Supplemental Figure 1: A) Image of scaffolds taken from the EVOS microscope depicting slicing, hatching, and cylinder size with their respective change in distance and cylinder sizes from 2PP at 10% intensity and 15 ms using an EVOS RFP light cube. B) Control samples of PEGDMA without rhodamine B at 10% intensity and 15 ms, (no fluorescence detected). C) An example of the loss of fluorescence of a single scaffold over time (0-48 h). Full sets of scaffolds have a scale bar of 400 μm (A, B), while single scaffolds have a scale bar of 200 μm (C).

Supplemental Figure 2: Standard curve of rhodamine B concentrations loaded on PEGDMA printed 5mm discs. A standard curve was constructed from printed PEGDMA discs containing different concentrations of rhodamine B. n=3.

Supplemental Table 1. Goodness of fit measures for the release profiles shown in Figure 1 using five different mathematical drug release models. Fit line parameters for the most accurate model are also given.

			Rod Size (μm)		
Model	**Equation**		**5**	**10**	**15**
Zero Order	$Q = Q_0 + kt$	R^2	0.604	0.471	0.580
		Sy.x	9.54	13.17	12.03
First Order	$Q = Q_0 e^{-kt}$	R^2	0.798	0.928	0.869
		Sy.x	6.73	4.52	6.27
Higuchi	$Q = k\sqrt{t}$	R^2	0.456	0.00	0.267
		Sy.x	10.55	16.11	14.17
Hixson-Crowell	$Q^{1/3} = kt + Q_0^{1/3}$	R^2	0.487	0.429	0.524
		Sy.x	10.5	12.4	11.7
Korsmeyer-Peppas	$Q = kt^n$	R^2	0.790	0.969	0.972
		Sy.x	6.70	2.92	2.84
		k	13.6	26.2	23.3
		n	0.220	0.137	0.165

Q is the relative amount of drug released over time, t; k and n are release rate constant and exponent, respectively.

Supplemental Table 2. Goodness of fit measures for the release profiles shown in Figure 2 using five different mathematical drug release models. Fit line parameters for the most accurate model are also given.

			Spacing (µm)	
Model	**Equation**		**5.00**	**9.29**
Zero Order	$Q = Q_0 + kt$	R^2	0.834	0.498
		Sy.x	6.06	11.7
First Order	$Q = Q_0 e^{-kt}$	R^2	0.861	0.921
		Sy.x	5.18	4.37
Higuchi	$Q = k\sqrt{t}$	R^2	0.885	0.299
		Sy.x	4.50	12.5
Hixson-Crowell	$Q^{1/3} = kt + Q_0^{1/3}$	R^2	0.775	0.437
		Sy.x	6.44	11.4
Korsmeyer-Peppas	$Q = kt^n$	R^2	0.935	0.896
		Sy.x	3.47	4.91
		k	6.44	18.7
		n	0.352	0.174

Q is the relative amount of drug released over time, *t*; *k* and *n* are release rate constant and exponent, respectively.

Supplemental Table 3. Goodness of fit measures for the release profiles shown in Figure 3 using five different mathematical drug release models. Fit line parameters for the most accurate model are also given.

			Slicing Distance (µm)			Hatching Distance (µm)		
Model	**Equation**		**0.05**	**0.10**	**0.15**	**0.05**	**0.10**	**0.15**
Zero Order	$Q = Q_0 + kt$	R^2	0.736	0.715	0.666	0.737	0.622	0.530
		Sy.x	8.50	7.99	10.0	8.25	9.81	13.7
First Order	$Q = Q_0 e^{-kt}$	R^2	0.943	0.829	0.842	0.936	0.902	0.939
		Sy.x	3.67	5.85	6.49	3.82	4.67	4.64
Higuchi	$Q = k\sqrt{t}$	R^2	0.850	0.581	0.550	0.840	0.547	0.478
		Sy.x	5.71	8.73	10.5	5.77	9.60	12.9
Hixson-Crowell	$Q^{1/3} = kt + Q_0^{1/3}$	R^2	0.850	0.581	0.550	0.840	0.547	0.479
		Sy.x	5.71	8.73	10.5	5.77	9.60	12.9
Korsmeyer-Peppas	$Q = kt^n$	R^2	0.966	0.960	0.960	0.952	0.949	0.912
		Sy.x	2.79	2.78	3.18	3.22	3.28	5.44
		k	9.02	14.4	17.0	8.73	15.0	19.0
		n	0.309	0.215	0.208	0.310	0.212	0.205

Q is the relative amount of drug released over time, *t*; *k* and *n* are release rate constant and exponent, respectively.

Supplemental Table 4. Goodness of fit measures for the release profiles shown in Figure 4 using five different mathematical drug release models. Fit line parameters for the most accurate model are also given.

			Slicing Distance (µm)			Hatching Distance (µm)		
Model	**Equation**		**0.05**	**0.10**	**0.15**	**0.05**	**0.10**	**0.15**
Zero Order	$Q = Q_0 + kt$	R^2	0.616	0.560	0.640	0.651	0.662	0.734
		Sy.x	11.1	13.8	13.2	10.3	11.5	10.1
First Order	$Q = Q_0 e^{-kt}$	R^2	0.890	0.907	0.823	0.870	0.874	0.813

Higuchi	$Q = k\sqrt{t}$	Sy.x	5.56	5.96	9.03	5.85	6.51	7.90
		R^2	0.494	0.386	0.575	0.464	0.512	0.627
Hixson-Crowell	$Q^{1/3} = kt + Q_0^{1/3}$	Sy.x	11.4	14.6	13.4	11.4	12.3	10.7
		R^2	0.552	0.495	0.521	0.603	0.606	0.673
Korsmeyer-Peppas	$Q = kt^n$	Sy.x	11.0	13.5	14.5	10.0	11.3	10.2
		R^2	0.960	0.938	0.852	0.968	0.989	0.959
		Sy.x	3.25	4.72	8.06	2.85	1.85	3.62
		k	18.3	22.8	17.9	18.7	20.6	17.6
		n	0.199	0.184	0.236	0.190	0.197	0.223

Q is the relative amount of drug released over time, t; k and n are release rate constant and exponent, respectively.