SUPPLEMENTAL MATERIAL

RUNNING HEAD: Modeling SF excretion in *ex vivo* machine-perfused livers

Assessing the degree of hepatic ischemia-reperfusion injury using PBPK modeling of sodium fluorescein disposition in *ex vivo* machine-perfused livers

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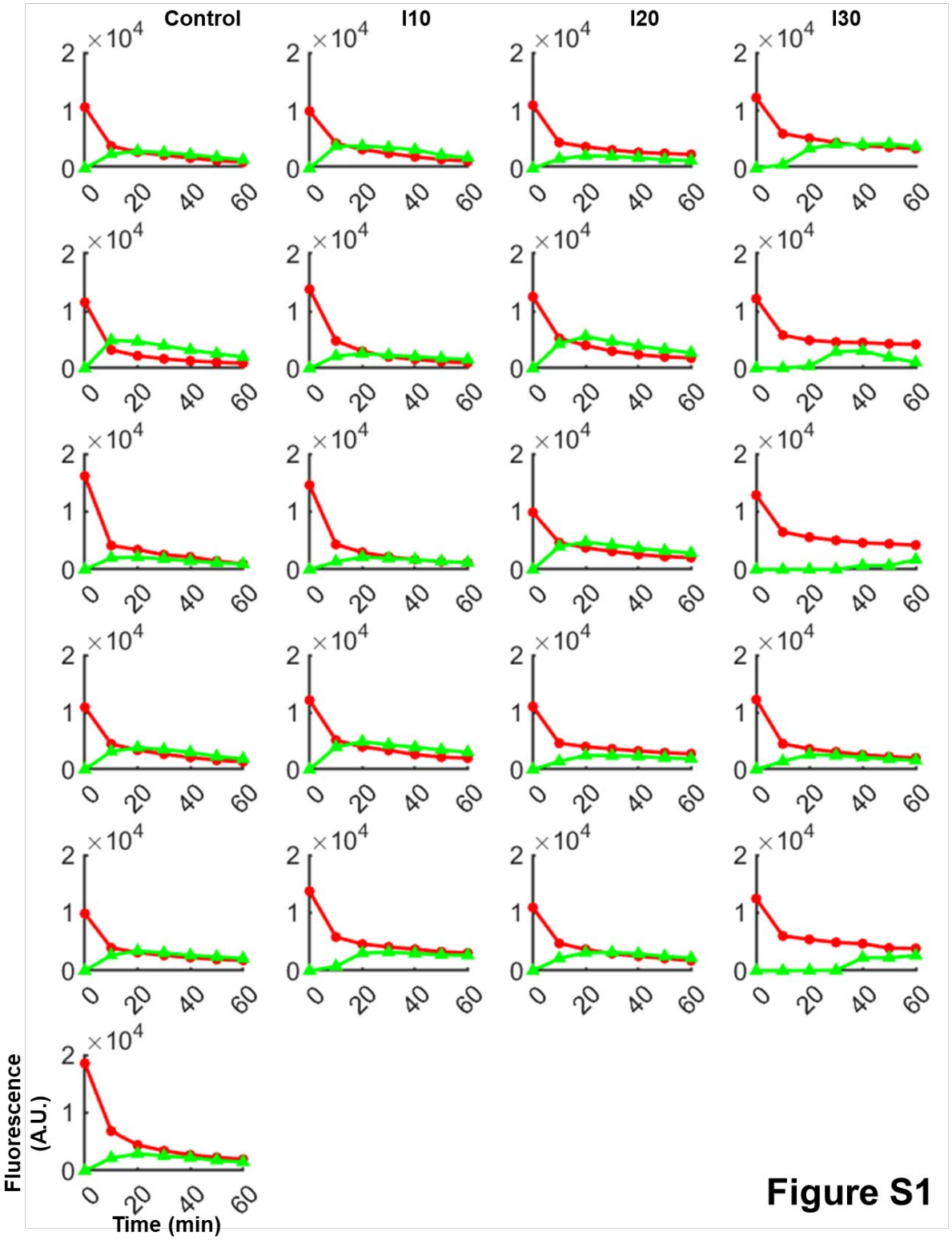

Figure S1. Individual SF fluorescence measurements in the perfusate and bile obtained in Dr. Joohyun Kim Laboratory (Froedtert Hospital Division of Transplant Surgery).

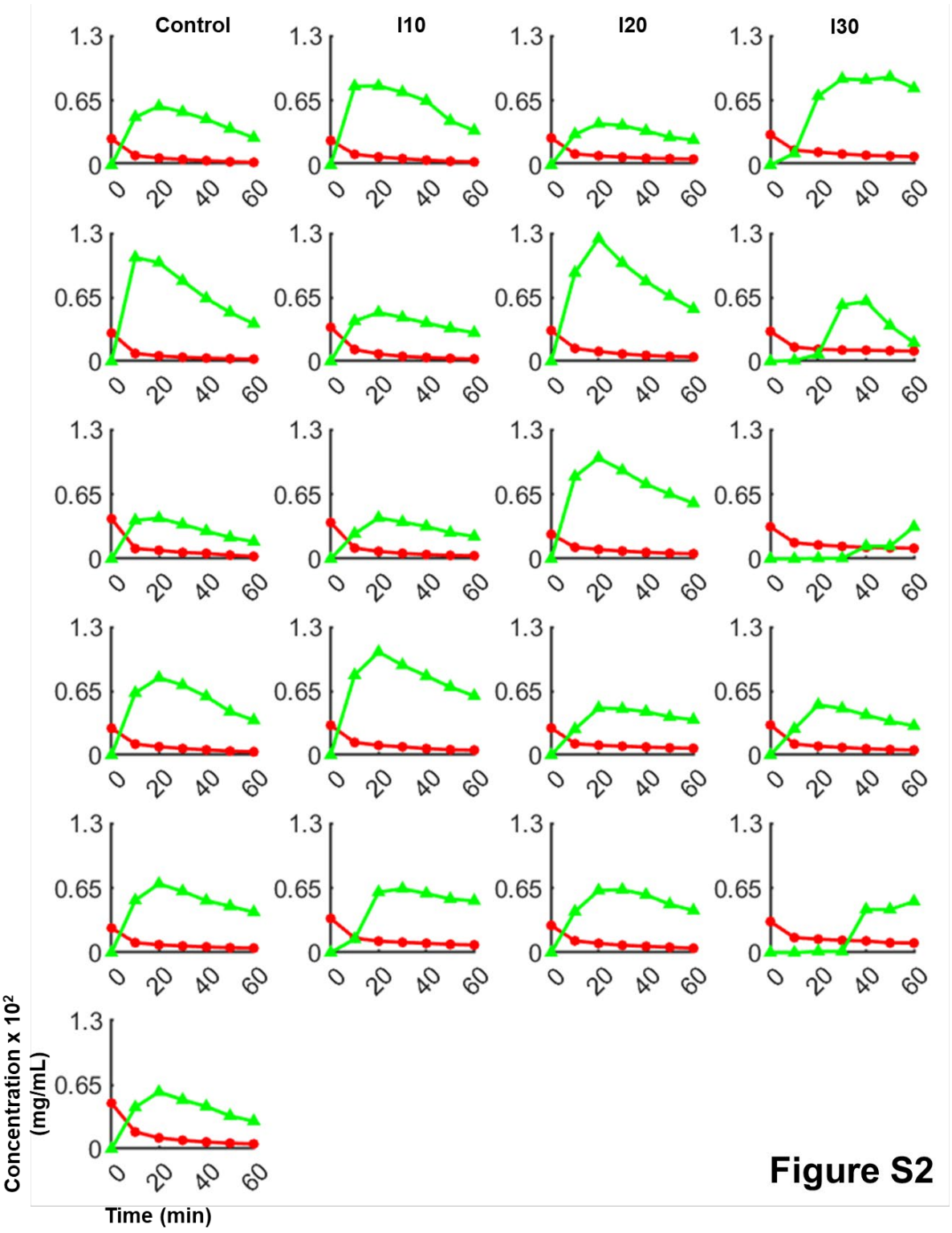

Figure S2. Individual SF concentration measurements in the perfusate and bile generated using the SF fluorescence datasets from **Fig. S1** and calibration curves in **Fig. 2A**.

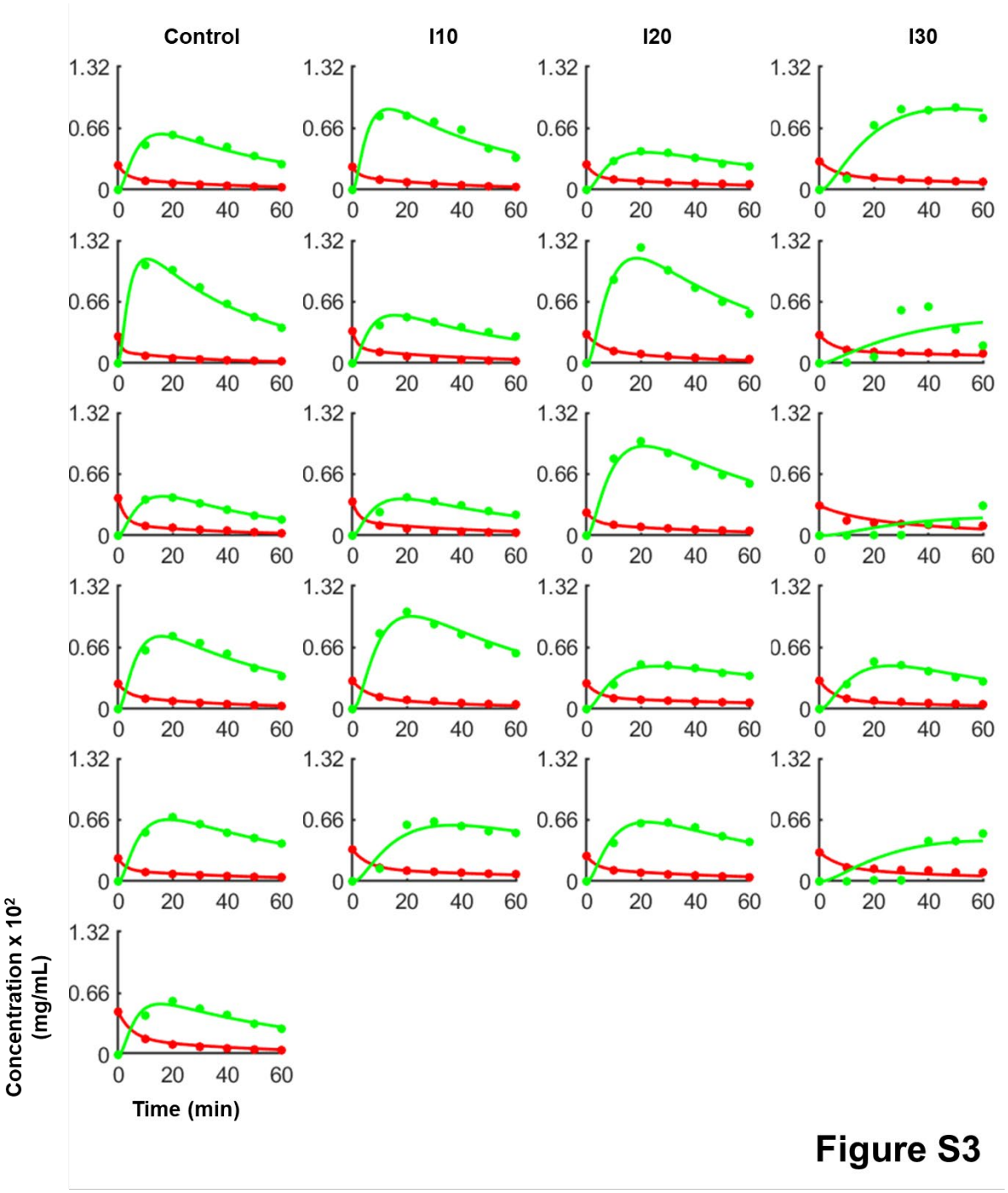

Figure S3. Individual fits of the 3-parameter PBPK ODE model to the datasets in **Fig. S2**.

Table S1. Individual fitting parameter values.

Condition	Replicate	Rat Weight (kg)	Liver Weight (g)	$V_{R,1}$ (mL)	$V_{R,2}$ (mL)	V_S (mL)	V_H (mL)	V_B (mL)	Perfusate Flow Rate (mL/min)	Bile Flow Rate (mL/min)	$V_{max,2}$ (mg/min)	$V_{max,3,SF}$ x 10^4 (mg/min)	*α (F/Kmix)* (Unitless)
Control	1	0.3020	15.60	45.77	54.23	2.80	12.79	0.06	25.00	0.01	0.17	1.69	2.84
	2	0.3250	14.80	45.15	54.84	2.66	12.14	0.06	25.00	0.02	0.24	4.07	1.01
	3	0.3140	16.40	31.14	68.86	2.95	13.45	0.07	25.00	0.01	0.21	1.06	2.77
	4	0.3288	14.00	48.41	51.59	2.52	11.48	0.06	25.00	0.01	0.18	2.04	3.43
	5	0.3030	15.60	49.13	50.87	2.81	12.79	0.06	18.00	0.01	0.13	1.53	1.78
	6	0.4000	15.28	34.59	65.41	2.75	12.53	0.06	23.00	0.02	0.14	1.80	4.88
I10	1	0.3585	16.00	58.12	41.88	2.88	13.12	0.06	25.00	0.02	0.20	2.84	2.07
	2	0.4010	20.00	46.50	53.50	3.60	16.40	0.08	15.00	0.01	0.18	1.68	1.17
	3	0.4100	22.00	44.99	55.01	3.96	18.04	0.09	20.00	0.01	0.17	1.09	1.63
	4	0.2730	16.80	36.13	63.87	3.02	13.78	0.07	18.00	0.01	0.16	2.72	4.33
	5	0.3500	20.50	40.81	59.19	3.69	16.81	0.08	14.00	6.00E-03	0.09	0.81	3.05
I20	1	0.3350	20.00	49.19	50.81	3.60	16.40	0.08	16.00	0.01	0.13	0.95	1.66
	2	0.3390	18.20	43.39	56.61	3.28	14.92	0.07	22.00	0.01	0.23	3.42	4.14
	3	0.3230	16.00	52.29	47.71	2.88	13.12	0.06	18.57	8.00E-03	0.16	1.90	2.23
	4	0.2730	16.20	46.99	53.00	2.92	13.28	0.06	18.00	8.00E-03	0.07	0.77	2.72
	5	0.3500	18.40	51.30	48.70	3.31	15.09	0.07	19.00	9.00E-03	0.13	1.34	2.46
I30	1	0.3670	19.60	48.11	51.88	3.53	16.07	0.08	15.86	3.00E-03	0.07	0.75	3.57
	2	0.3700	20.00	48.72	51.28	3.60	16.40	0.08	15.00	2.00E-03	0.06	0.20	2.73
	3	0.3200	20.00	39.82	60.18	3.60	16.40	0.08	8.00	9.60E-04	0.26	0.17	5.00
	4	0.2460	19.60	32.26	67.74	3.53	16.07	0.08	22.00	8.00E-03	0.14	1.02	5.00
	5	0.3090	18.40	39.75	60.25	3.31	15.09	0.07	16.00	2.00E-03	0.12	0.28	5.00