke or cerebral hemorrhage. Delay in diagnosis and treatment may lead to permanent neurological sequelae. If PRES is suspected, treatment with ZEPOSIA should be discontinued



One Capsule, Once a Day, From the Start¹

An up-titration schedule should be used to reach the maintenance dose, as a transient decrease in heart rate and AV conduction delays may occur¹



^aDiabetes mellitus and uveitis increase the risk of macular edema; patients with a history of these conditions should have an ophthalmic evaluation of the fundus, including the macula, prior to treatment initiation. A prompt ophthalmic evaluation is recommended if there is any change in vision while taking ZEPOSIA. AV=atrioventricular; CBC=complete blood count; ECG=electrocardiogram; VZV=varicella-zoster virus.

IMPORTANT SAFETY INFORMATION (CONTINUED)

Immune System Effects After Stopping ZEPOSIA: After discontinuing ZEPOSIA, the median time for lymphocyte counts to return to the normal range was 30 days with approximately 90% of patients in the normal range within 3 months. Use of immunosuppressants within this period may lead to an additive effect on the immune system, therefore caution should be applied when initiating other drugs 4 weeks after the last dose of ZEPOSIA

Most common Adverse Reactions (≥ 4%): upper respiratory infection, hepatic transaminase elevation, orthostatic hypotension, urinary tract infection, back pain, and hypertension.

	HOME	DISEASE STATE	STUDY DESIGN	ARR	LESIONS/ CDP	BVL	SDMT	AEs	SAFETY	DOSING	SUMMARY	RESOURCES
--	------	------------------	-----------------	-----	-----------------	-----	------	-----	--------	--------	---------	-----------

ZEPOSIA-FOCUSED ON WHAT COUNTS

START AS SOON AS TODAY

COMPELLING ARR EFFICACY^{1a}

Absolute ARR:

SUNBEAM (1 Year): **0.18**¹ RADIANCE (2 Years): **0.17**¹ DAYBREAK (Up to 3 Years^b, OLE): **0.11**¹³

BRAIN VOLUME DATA

Brain Volume: Whole brain and grey matter volume loss vs Avonex^{2,3}

SAFETY PROFILE COMPARABLE TO AVONEX IN OVERALL INCIDENCE OF ADVERSE REACTIONS^{2,3c}

≥90% of PATIENTS treated with ZEPOSIA stayed on therapy Through Completion of Pivotal Trials^{1d}

ONE CAPSULE, ONCE A DAY, RIGHT FROM THE START¹

Minimal pre-initiation assessments^e



^aStudy designs: SUNBEAM (1 year; N=1346) and RADIANCE (2 years; N=1313) were multicenter, randomized, double-blind, double-dummy, active treatment-controlled studies of daily oral ozanimod 0.46 mg (not approved for maintenance dose) or 0.92 mg vs weekly Avonex (interferon beta-1a), 30-µg intramuscular injection. Primary endpoint: ZEPOSIA reduced ARR vs Avonex by 48% at 1 year (0.18 vs 0.35, respectively) and by 38% at 2 years (0.17 vs 0.28, respectively). Secondary endpoints: ZEPOSIA reduced the number of new or enlarging T2 lesions by 48% at 1 year and by 42% at 2 years and reduced the number of GdE lesions vs Avonex by 63% at 1 year and 53% at 2 years. 9 of 10 patients showed no confirmed 3-month disability progression. There was no significant difference in 3-month confirmed disability between ZEPOSIA and Avonex.¹³ ^bStudy period includes DAYBREAK Day 1 through last treatment date or the data-cutoff date.

^cAdverse reactions: Overall incidence of adverse reactions for ZEPOSIA vs Avonex at 1 year was 59.8% and 75.5%, respectively, and at 2 years was 74.7% and 83.0%, respectively. Across 2 head-to-head trials, the most common adverse reactions with an incidence of at least 2% in patients treated with ZEPOSIA and at least 1% greater than Avonex, respectively, were as follows: upper respiratory infection, 26% (vs 23%); hepatic transaminase elevation, 10% (vs 5%); orthostatic hypotension, 4% (vs 3%); urinary tract infection, 4% (vs 3%); back pain, 4% (vs 3%); hypertension, 4% (vs 2%); and abdominal pain upper, 2% (vs 1%). Data are not an adequate basis for comparison of rates between ZEPOSIA and the active control. Upper respiratory infection includes nasopharyngitis, upper respiratory tract infection, pharyngitis, respiratory tract infection, bronchitis, rhinitis, respiratory tract infection viral, viral upper respiratory tract infection, rhinorrhea, tracheitis, and laryngitis. Hepatic transaminase elevation includes alanine aminotransferase increased, gamma-glutamyl transferase increased, aspartate aminotransferase increased, hepatic enzyme increased, liver function test abnormal, and transaminase increased. Hypertension includes hypertension, and orthostatic hypertension. Overall discontinuation rates for ZEPOSIA vs Avonex at 1 year were 6% and 8%, respectively, and at 2 years were 10% and 15%, respectively. Discontinuation rates due to adverse reactions for ZEPOSIA vs Avonex at 1 year were 2.9% and 3.6%, respectively, and at 2 years were 3.0% and 4.1%, respectively. Serious infections: The rate of serious infections at 1 year for ZEPOSIA was 0.2% vs 0.5% for Avonex. Malignancy rates: The rate of malignancies at 1 year for ZEPOSIA was 0.2% vs 0.5% for Avonex. Malignancy rates: The rate of malignancies at 1 year for ZEPOSIA was 0.2% vs 0.5% for Avonex. Malignancy rates: The rate of malignancies at 1 year for ZEPOSIA was 0.2% vs 0.5% for Avonex. Malignancy rates: The rate of malignancies at 1 year for ZEPOSIA was 0

^dIn the 1-year SUNBEAM trial, 94% of patients who received ZEPOSIA (n=447) and 92% who received Avonex (n=448) completed the study. In the 2-year RADIANCE trial, 90% of patients who received ZEPOSIA (n=433) and 85% who received Avonex (n=441) completed the study.

^eBefore initiating treatment with ZEPOSIA, all patients require a recent CBC including lymphocyte count (within 6 months or after discontinuation of prior MS therapy), an ECG to check for preexisting conduction abnormalities, a recent liver function test (within 6 months), and consideration of current and prior medications, including vaccinations.¹ Patients without a confirmed history of varicella (chickenpox) or without documented VZV vaccination should be tested for antibodies. If VZV or other live attenuated immunizations are required, administer at least 1 month prior to initiation.¹ For patients with a history of uveitis or macular edema, an ophthalmic assessment is required.¹ An up-titration scheme should be used to reach the maintenance dosage of ZEPOSIA, as a transient decrease in heart rate and atrioventricular conduction delays may occur.¹

Indication

ZEPOSIA is indicated for the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.

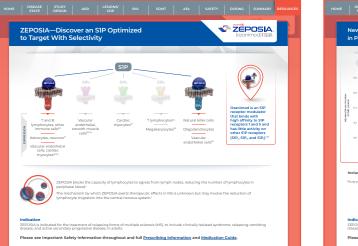
Please see Important Safety Information throughout and full <u>Prescribing Information</u> and <u>Medication Guide</u>.

H Bristol Myers Squibb

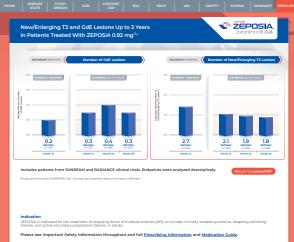
7EPOS

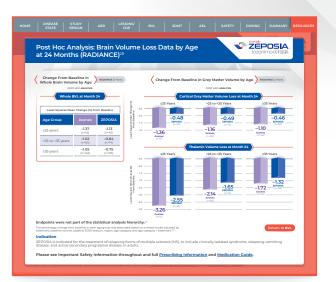
(ozanimod) 0.92 mg capsules

HOME	DISEASE STATE	STUDY DESIGN	ARR	LESIONS/ CDP	BVL	SDMT	AEs	SAFETY	DOSING	SUMMARY	RESOURCES
Res	ources									once-daily ZEPO (ozanimo	



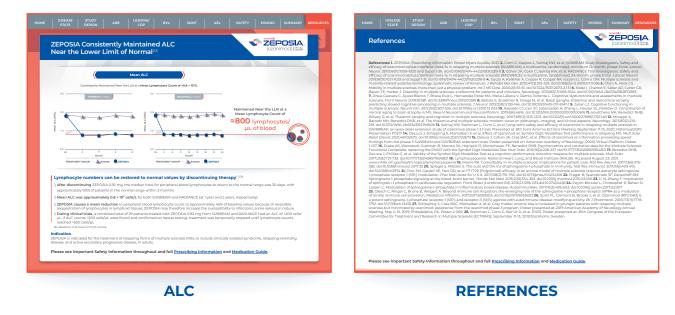
MOA

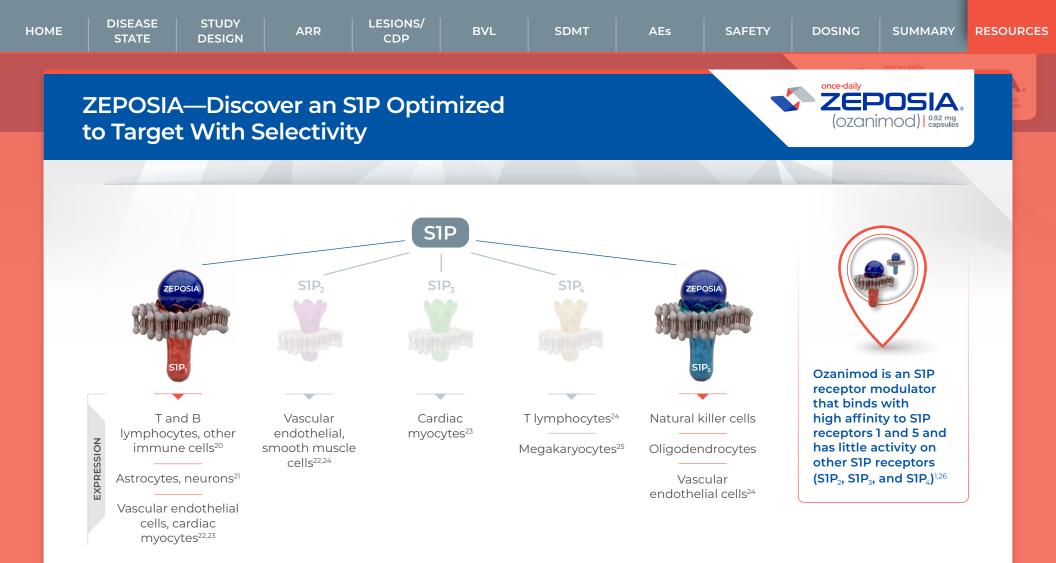


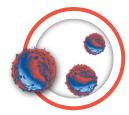


LESIONS/OLE

BVL—AGE-BASED







ZEPOSIA blocks the capacity of lymphocytes to egress from lymph nodes, reducing the number of lymphocytes in peripheral blood.¹

The mechanism by which ZEPOSIA exerts therapeutic effects in MS is unknown but may involve the reduction of lymphocyte migration into the central nervous system.¹

Indication

ZEPOSIA is indicated for the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.



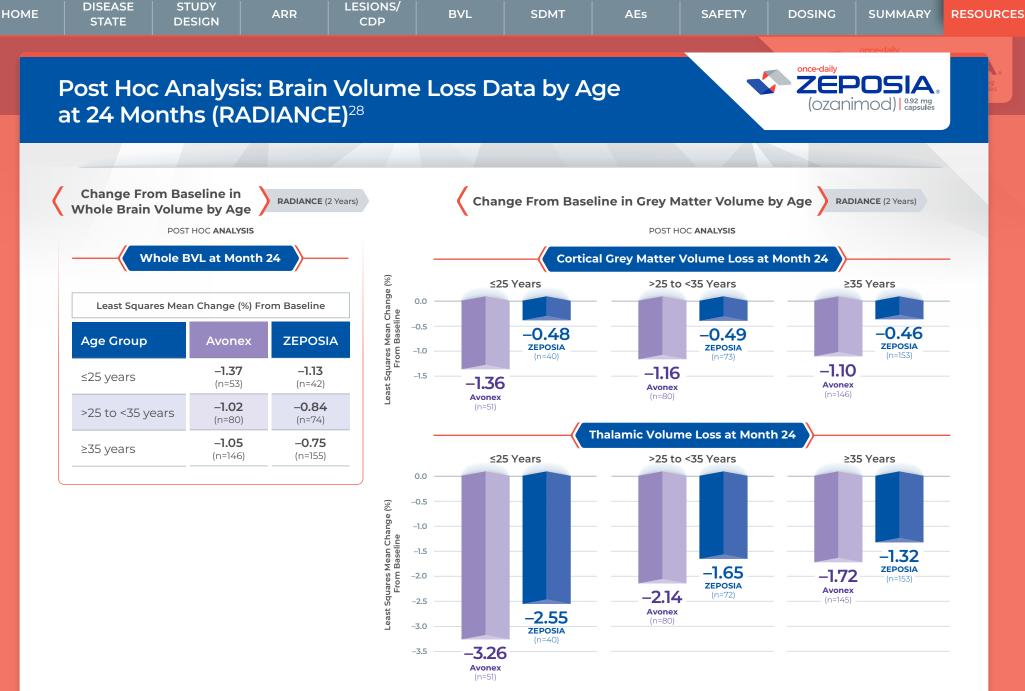
Includes patients from SUNBEAM and RADIANCE clinical trials. Endpoints were analyzed descriptively.

Return to Lesions/CDP

^aStudy period includes DAYBREAK Day1 through last treatment date or the data-cutoff date.

Indication

ZEPOSIA is indicated for the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.



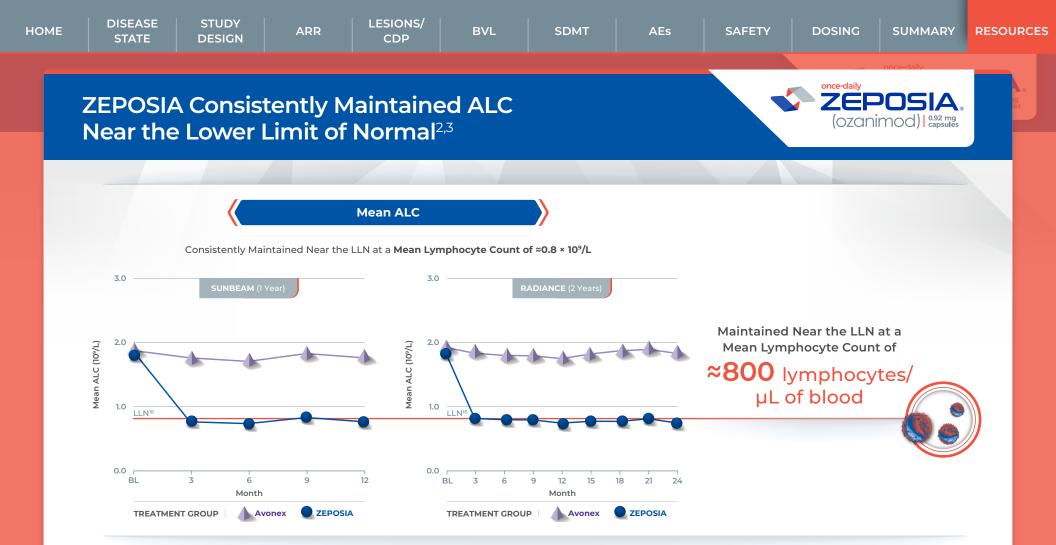
Endpoints were not part of the statistical analysis hierarchy.^{2,3}

The percentage change from baseline in each age group was estimated based on a mixed model adjusted by treatment, baseline volume, baseline EDSS stratum, region, age category, and age category × treatment.²⁸

Return to **BVL**

Indication

ZEPOSIA is indicated for the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.



Lymphocyte numbers can be restored to normal values by discontinuing therapy^{1-3,28}

After discontinuing ZEPOSIA 0.92 mg, the median time for peripheral blood lymphocytes to return to the normal range was 30 days, with approximately 90% of patients in the normal range within 3 months

- > Mean ALC was approximately 0.8 × 10° cells/L for both SUNBEAM and RADIANCE (at 1 year and 2 years, respectively)
- **ZEPOSIA causes a mean reduction** in peripheral blood lymphocyte count to approximately 45% of baseline values because of reversible sequestration of lymphocytes in lymphoid tissues; ZEPOSIA may therefore increase the susceptibility to infections, some serious in nature
- **During clinical trials**, a combined total of 29 patients treated with ZEPOSIA 0.92 mg from SUNBEAM and RADIANCE had an ALC of <200 cells/ µL. If ALC counts <200 cells/µL were found and confirmed on repeat testing, treatment was temporarily stopped until lymphocyte counts reached >500 cells/µL

BL=baseline; LLN=lower limit of normal.

Indication

ZEPOSIA is indicated for the treatment of relapsing forms of multiple sclerosis (MS), to include clinically isolated syndrome, relapsing-remitting disease, and active secondary progressive disease, in adults.

HOME	DISEASE STATE	STUDY DESIGN	ARR	LESIONS/ CDP	BVL	SDMT	AEs	SAFETY	DOSING	SUMMARY	RESOURCES
Def										once-daily	

(Ozanimod) 0.92 mg capsules

References

References: 1. ZEPOSIA. Prescribing information. Bristol Myers Squibb; 2021. 2. Comi G, Kappos L, Selmaj KW, et al; SUNBEAM Study Investigators. Safety and efficacy of ozanimod versus interferon beta-la in relapsing multiple sclerosis (SUNBEAM): a multicentre, randomised, minimum 12-month, phase 3 trial. Lancet Neurol. 2019;18(11):1009-1020 and Suppl 1-26. doi:10.1016/S1474-4422(19)30239-X 3. Cohen JA, Comi G, Selmaj KW, et al; RADIANCE Trial Investigators. Safety and efficacy of ozanimod versus interferon beta-1a in relapsing multiple sclerosis (RADIANCE): a multicentre, randomised, 24-month, phase 3 trial. Lancet Neurol. 2019;18(11):1021-1033 and Suppl 1-31. doi:10.1016/S1474-4422(19)30238-8 4. Souza A, Kelleher A, Cooper R, Cooper RA, lezzoni LI, Collins DM. Multiple sclerosis and mobility-related assistive technology: systematic review of literature. J Rehabil Res Dev. 2010;47(3):213-223. doi:10.1682/jrrd.2009.07.0096 5. Chan A, Heck CS. Mobility in multiple sclerosis: more than just a physical problem. Int J MS Care, 2000;2(1):51-61, doi:10.7224/1537-2073-2.1.51 6. Kister I. Chamot E. Salter AR. Cutter GR. Bacon TE, Herber J. Disability in multiple sclerosis: a reference for patients and clinicians. Neurology. 2013;80(11):1018-1024. doi:10.1212/WNL.0b013e3182872855 7. Oreja-Guevara C, Ayuso Blanco T, Brieva Ruiz L, Hernandez Perez MA, Meca-Lallana V, Ramio-Torrenta L. Cognitive dysfunctions and assessments in multiple sclerosis. Front Neurol. 2019;10:581. doi:10.3389/fneur.2019.00581 8. Batista S, Zivadinov R, Hoogs M, et al. Basal ganglia, thalamus and neocortical atrophy predicting slowed cognitive processing in multiple sclerosis. J Neurol. 2012;259(1):139-146. doi:10.1007/s00415-011-6147-1 9. Julian LJ. Cognitive functioning in multiple sclerosis, Neurol Clin, 2011;29(2):507-525, doi:10.1016/i.ncl.2010.12.003 10. Azevedo CJ, Cen SY, Jaberzadeh A, Zheng L, Hauser SL, Pelletier D, Contribution of normal aging to brain atrophy in MS. Neurol Neuroimmunol Neuroinflamm. 2019;6(6):e616. doi:10.1212/NXI.00000000000616 11. Houtchens MK, Benedict RHB, Killiany R, et al. Thalamic atrophy and cognition in multiple sclerosis. Neurology. 2007;69(12):1213-1223. doi:10.1212/01.wnl.0000276992.17011.b5 12. Minagar A, Barnett MH, Benedict RHB, et al. The thalamus and multiple sclerosis: modern views on pathologic, imaging, and clinical aspects. Neurology. 2013;80(2):210-219. doi:10.1212/WNL.0b013e31827b910b 13. Selmaj KW, Steinman L, Comi G, et al. Long-term safety and efficacy of ozanimod in relapsing multiple sclerosis in DAYBREAK: an open-label extension study of ozanimod phase 1-3 trials. Presented at: 8th Joint Actrims-Ectrims Meeting; September 11-13, 2020; MSVirtual2020. Presentation P0217. 14. DeLuca J, Schippling S, Montalban X, et al. Effect of ozanimod on Symbol Digit Modalities Test performance in relapsing MS. Mult Scler Relat Disord. 2021;48:102673. doi:10.1016/j.msard.2020.102673 15. Deluca J, Cohen JA, Cree BAC, et al. Effects of ozanimod on information processing speed: findings from the phase 3 SUNBEAM and DAYBREAK extension trials. Poster presented on: American Academy of Neurology (2020) Virtual Platform. Poster 1-017. 16. Drake AS, Weinstock-Guttman B, Morrow SA, Hojnacki D, Munschauer FE, Benedict RHB. Psychometrics and normative data for the Multiple Sclerosis Functional Composite: replacing the PASAT with the Symbol Digit Modalities Test. Mult Scler. 2010;16(2):228-237. doi:10.1177/1352458509354552 17. Benedict RHB, DeLuca J, Phillips G, et al. Validity of the Symbol Digit Modalities Test as a cognition performance outcome measure for multiple sclerosis. Mult Scler. 2017;23(5):721-733. doi:10.1177/1352458517690821 18. Lymphocytopenia. National Heart, Lung, and Blood Institute (NHLBI). Accessed August 23, 2021. www.nhlbi.nih.gov/health-topics/lymphocytopenia 19. Marrie RA. Comorbidity in multiple sclerosis: implications for patient care. Nat Rev Neurol. 2017;13(6):375-382. doi:10.1038/nrneurol.2017.33 20. Spiegel S, Milstien S. The outs and the ins of sphingosine-1-phosphate in immunity. Nat Rev Immunol. 2011;11(6):403-415. doi:10.1038/nri2974 21. Choi JW, Gardell SE, Herr DR, et al. FTY720 (fingolimod) efficacy in an animal model of multiple sclerosis requires astrocyte sphingosine 1-phosphate receptor 1 (SIP₁) modulation. Proc Natl Acad Sci U S A. 2011;108(2):751-756. doi:10.1073/pnas.1014154108 22. Prager B, Spampinato SF, Ransohoff RM. Sphingosine 1-phosphate signaling at the blood-brain barrier. Trends Mol Med. 2015;21(6):354-363. doi:10.1016/j.molmed.2015.03.006 23. Li N, Zhang F. Implication of sphingosin-1-phosphate in cardiovascular regulation. Front Biosci (Landmark Ed). 2016;21:1296-1313.doi:10.2741/4458 24. Peyrin-Biroulet L, Christopher R, Behan D, Lassen C. Modulation of sphingosine-1-phosphate in inflammatory bowel disease. AutoimmunRev. 2017;16(5):495-503. doi:10.1016/j.autrev.2017.03.007 25. Olesch C. Ringel C. Brune B. Weigert A. Bevond immune cell migration; the emerging role of the sphingosine-1-phosphate receptor S1PR4 as a modulator of innate immune cell activation. Mediators Inflamm. 2017;2017:6059203. doi:10.115/2017/6059203 26. Scott FL, Clemons B, Brooks J, et al. Ozanimod (RPC1063) is a potent sphingosine-1-phosphate receptor-1 (SIP1) and receptor-5 (SIP5) agonist with autoimmune disease-modifying activity. Br J Pharmacol. 2016;173(11):1778-1792. doi:10.1111/bph.13476 27. Schippling S, Cree BAC, Montalban X, et al. Gray matter volume loss is increased in younger patients with relapsing multiple sclerosis but minimized by ozanimod: experience from the ozanimod phase 3 program. Poster presented at: 2019 American Academy of Neurology Annual Meeting. May 4-10, 2019; Philadelphia, PA. Poster 2-059. 28. Steinman L, Comi G, Bar-Or A, et al. P1031. Poster presented at: 35th Congress of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS); September 11-13, 2019; Stockholm, Sweden.