

Appendix 11a. Cases of dyskinesia in partial onset seizure studies (EP S1)

ID	Age/ gender	Trtgroup	AE term	Action	Outcome	Rel day	AE dose
			intermittent jerking right				
754012311	58 M	Placebo	extremities	not changed	R	13	0
667010114	36F	LCM 400	muscle jerks in hands	not changed	R	2	0
754011403	40F	LCM 400	left arm jerking	not changed	R	23	400
			hand jerks/intermittent				
			dizziness & balance				
754012407	51F	LCM 400	problems	not changed	R	24	400
755110405	29M	LCM 400	dyskinesia, intermittent	not changed	R	94	100 & 400
			worsened rapid rhythmic				
			movement/intention				
754012605	26M	LCM 600	tremor	drug interrupted	R	64	500

Source: AE EP S1Database submitted January 2008

Appendix 11.b. Listing of patients with dyskinesia during open label epilepsy studies (EP S2)

	Age				Rel st	AE
ID ·	/gender	AE term	Action	Outcome	day	dose
607001011	44 F	Jerking in shoulders and arms	not changed	No R	1785	600
607001002	30 F	Hands jerking	not changed	No R	6	100
,		Bilateral arm /hand jerks				
667011803	46F	(intermittent)	not changed	R ·	459	600
667012410	26M	Jerking of hands and arms	not changed	R	927	700
667018805	61F	jerks	not changed	No R	789	700
		Decreased rapid rhythmic				
		movement R side/ decreased				
.		had swing R side./ Abnormal				
		coordination, dizziness,				
		increased seizure activity,		•		
754011801	25 M	tremor.	not changed	R	422	600
754012602	35F	intermittent limb jerking	not changed	No R	651	600
754015105	62 F	jerkiness	not changed	No R	145	300
	,	Arm and leg jerking (at night)/	Dose			
754016005	47M	hand tremor, unsteadiness	reduced	R	571	500
755124605	22M	Jerky SP	not changed	R	302	400

Source: AE datasets. EP S2. Safety Update Report. January 2008.



	Laboratory parameter unit	Conversion	Markedly abnormal criteria
Alkaline phosphatase (U/L) Bicarbonate (mEq/L) Bilinubin, total (mg/dL) BUN (mg/dL) Calcium (mg/dL) Calcium (mg/dL) Cholesterol (mg/dL) Creatinine (mg/dL) NA ≥2 Creatinine (mg/dL) NA ≥3xULN NA ≥3xULN Creatinine (mg/dL) NA ≥3xULN ≥3xULN NA ≥3xULN ≥3xULN NA ≥3xULN ≥3xULN ≥3xULN NA ≥3xULN ≥3xULN	Clinical chemistry	•	1
Bicarbonate (mEq/L) mmol/L <18, >38° Bilimbin, total (mg/dL) NA ≥2.0 BUN (mg/dL) (nmol/L) / 0.357 ≥40 Calcium (mg/dL) NA ≤7.6, ≥11.0 Cholesterol (mg/dL) (nmol/L) / 0.026 >250 Creatinine (mg/dL) NA ≥2 GGT (U/L) NA ≥3xULN Glucose (mg/dL) NA ≤50, ≥200°	Albumin (g/dL)	(g/L) / 10	<2.6
Bilirubin, total (mg/dL) BUN (mg/dL) Calcium (mg/dL) Calcium (mg/dL) Cholesterol (mg/dL) Cholesterol (mg/dL) Cholesterol (mg/dL) Creatinine (mg/dL) Creatinine (mg/dL) Creatinine (mg/dL) NA ≥2 GGT (U/L) NA ≥3πULN NA ≤50, ≥200* <50, ≥250* Phosphorus (mg/dL) NA ≤2.0, ≥6.0 Potassium (mEq/L) NA ≥3.0xULN; ≥5.0xULN; ≥5.0xULN; ≥10.0xULN Sodium (mEq/L) MA ≥3.0xULN; ≥5.0xULN; ≥5.0xULN; ≥10.0xULN Sodium (mEq/L) Mamol/L Sodium (mEq/L) Mimol/L Sodium (mEq/L) Uric Acid (mg/dL) Cumol/L) / 59.48 >9.5 Chloride (mEq/L) Hematology Hematology Hematology	Alkaline phosphatase (U/L)	NA	≥3xULN
BUN (mg/dL)	Bicarbonate (mEq/L)	mmel/L	<18, >38*
Calcium (mg/dL) NA ≤7.6, ≥11.0 Cholesterol (mg/dL) (mmol/L) / 0.026 >250 Creatinine (mg/dL) NA ≥2 GGT (U/L) NA ≥3xULN Glucose (mg/dL) NA ≤50, ≥200² Solucose (mg/dL) NA ≤2.0, ≥6.0 Phosphorus (mg/dL) NA ≤2.0, ≥6.0 Potassium (mEq/L) mmol/L ≤3.0xULN; ≥5.0xULN; AST (U/L) NA ≥3.0xULN; ≥5.0xULN; ALT (U/L) NA ≥3.0xULN; ≥5.0xULN; Sodium (mBq/L) mmol/L <127, >151 Uric Acid (mg/dL) (umol/L) / 59.48 >9.5 Chloride (mEq/L) mmol/L ≤90, ≥112 Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of ULI	Bilirubin, total (mg/dL)	NA	≥2.0
Cholesterol (mg/dL) (mmol/L) / 0.026 >250 Creatinine (mg/dL) NA ≥2 GGT (U/L) NA ≥3xULN NA ≤3x, ≥200° SO, ≥200° ≤50, ≥250° Phosphorus (mg/dL) NA ≤2.0, ≥6.0 Potassium (mEq/L) mmol/L ≤3.0, ≥6.0 AST (U/L) NA ≥3.0xULN; ≥5.0xULN; ALT (U/L) NA ≥3.0xULN; ≥5.0xULN; ALT (U/L) mmol/L <127, >151 Uric Acid (mg/dL) (umol/L) / 59.48 >9.5 Chloride (mEq/L) mmol/L ≤90, ≥112 Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of ULI	BUN (mg/dL)	(mmol/L) / 0.357	≥40
Creatinine (mg/dL) NA ≥2 GGT (U/L) NA ≥3xULN Glucose (mg/dL) NA <50, ≥200*	Calcium (mg/dL)	NA	≤7.6, ≥11.0
GGT (U/L) NA ≥3xULN NA S0, ≥200* S0, ≥250* S0, ≥250* S0, ≥250* S0, ≥250* NA S2.0, ≥6.0 Potassium (mEq/L) NA AST (U/L) AST (U/L) ALT (U/L) Sodium (mEq/L) Sodium (mEq/L) Sodium (mEq/L) Sodium (mEq/L) Uric Acid (mg/dL) Chloride (mEq/L) Hematology Hematocrit (%) NA ≥3.0xULN; ≥5.0xULN; ≥5.0xULN; ≥10.0xULN S0dium (mEq/L) Sodium (mEq/L) S	Cholesterol (mg/dL)	(mmol/L) / 0.026	>250
Glucose (mg/dL) NA <50, ≥200°	Creatinine (mg/dL)	NA	≥2
Glucose (mg/dL) NA ≤2.0, ≥250b Phosphorus (mg/dL) NA ≤2.0, ≥6.0 Potassium (mEq/L) NA ≥3.0xULN; ≥5.0xULN; AST (U/L) NA ≥3.0xULN; ≥5.0xULN; ALT (U/L) NA ≥3.0xULN; ≥5.0xULN; ALT (U/L) 10.0xULN Sodium (mEq/L) mmol/L <127, >151 Uric Acid (mg/dL) (umol/L) / 59.48 >9.5 Chloride (mEq/L) mmol/L ≤90, ≥112 Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of UL1	GGT (U/L)	NA	≥3xULN
Potassium (mEq/L) mmol/L ≤3.0, ≥6.0 NA ≥3.0xULN; ≥5.0xULN; ≥10.0xULN ≥10.0xULN; ALT (U/L) NA ≥3.0xULN; ≥5.0xULN; ≥10.0xULN ≥10.0xULN Sodium (mEq/L) mmol/L <127, >151 Uric Acid (mg/dL) (umol/L) / 59.48 >9.5 Chloride (mEq/L) mmol/L ≤90, ≥112 Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of UL1	Glucose (mg/dL)	NA.	· -
NA ≥3.0xULN; ≥5.0xULN; ≥10.0xULN NA ≥3.0xULN; ≥5.0xULN; ≥10.0xULN ≥10.0xULN Sodium (mEq/L) mmol/L <127, >151 Uric Acid (mg/dL) (umol/L) / 59.48 >9.5 Chloride (mEq/L) mmol/L ≤90, ≥112 Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of UL1	Phosphorus (mg/dL)	NA	≤2.0, ≥6.0
AST (U/L) ≥10.0xULN NA ≥3.0xULN; ≥5.0xULN; ≥10.0xULN ≥10.0xULN ≥10.0xULN ≥10.0xULN ≤10.0xULN ≤10.0xULN ≤10.0xULN ≤10.0xULN ≤10.0xULN ≤10.0xULN ≤10.0xULN ≤10.0xULN ≥10.0xULN ≥10.0xULN	Potassium (mEq/L)	mmolL	≤3.0, ≥6.0
ALT (U/L) ≥10.0xULN Sodium (mEq/L) mmol/L <127, >151 Uric Acid (mg/dL) (umol/L) / 59.48 >9.5 Chloride (mEq/L) mmol/L ≤90, ≥112 Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of UL1	AST (U/L)	NA	
Uric Acid (mg/dL) (umol/L) / 59.48 >9.5 Chloride (mEq/L) mmol/L ≤90, ≥112 Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of ULI	ALT (U/L)	NA.	•
Chloride (mEq/L) mmol/L ≤90, ≥112 Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of ULI	Sodium (mEq/L)	mmol/L	<127, >151
Hematology Hematocrit (%) NA ≤85% of LLN; ≥15% of ULI	Uric Acid (mg/dL)	(umol/L) / 59.48	>9.5
Hematocrit (%) NA ≤85% of LLN; ≥15% of UL1	Chloride (mEq/L)	mmol/L	≤90, ≥112
	Hematology		•
Hemoslobin (s/L) NA S85% of LLN: >15% of LLN	Hemstocrit (%)	NA.	≤85% of LLN; ≥15% of ULN
	Hemoglobin (g/L)	NA	≤85% of LLN; ≥15% of ULN
WBC count (G/L) NA ≤3.0, ≥16.0	WBC count (G/L)	NA	≤3.0, ≥16.0
Lymphocytes absolute (G/L) NA <0.6, >5.0	Lymphocytes absolute (G/L)	NA	<0.6, >5.0

Appendix 13. Median changes in hematology parameters during the treatment phase in EP S1

	1	acebo =364	2001	CM ng/day =270	4001	CM ng/day =471	600	LCM mg/day I=203
Hematology parameter (unit)	n	median	n	median	n	median	n	median
RBC count (T/L)		-						
Baseline ^a	363	4.5	270	4.5	471	4.5	203	4.4
Change End of MP ^b	320	0.00	217	0.00	362	0.00	122	0.00
Min change Post-Baseline ^c	355	-0.20	267	-0.20	468	-0.20	201	-0.20
Max change Post-Baseline ^c	355	0.10	267	0.10	468	0.20	201	0.10
Hematocrit (%)	•							· · · · · · · · · · · · · · · · · · ·
Baseline ^a	363	41.2	270	42.0	471	41.8	203	41.2
Change End of MP ^b	317	0.00	215	0.00	359	0.00	122	-0.55
Min change Post-Baseline ^c	355	-2.00	267	-2.00	468	-1.40	201	-2.00
Max change Post-Baseline ^c	355	1.00	267	1.20	468	1.40	201	1.10
Hemoglobin (g/L)	Hemoglobin (g/L)							
Baseline ^a	363	140.0	270	141.0	471	141.0	203	139.0
Change End of MP ^b	320	-0.50	217	-1.00	362	0.00	122	-1.00
Min change Post-Baseline ^c	355	-6.00	267	-6.00	468	-5.00	201	-6.00
Max change Post-Baseline ^c	355	4.00	267	4.00	468	5.00	201	4.00
WBC count (G/L)								
Baseline ^a	363	5.8	270	5.7	471	6.0	203	5.6
Change End of MP ^b	320	0.10	217	0.10	362	-0.20	122	-0.20
Min change Post-Baseline ^c	355	-0.70	267	-0.70	468	-0.80	201	-0.70
Max change Post-Baseline ^c	355	1.10	267	1.00	468	0.80	201	0.80
Neutrophils absolute (G/L)								
Baseline ^a	363	3.46	270	3.26	471	3.54	203	3.25
Change End of MP ^b	318	0.00	216	0.09	359	-0.10	122	-0.12
Min change Post-Baseline ^c	355	-0.70	266	-0.56	468	-0.68	201	-0.54
Max change Post-Baseline ^c	355	0.94	266	0.90	468	0.75	201	0.75

Source: Sponsor's table in page 467 of ISS.



Appendix 14.a. Marked hematologic abnormalities in EP S1 and EP S2

Placebo N=364	LCM Total EP Pool S1 N=944	LCM Total EP Pool S2 N=1327	
≥N (%)	n/N (%)	n/N (%)	
5/354 (1.4)	11/932 (1.2)	24/1310 (1.3)	
1/355 (0.3)	0/936	0/1315	
		L	
5/354 (1.4)	6/930 (0.6)	21/1308 (1.6)	
1/335 (0.3)	0/936	Q/1315	
8/351 (2.3)	28/923 (3.0)	51/1297 (3.9)	
3/355 (0.8)	2/935 (0.2)	9/1314 (0.7)	
16/347 (4.6)	34/906 (3.8)	79/1274 (6.2)	
1/352 (0.3)	4/930 (0.4)	13/1307 (1.0)	
6/349 (1.7)	21/922 (2.3)	46/1295 (3.6)	
1/355 (0.3)	3/932 (0.3)	6/1310 (0.5)	
1/355 (0.3)	2/933 (0.2)	7/1312 (0.5)	
	N=364 a/N (%) 5/354 (1.4) 1/355 (0.3) 5/354 (1.4) 1/335 (0.3) 8/351 (2.3) 3/355 (0.8) 16/347 (4.6) 1/352 (0.3) 1/352 (0.3)	Placebo N=364 N=944 m/N (%) m/N (%) 5/354 (1.4) 11/932 (1.2) 1/355 (0.3) 0/936 5/354 (1.4) 6/930 (0.6) 1/335 (0.3) 0/936 8/351 (2.3) 28/923 (3.0) 3/355 (0.8) 2/935 (0.2) 16/347 (4.6) 34/906 (3.8) 1/352 (0.3) 4/930 (0.4) 6/349 (1.7) 21/922 (2.3)	

LCM=lacosamide; LLN=lower limit of normal; ULN=upper limit of normal; WBC=white blood cell Note: Incidence=n of events/N at risk, where: n of events=number of subjects reporting the abnormality after start of treatment and did not report the reading before start of treatment, and N at risk=number of subjects with readings before and after start of treatment who did not report the abnormality before treatment. Assessment of marked abnormalities was based on all reported values (including unscheduled visits) during treatment.

Appendix 14.b. Marked abnormalities in hematologic parameters SP616

	Table EP.11.2.1 Subjects with Marked Abnormalities for Hematology Population: Trial 5P616 SS				
Cohort Treatment	Parameter: Markedly Abnormal Value	Site Number / Subject Number			
A (60min) IV Lacosamide/ Oral Placebo	WBC: <=3.0 G/1	106/10526##			
	Neutrophils Abs: <1.5 G/l	106/10526##			
B (30min) Oral Lacosamide/ IV Placebo	Eosinophils: >=10 %	269/11506#			
	Neutrophils Abs: <1.5 G/l	008/10194#, 268/11493#			
IV Lacosamide/ Oral Placebo	Neutrophils Abs: <1.5 G/l	268/11487*, 269/11514##, 269/11524#:			

^{*} only at baseline; # both, baseline and FU. ## Treatment emergent



NDA 22-253, -254 —Lacosamide for the treatment of partial-onset seizures

Appendix 14.c. Marked abnormalities in hematology values in SP757

	Iable 11.4.1 Subjects with Markedly Abnormal Hematology Values Population: Safety Set				
Infusion Duration (Cohort)	Parameter: Markedly Abnormal Value	Site Number / Subject Number			
30-minute (Cohort Al)	Hemoglobin: <=85% of LLN	310/131001*			
	WBC: <=3.0 G/1	308/130805*, 400/140001*			
	Neutrophils Abs: <1.5 G/l	308/130805*, 310/131001#, 408/140801*			
15-minute (Cohort B1)	Hemoglobin: <=85% of LLN	500/150094##			
	Eosinophils: >=10 %	400/140013*			
	Neutrophils Abs: <1.5 G/l	400/140016##			
15-minute (Cohort B2)	Hematocrit: <=85% of LLN	308/130898#			
	Hemoglobin: <=85% of LLN	308/130808#			
	WBC: <=3.0 G/1	317/131702*, 400/140021*			
	Eosinophils: >=I0 %	600/160092#			
	Monocytes: >=20 %	317/131702*			
	Platelet Count: <=100 G/l	328/132802#			
5-minute (Cohort B2)	Neutrophils Abs: <1.5 G/1	317/131702#, 328/132802*, 400/140021*, 701/1701			
0-minute (Cohort C)	WBC: <=3.0 G/1	500/150011*			
	Neutrophils Abs: <1.5 G/1	500/150011*			

Note: * = Abnormality only at Baseline. # = Abnormality at both Baseline and EOTP. ## = Abnormality at EOTP but not at Baseline (Treatment-emergent).

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