SUPPLEMENTARY MATERIAL

Lymphopenia is Not the Primary Therapeutic Mechanism of Diroximel Fumarate in Relapsing-Remitting Multiple Sclerosis: Subgroup Analyses of the EVOLVE-MS-1 Study

Authors: Barry A Singer,¹ Sibyl Wray,² Mark Gudesblatt,³ Barbara Bumstead,³ Tjalf Ziemssen,⁴ Ashley Bonnell,² Matthew Scaramozza,⁵ Seth Levin,⁵ Mathura Shanmugasundaram,^{5*} Hailu Chen,^{5*} Jason P Mendoza,⁵ James B Lewin,⁵ Sai L Shankar⁵

Affiliations: ¹The MS Center for Innovations in Care, Missouri Baptist Medical Center, St. Louis, MO, USA; ²Hope Neurology MS Center, Knoxville, TN, USA; ³NYU South Shore Neurologic Associates, NY, USA; ⁴Center of Clinical Neuroscience, Carl Gustav Carus University Hospital, TU Dresden, Dresden, Germany; ⁵Biogen, Cambridge, MA, USA

*At time of analysis

Corresponding author: Sai L Shankar, PhD, FAAN, Biogen, 225 Binney St., Cambridge, MA 02142 USA; e-mail: Sai.Shankar@Biogen.com

Table S1 Demographics and baseline characteristics stratified into quartiles by % ALC decline at week 96 (safety population)

	Q1 (≥ 47% decline) n = 198	Q2 (30 to < 47% decline) n = 207	Q3 (12 to < 30% decline) n = 194	Q4 (< 12% decline) n = 202	All patients ¹ $n = 801$
Age, years, mean (SD)	45.4 (10.1)	42.5 (10.5)	40.4 (11.2)	41.4 (10.3)	42.4 (10.7)
Female, <i>n</i> (%)	139 (70.2)	145 (70.0)	138 (71.1)	142 (70.3)	564 (70.4)
Race, n (%)					
White	194 (98.0)	197 (95.2)	184 (94.8)	177 (87.6)	752 (93.9)
Black or African American	2 (1.0)	7 (3.4)	8 (4.1)	22 (10.9)	39 (4.9)
Other ²	2 (1.0)	3 (1.4)	2 (1.0)	3 (1.5)	10 (1.2)
Ethnicity, n (%)					
Hispanic or Latino	8 (4.0)	10 (4.8)	4 (2.1)	4 (2.0)	26 (3.2)
BMI, kg/m ² , mean (SD)	26.8 (5.6)	26.3 (6.0)	25.6 (5.6)	26.3 (6.4)	26.3 (5.9)
US region, n (%)	69 (34.8)	67 (32.4)	53 (27.3)	82 (40.6)	271 (33.8)
Prior DMT, n (%)	124 (62.6)	130 (62.8)	113 (58.2)	144 (71.3)	511 (63.8)
Time since diagnosis, years, mean (SD)	8.9 (7.8)	7.6 (6.7)	6.5 (6.1)	7.7 (6.6)	7.7 (6.9)
No. of relapses in previous year, mean (SD)	0.7 (0.7)	0.7 (0.9)	0.8 (0.8)	0.7 (0.7)	0.7 (0.8)
EDSS score, mean (SD)	2.8 (1.5)	2.6 (1.5)	2.7 (1.4)	2.7 (1.4)	2.7 (1.4)
No. of Gd ⁺ lesions, mean (SD)	1.0 (2.3)	0.9 (2.1)	1.4 (5.4)	1.2 (3.9)	1.1 (3.6)
Gd ⁺ lesion free, n (%)	137 (70.6)	143 (70.4)	131 (68.6)	140 (69.7)	551 (69.8)

ALC absolute lymphocyte count, BMI body mass index, DMT disease-modifying therapy, EDSS expanded disability status score, Gd+ gadolinium-enhancing, Q quartile

¹ The population includes subjects with non-missing lymphocyte count at baseline and week 96 in the safety population.

² "Other" race includes Asian, American Indian, Alaska Native, Native Hawaiian, or other Pacific Islander, and multiple races; subjects who reported multiple races including White were included in White subgroup.

Table S2 Subgroup analysis 1: summary of subjects with number of relapses by quartiles of % ALC decline (safety population)

	Q1	Q2 (30 to <	Q3 (12 to <	Q4	
	(≥ 47% decline)	47% decline)	30% decline)	(< 12% decline)	All patients ¹
	n = 198	n = 207	n = 194	n = 202	N = 801
No. of patients with relapse, n (%)					
0	166 (83.8)	177 (85.5)	162 (83.5)	155 (76.7)	660 (82.4)
1	22 (11.1)	25 (12.1)	24 (12.4)	35 (17.3)	106 (13.2)
2	10 (5.1)	5 (2.4)	5 (2.6)	7 (3.5)	27 (3.4)
3	0	0	1 (0.5)	5 (2.5)	6 (0.7)
≥ 4	0	0	2 (1.0)	0	2 (0.2)

ALC absolute lymphocyte count, Q quartile

¹ The population includes subjects with non-missing lymphocyte count at baseline and week 96 in the safety population.