

**Table S1: pH of piperacillin/ tazobactam solutions during storage**

Time point	FOLFusor LV 10 (Baxter)				Easypump II (B. Braun)			
	25 mg/mL average pH	Difference from initial	90 mg/mL average pH	Difference from initial	25 mg/mL average pH	Difference from initial	90 mg/mL average pH	Difference from initial
t=0	6.70	n/a	6.37	n/a	6.73	n/a	6.38	n/a
t= 7	6.61	0.09	6.26	0.11	6.51	0.22	6.16	0.22
t= 10 (11)	6.50	0.20	6.13	0.24	6.41	0.32	6.12	0.26
t= 13	6.50	0.20	6.11	0.25	6.42	0.31	6.07	0.31
t= 13+1	6.20	0.50	5.77	0.60	6.25	0.48	5.80	0.58

**Table S2: Particle counts for 25 mg/mL Piperacillin/tazobactam solutions during storage in FOLFusor LV10 (Baxter) devices**

Particle counts per device (241 mL)							
Timepoint	Sample ID	10µm count	Mean 10µm count	95 % CI (±)	25µm count	Mean 25µm count	95% CI (±)
1	210-25-B-1	5415.27	4585	829	1060.4	578	555
	210-25-B-2	4306.67			79.53		
	210-25-B-3	4031.93			595.27		
7	210-25-B-1	272.33	149	136	224.13	96	126
	210-25-B-2	144.6			48.2		
	210-25-B-3	31.33			16.87		
10	210-25-B-1	65.07	102	89	48.2	59	20
	210-25-B-2	48.2			48.2		
	210-25-B-3	192.8			79.53		
13	210-25-B-1	79.53	128	55	65.07	59	28
	210-25-B-2	127.73			31.33		
	210-25-B-3	175.93			79.53		
13+1	210-25-B-1	127.73	133	11	0	21	20
	210-25-B-2	144.6			31.33		
	210-25-B-3	127.73			31.33		

**Table S3: Particle counts for 90 mg/mL piperacillin/tazobactam solutions during storage in the FOLFusor LV10 (Baxter) devices**

90 mg/mL concentration counts per device (241 mL)							
Timepoint	Sample ID	10 $\mu$ m count	Mean 10 $\mu$ m count	95 % CI	25 $\mu$ m count	Mean 25 $\mu$ m count	95% CI
1	210-90-B-1	1236.33	1328	295	144.6	92	52
	210-90-B-2	1125.47			65.07		
	210-90-B-3	1621.93			65.07		
7	210-90-B-1	1253.2	996	352	995.33	642	339
	210-90-B-2	595.27			320.53		
	210-90-B-3	1139.93			609.73		
10	210-90-B-1	209.67	680	900	16.87	327	510
	210-90-B-2	113.27			48.2		
	210-90-B-3	1718.33			915.8		
13	210-90-B-1	209.67	306	83	65.07	145	89
	210-90-B-2	354.27			127.73		
	210-90-B-3	354.27			241		
13+1	210-90-B-1	498.87	279	191	0	10	18
	210-90-B-2	175.93			31.33		
	210-90-B-3	161.47			0		

**Table S4: Particle counts for 25 mg/mL piperacillin/tazobactam solutions during storage in Easypump II (B. Braun) devices**

25 mg/mL concentration counts per device (241 mL)							
Timepoint	Sample ID	10 $\mu$ m count	Mean 10 $\mu$ m count	95 % CI	25 $\mu$ m count	Mean 25 $\mu$ m count	95% CI
1	210-25-E-1	1253.2	1607	441	368.73	193	184
	210-25-E-2	1542.4			48.2		
	210-25-E-3	2024.4			161.47		
7	210-25-E-1	272.33	353	346	144.6	236	313
	210-25-E-2	691.67			547.07		
	210-25-E-3	96.4			16.87		
11	210-25-E-1	113.27	118	28	65.07	38	28
	210-25-E-2	144.6			31.33		
	210-25-E-3	96.4			16.87		
13	210-25-E-1	337.4	257	189	257.87	140	147
	210-25-E-2	368.73			161.47		
	210-25-E-3	65.07			0		
13+1	210-25-E-1	48.2	118	82	31.33	38	28

**Table S5: Particle counts of 90 mg/mL piperacillin/tazobactam solutions during storage in Easypump II (B. Braun) devices**

90 mg/mL concentration counts per device (241 mL)							
Timepoint	Sample ID	10 $\mu$ m count	Mean 10 $\mu$ m count	95 % CI	25 $\mu$ m count	Mean 25 $\mu$ m count	95% CI
1	210-90-E-1	161.47	1109	1054	0	96	109
	210-90-E-2	2024.4			96.4		
	210-90-E-3	1139.93			192.8		
7	210-90-E-1	79.53	353	259	16.87	236	217
	210-90-E-2	385.6			241		
	210-90-E-3	595.27			450.67		
11	210-90-E-1	48.2	165	218	0	32	33
	210-90-E-2	416.93			65.07		
	210-90-E-3	31.33			31.33		
13	210-90-E-1	337.4	391	308	257.87	257	225
	210-90-E-2	113.27			31.33		
	210-90-E-3	723			482		
13+1	210-90-E-1	65.07	155	82	0	16	16

**Table S6. HPLC assay results for concentration of tazobactam in FOLFusor LV10 (Baxter) devices**

Timepoint	90 mg/mL Total drug combination*		25 mg/mL Total drug combination**	
	TAZ % Remaining	95 % CI	TAZ % Remaining	95 % CI
0	100% (10.45 $\pm$ 0.07 mg/mL)	0.7	100% (3.03 $\pm$ 0.03 mg/mL)	1.0
7	101.6	0.3	101.3	0.3
10	99.6	0.2	99.9	0.5
13	98.7	0.4	99.2	0.4
13+1	98.0	0.2	100.9	0.6

\*90 mg/ml total drug concentration: 80 mg piperacillin/10 mg tazobactam

\*\*25 mg/ml total drug concentration: 22 mg piperacillin/3 mg tazobactam

**Table S7. HPLC assay results for concentration of piperacillin in FOLFusor LV10 (Baxter) devices**

Timepoint	90 mg/mL Total drug combination*		25 mg/mL Total drug combination**	
	PIP % Remaining	95 % CI	PIP % Remaining	95 % CI
0	100% (83.6 $\pm$ 0.3 mg/mL)	0.4	100% (24.1 $\pm$ 0.2 mg/mL)	0.9
7	101.3	0.5	101.6	0.3
10	99.7	0.2	100.3	0.4
13	98.7	0.3	99.7	0.3
13+1	98.0	0.2	100.9	0.6

\*90 mg/ml total drug concentration: 80 mg piperacillin/10 mg tazobactam

\*\*25 mg/ml total drug concentration: 22 mg piperacillin/3 mg tazobactam

**Table S8. HPLC assay results for concentration of tazobactam in Easypump II (B. Braun) devices**

90 mg/mL Total drug combination*			25 mg/mL Total drug combination**	
Timepoint	TAZ % Remaining	95 % CI	TAZ % Remaining	95 % CI
0	100% (9.63±0.09 mg/mL)	0.9	100% (2.72±0.06 mg/mL)	2.0
7	101.7	0.2	100.7	0.4
11	101.3	1.5	102.7	0.2
13	100.4	0.1	98.7	1.6
13+1	100.9	0.6	101.5	0.1

\*90 mg/ml total drug concentration: 80 mg piperacillin/10 mg tazobactam

\*\*25 mg/ml total drug concentration: 22 mg piperacillin/3 mg tazobactam

**Table S9. HPLC assay results for concentration of piperacillin in Easypump II (B. Braun) devices**

90 mg/mL Total drug combination*			25 mg/mL Total drug combination**	
Timepoint	PIP % Remaining	95 % CI	PIP % Remaining	95 % CI
0	100% (77.6±0.6 mg/mL)	0.8	100% (21.9±0.4 mg/mL)	2.1
7	101.7	0.1	100.9	0.4
11	101.1	1.2	102.2	0.1
13	100.7	0.1	98.9	1.5
13+1	100.7	0.6	101.0	0.1

\*90 mg/ml total drug concentration: 80 mg piperacillin/10 mg tazobactam

\*\*25 mg/ml total drug concentration: 22 mg piperacillin/3 mg tazobactam