

**Supplemental Information****Title: Safety of Bioplasma FDP and Hemopure in Rhesus Macaques after 30% Hemorrhage**

Table S1. Calculation of the Volume of a Unit

<b>Human Dose/Unit (Assume 70 kg adult)</b>	<b>Human Dose/Unit Per Estimated Blood Volume (EBV = 70ml/kg)</b>
NS: 1000 ml	$(1000 \text{ ml} / 4900 \text{ ml EBV}) \times 100\% = 20.4\% \text{ EBV}$
Hemopure: 250 ml/Unit x 2 = 500 ml dose	$(500 \text{ ml} / 4900 \text{ ml EBV}) \times 100\% = 5.1\% \text{ of EBV}$
Bioplasma FDP: 200ml/Unit x 2 = 400 ml dose	$(400 \text{ ml} / 4900 \text{ ml EBV}) \times 100\% = 4.1\% \text{ of EBV}$

Table S2. Example Doses

<b>Human Dose/Unit Per Estimated Blood Volume (EBV)</b>	<b>Example for 10 kg NHP (550 ml EBV)</b>
NS: $(1000 \text{ ml} / 4900 \text{ ml EBV}) \times 100\% = 20.4\% \text{ EBV}$	NHP "Unit" = $550 \text{ ml EBV} \times 20.4\% = 112.2 \text{ ml}$
Hemopure: $(250 \text{ ml} / 4900 \text{ ml EBV}) \times 100\% = 5.1\% \text{ of EBV}$	NHP "Unit" = $550 \text{ ml EBV} \times 5.1\% = 28.1 \text{ ml}$
Bioplasma FDP: $(200 \text{ ml} / 4900 \text{ ml EBV}) \times 100\% = 4.1\% \text{ of EBV}$	NHP "Unit" = $550 \text{ ml EBV} \times 4.1\% = 22.5 \text{ ml}$

Table S3. Neurological Assessment Checklist

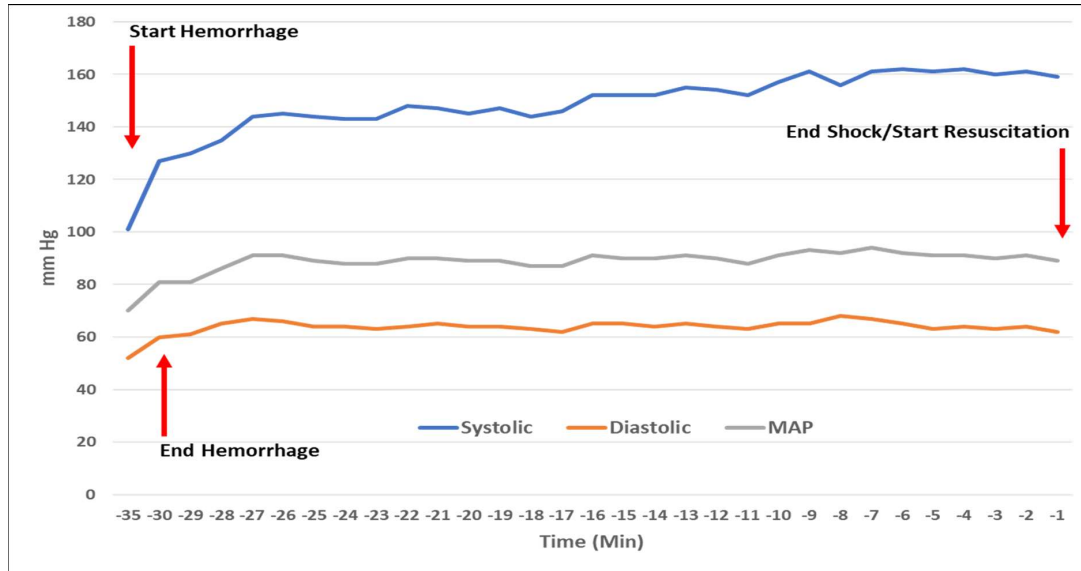
## NHP Behavior / Neurologic Assessment

Animal ID:	Date:			Protocol:	
Time off Iso	Time off Vent	Time Extubated	Time of Euthanasia		
				Time (Measure in 30 minute increments)	
Behavior description	Behavior Score				
Consciousness / Behavior	Awake / normal.....	0			
	Quiet but alert.....	1			
	Obtunded (decreased alertness, slowed responses, but responds to gentle prodding).....	2			
	Stuporous (only response to painful stimuli or vigorous prodding).....	3			
	Comatose (cannot be aroused).....	4			
Body Posture	Normal; attempts to climb.....	0			
	Unstable when standing/sitting; weakness.....	1			
	Needs support; stumbling.....	2			
	Sitting/lying/hunched but responsive.....	3			
	Sitting/lying/hunched, unresponsive.....	4			
Head Position	Head erect.....	0			
	Head raised to stimulation.....	1			
	Raises head, but glazed or unfocused look.....	3			
	Unable to raise head.....	4			
Movement in cage	Normal active movement; sleeping.....	0			
	Mild instability; reaching for sides of cage.....	1			
	Moderate Instability; stumbling.....	2			
	Severe incoordination; unable to use limbs.....	3			
	No movement.....	4			
Neurologic signs	Normal; sleeping.....	0			
	Mild: head tilt; circling; tremors; glazed look.....	1			
	Moderate of above; stargazing.....	2			
	Severe of above, head pressing.....	3			
	Nonresponsive; paralysis; convulsions; nystagmus; opisthotonos.....	4			
Pain	No pain or distress observed.....	0			
	Mild: Moving slow, but aware of surroundings... ..	1			
	Moderate: Withdrawn, hunched, no interest in surroundings, or increased respiratory effort.....	2			
	Severe: Vocalizations, immobility, or labored breathing.....	3			
	Severe pain unresponsive to treatment.....	4			
Incision site	Normal.....	0			
	Red; dry or slight oozing.....	1			
	Irritated; moderate oozing.....	2			
	Seen manipulating site; sutures removed; open wound.....	3			
	Incisions open, unrepairable.....	4			
Feeding ➤ offer desirable enrichment if responsive	Normal eating.....	0			
	Shows interest.....	0.5			
	No eating.....	1			
Drinking ➤ offer Gatorade if responsive	Normal drinking.....	0			
	Shows interest.....	0.5			
	No drinking.....	1			
Vomiting	None.....	0			
	Present.....	1			
	Excessive amount.....	3			
Total Score (Max 33)					
Initials of Observer(s)					

Table S4. Congestive, Inflammatory, and Degenerative Changes

	Vascular Congestion/Edema		Inflammatory		Degenerative/Necrotic	
	HBOC+FDP	NS	HBOC+FDP	NS	HBOC+FDP	NS
Brain	1 of 7	2 of 2	0 of 7	0 of 2	0 of 7	0 of 2
Gall Bladder	0 of 7	0 of 2	3 of 7	1 of 2	0 of 7	0 of 2
Gastro-intestinal	0 of 7	0 of 2	5 of 7	2 of 2	0 of 7	0 of 2
Heart	0 of 7	0 of 2	3 of 7	0 of 2	7 of 7	2 of 2
Kidney	7 of 7	2 of 2	0 of 7	1 of 2	0 of 7	1 of 2
Liver	1 of 7	0 of 2	1 of 7	0 of 2	6 of 7	2 of 2
Lung	6 of 7	2 of 2	1 of 7	0 of 2	0 of 7	0 of 2
Pancreas	0 of 7	0 of 2	0 of 7	0 of 2	0 of 7	0 of 2

Figure S1. Unusual Hypertensive Response to Hemorrhage During the 30 Min Prior to Resuscitation in Animal 1404155. The 30% hemorrhage was initiated at time -35 minutes. This animal was later found to have pre-existing occult pneumonia.



Figures S2-S10. Individual Minute-by-Minute Blood Pressure Responses During the 60 Minute Resuscitation Period. Individual blood pressure responses to treatment infusion are shown in Figures S2-S10. Systolic (blue), mean (gray), and diastolic (orange) blood pressures are shown by minute during the resuscitation period (treatment infusion), starting at 4 minutes (-4) before infusion. Time 0 is end of shock/start of resuscitation. Shown above the horizontal axis are the specific periods of infusion for normal saline (blue), HBOC (red), or FDP (green).

Figure S2. Individual Blood Pressure Response to Infusion in Animal 12050331

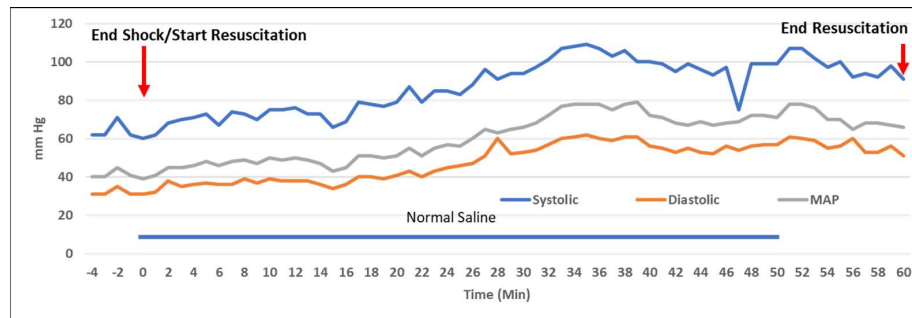


Figure S3. Individual Blood Pressure Response to Infusion in Animal 13081571

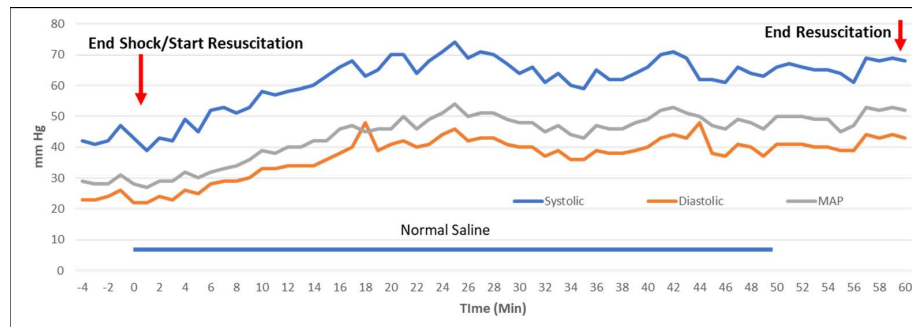


Figure S4. Individual Blood Pressure Response to Infusion in Animal 13052201

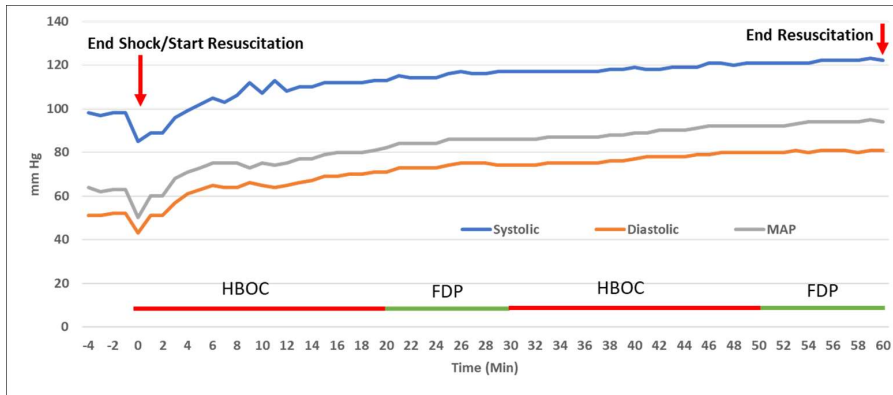


Figure S5. Individual Blood Pressure Response to Infusion in Animal 12070831

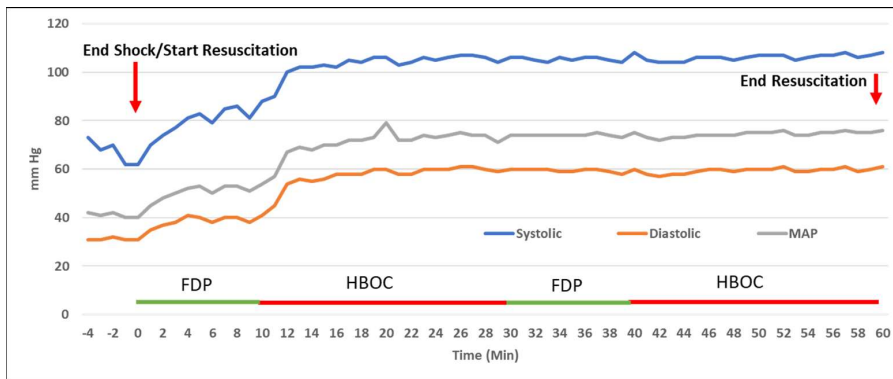


Figure S6. Individual Blood Pressure Response to Infusion in Animal 12062631

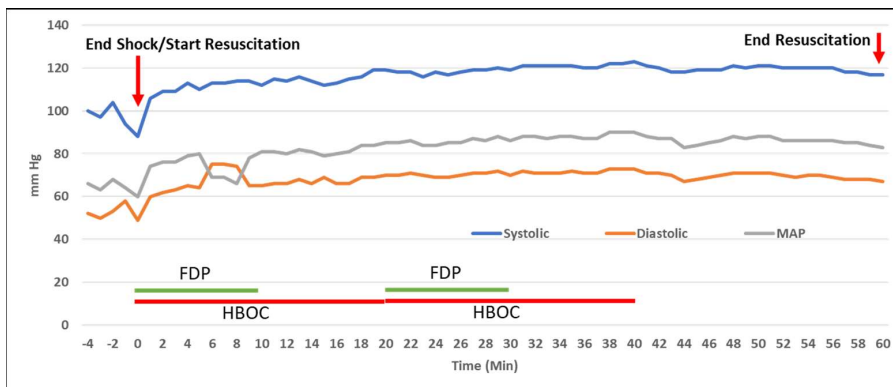


Figure S7. Individual Blood Pressure Response to Infusion in Animal 12090871

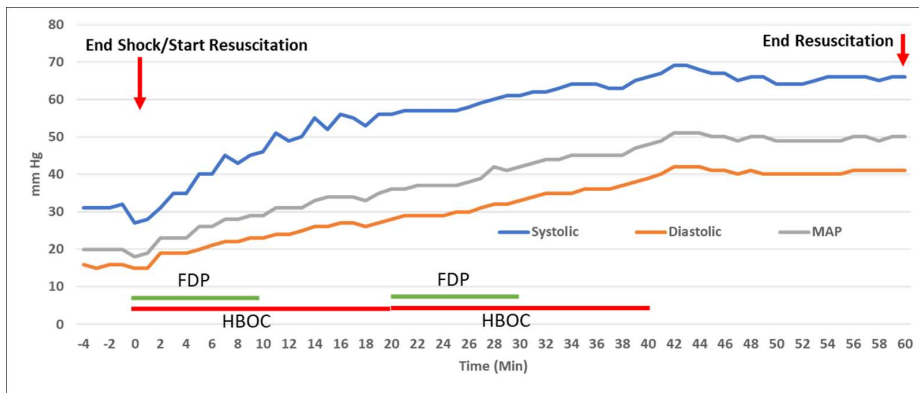


Figure S8. Individual Blood Pressure Response to Infusion in Animal 1404155

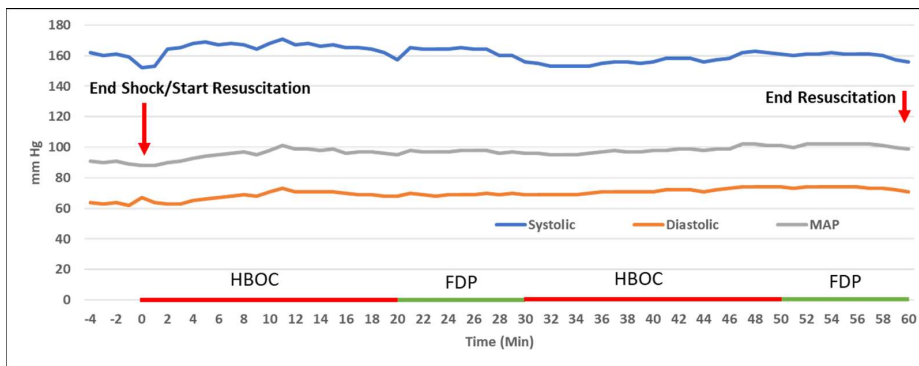


Figure S9. Individual Blood Pressure Response to Infusion in Animal 14042371

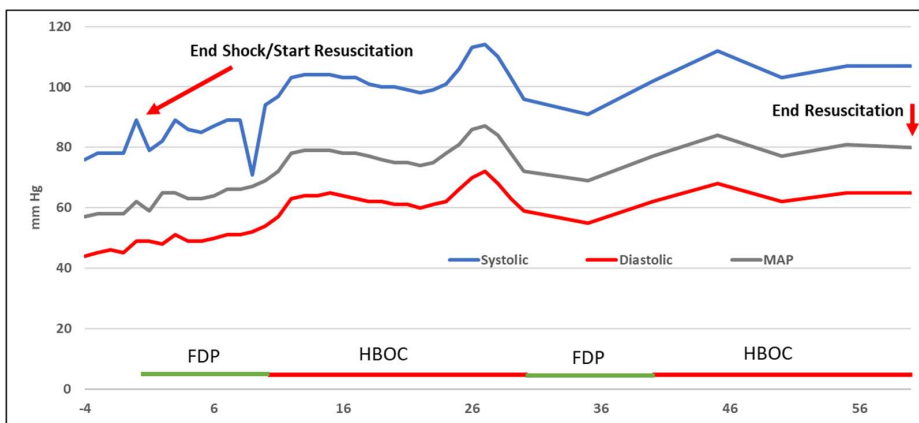


Figure S10. Individual Blood Pressure Response to Infusion in Animal 32940

