Supplementary Table 1. Factors associated with response rate

Patient characteristics	n[a]	ORR, n(%)	p-value
Sex			
Male	51	40 (78.4)	p = 0.0131†
Female	53	29 (54.7)	
Age			
< 65	27	23 (85.2)	p = 0.0182†
≥ 65	77	46 (59.7)	
< 75	78	54 (69.2)	p = 0.3397†
≥ 75	26	15 (57.7)	
ECOG-PS			
0–1	64	41 (64.1)	p = 0.7378†
2–4	11	8 (72.7)	
Unknown	29	20 (69.0)	
Complications			
No	56	38 (67.9)	p = 0.8356†
Yes	48	31 (64.6)	
Cytogenetics			
del(17p)			
No	48	31 (64.6)	p = 0.5296†
Yes	13	7 (53.8)	
Unknown	43	31 (72.1)	
t(4;14)			
No	44	30 (68.2)	p = 1.0000†
Yes	18	12 (66.7)	
Unknown	42	27 (64.3)	
t(11;14)			
No	27	16 (59.3)	p = 0.5460†
Yes	20	14 (70.0)	
Unknown	57	39 (68.4)	
t(14;16)			
No	52	34 (65.4)	p = 0.7068†
Yes	8	6 (75.0)	
Unknown	44	29 (65.9)	
High risk [at least one of del(17p), t(4;14), t(14;16)]			
No	31	20 (64.5)	p = 0.7912†

Yes	33	23 (69.7)	
Unknown	40	26 (65.0)	
Number of prior treatments			
1	21	19 (90.5)	
2–3	34	22 (64.7)	p = 0.0103††
≥ 4	49	28 (57.1)	
Prior bortezomib treatment			
No	10	7 (70.0)	p = 1.0000†
Yes	94	62 (66.0)	
Refractory to bortezomib			
No	47	35 (74.5)	p = 0.0797†
Yes	45	25 (55.6)	
Unknown	12	9 (75.0)	
Prior lenalidomide treatment			
No	13	8 (61.5)	p = 0.7574†
Yes	91	61 (67.0)	
Refractory to lenalidomide			
No	34	25 (73.5)	p = 0.3564†
Yes	55	34 (61.8)	
Unknown	15	10 (66.7)	
Prior bortezomib and lenalidomide treatment			
No	22	14 (63.6)	p = 0.8022†
Yes	82	55 (67.1)	
Refractory to both bortezomib and lenalidomide			
No	50	35 (70.0)	p = 0.6305†
Yes	32	20 (62.5)	
Unknown	22	14 (63.6)	
Best response to prior treatment			
sCR	10	9 (90.0)	
CR	5	4 (80.0)	
VGPR	13	12 (92.3)	p = 0.0011††
PR	29	20 (69.0)	
SD	25	14 (56.0)	
PD	22	10 (45.5)	

†Fisher's exact test; ††Cochran-Armitage test

ORR overall response rate, *ECOG PS* Eastern Cooperative Oncology Group performance

status, *sCR* stringent complete response, *CR* complete response, *VGPR* very good partial response, *PR* partial response, *SD* stable disease, *PD* progressive disease

[a]Best response was analyzed after excluding 10 patients without medical records that contained relevant information

Supplementary Table 2. Factors associated with progression-free survival

Patient characteristics	Total, n[a]	Median PFS (95% CI), months	Hazard ratio (95% CI)	p-value
Sex				
Male	54	10.5 (6.1, 17.5)		
Female	59	7.0 (4.0, 14.0)	1.275 (0.8,2.1)	p = 0.358
Age				
< 65	30	14.2 (6.0, -)		
≥ 65	83	8.0 (6.1, 12.0)	1.280 (0.7,2.5)	p = 0.467
< 75	84	9.5 (6.1, 14.2)		
≥ 75	29	9.0 (3.8, 12.0)	1.205 (0.7,2.1)	p = 0.517
ECOG-PS				
0–1	66	6.8 (5.9, 12.4)		
2–4	13	12.0 (1.1, -)	0.571 (0.2,1.4)	p = 0.217
Complications				
No	58	8.0 (6.1, 16.1)		
Yes	55	9.5 (6.0, 12.0)	1.206 (0.7,2.0)	p = 0.477
Cytogenetics				
del(17p)				
No	52	8.0 (5.7, 14.0)		
Yes	13	8.0 (1.6, -)	0.918 (0.4,2.1)	p = 0.842
t(4;14)				
No	49	7.8 (4.8, 11.9)		
Yes	19	12.0 (8.0, -)	0.706 (0.3,1.6)	p = 0.389
t(11;14)				
No	27	4.8 (2.1, -)		
Yes	21	14.2 (6.1, 18.2)	0.459 (0.2,1.1)	p = 0.087
t(14;16)				
No	56	8.0 (5.1, 11.9)		
Yes	8	7.0 (1.4, -)	0.704 (0.2,2.0)	p = 0.519
High risk [at least one of del(17p), t(4;14), t(14;16)]				
No	35	10.5 (4.8, 14.0)		
Yes	34	12.0 (3.1, -)	0.806 (0.4,1.6)	p = 0.525
Number of prior treatments				
1	21	19.5 (3.8, -)	0.365 (0.1,1.1)	p = 0.074
2–3	36	11.7 (6.3, 17.5)		

≥ 4	56	7.0 (5.9, 11.9)	1.382 (0.8,2.4)	p = 0.264
Prior bortezomib treatment				
No	10	18.2 (3.8, -)		
Yes	103	9.0 (6.1, 12.0)	1.513 (0.6,3.8)	p = 0.382
Refractory to bortezomib				
No	50	11.2 (6.3, 16.1)		
Yes	50	6.8 (4.8, 11.9)	1.539 (0.9,2.7)	p = 0.127
Prior lenalidomide treatment				
No	13	18.6 (2.8, -)		
Yes	100	9.0 (6.1, 12.0)	2.317 (0.9,6.2)	p = 0.095
Refractory to lenalidomide				
No	38	11.7 (4.0, -)		
Yes	58	7.8 (6.1, 12.0)	1.222 (0.6,2.3)	p = 0.540
Refractory to both bortezomib and lenalidomide				
No	57	9.5 (6.1, 12.0)		
Yes	34	6.8 (3.1, 12.4)	1.107 (0.6,2.0)	p = 0.732
Best response to prior treatment				
sCR	12	- (1.0, -)		
CR	5	12.4 (2.8, -)	0.903 (0.2,4.9)	p = 0.906
VGPR	13	17.5 (6.8, -)	0.574 (0.1,2.3)	p = 0.434
PR	29	7.0 (3.1, 18.2)	1.260 (0.4,3.8)	p = 0.683
SD	28	7.8 (5.1, 11.9)	1.474 (0.5,4.5)	p = 0.499
PD	25	8.0 (2.0, 12.0)	1.716 (0.6,5.1)	p = 0.334

A Cox proportional hazards model.

PFS progression-free survival, *CI* confidence interval, *ECOG PS* Eastern Cooperative Oncology Group performance status, *Ig* immunoglobulin, *sCR* stringent complete response, *CR* complete response, *VGPR* very good partial response, *PR* partial response, *SD* stable disease, *PD* progressive disease

[a]PFS was analyzed after excluding one patient without medical records that contained relevant information

Supplementary Table 3. Factors associated with treatment-emergent adverse events (safety analysis set)

Patient characteristics	Total, n	All grade, n (%)	p-value	≥ grade 3, n (%)	p-value
Sex					
Male	58	25 (43.1)	p = 0.587†	12 (20.7)	p = 1.000†
Female	62	30 (48.4)		13 (21.0)	
Age					
< 65	33	13 (39.4)	p = 0.418†	6 (18.2)	p = 0.803†
≥ 65	87	42 (48.3)		19 (21.8)	
< 75	90	42 (46.7)	p = 0.834†	21 (23.3)	p = 0.306†
≥ 75	30	13 (43.3)		4 (13.3)	
ECOG-PS					
0–1	68	27 (39.7)	p = 0.221†	9 (13.2)	p = 0.208†
2–4	13	8 (61.5)		4 (30.8)	
Unknown	39	20 (51.3)		12 (30.8)	
Complications					
No	59	26 (44.1)	p = 0.718†	9 (15.3)	p = 0.179†
Yes	61	29 (47.5)		16 (26.2)	
Cardiac complications					
No	110	50 (45.5)	p = 1.000†	23 (20.9)	p = 1.000†
Yes	10	5 (50.0)		2 (20.0)	
Renal complications					
No	87	42 (48.3)	p = 0.418†	17 (19.5)	p = 0.618†
Yes	33	13 (39.4)		8 (24.2)	
Pulmonary complications					
No	113	51 (45.1)	p = 0.701†	24 (21.2)	p = 1.000†
Yes	7	4 (57.1)		1 (14.3)	
Hypertension					
No	77	33 (42.9)	p = 0.446†	15 (19.5)	p = 0.645†
Yes	43	22 (51.2)		10 (23.3)	
Number of prior treatments					
1	21	5 (23.8)		1 (4.8)	
2–3	41	25 (61.0)	p = 0.469††	13 (31.7)	p = 0.554††
≥ 4	58	25 (43.1)		11 (19.0)	

†Fisher's exact test; ††Cochran-Armitage test

ECOG PS Eastern Cooperative Oncology Group performance status