Supplementary Information

Clinical Pharmacokinetics

Pharmacokinetic Evaluation of Intravenous Vitamin C: A Classic Pharmacokinetic Study

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SUPPLEMENTARY TABLE 1. Inclusion and exclusion criteria for the study participants.

			Part I: Healthy Participants	**Part II: Oncology Participants**
Inclusion Criteria	Function		Center for Biologics* 0	ECOG** 0-2
	Laboratory	ANC	≥ 1,500 mm3	
		Hemoglobin	> 8 g/dL	
		Platelet	≥ 100,000/ mm3	
		Total bilirubin	≤1.5 mg/dL	
		Creatinine	≤2.0 mg/dL	
		AST/ALT	≤2.5 x upper limit	
		Urine uric acid	< 1,000 mg/d	
		Urine pH	< 6	
		Urine oxalate	< 60 mg/d	
	Other		No language barrier; cooperative and give informed consent	
Exclusion Criteria	G6PD deficiency			
	History of bleeding disorder			
	History of oxalate renal calculi			
	History of iron overload or hemochromatosis			
	Evidence of a significant psychiatric disorder by history/examination that would prevent completion of the study			
	Co-morbid condition that would affect survival: end stage congestive heart failure, unstable angina, myocardial infarction within 6 weeks of study			
	Uncontrolled blood sugars ≥300 mg/dL			
	Known chronic active hepatitis or cirrhosis			
	Consumption of an excess of alcohol*** or abuse drugs			
	Use of tobacco products			
	Receiving chemotherapy or radiation therapy at time of screening			
	Grade 1 or above for 2 or more healthy participants and ECOG* 3-4 for oncology participants			

***Center for Biologics** (https://www.fda.gov/regulatory-information/search-fda-guidance-documents/toxicity-grading-scale-healthy-adult-and-adolescent-volunteers-enrolled-preventive-vaccine-clinical

****ECOG:** Eastern Cooperative Oncology Group Performance Status. 0-2 ranging from fully active to ambulatory and capable of self-care and up for 50% of waking hours; 3-4 ranging from capable of limited self-care and confined to bed or chair more than 50% of waking hours to completely disabled.

***** An excess of alcohol is defined as more than four of any one of the following per day: 30 mL distilled spirits, 340 mL beer, or 120 mL wine.

SUPPLEMENTARY TABLE 2. INFUSION OSMOLALITY

DOSE LEVEL (grams)	Carrier Fluid	Volume	Osmolarity (mOsm)
1	Lactated Ringer's	1000 mL	297
5	Lactated Ringer's	1000 mL	342
10	Lactated Ringer's	1000 mL	399
25	Lactated Ringer's	1000 mL	568
50	Sterile Water	1000 mL	600
75	Sterile Water	1000 mL	897
100	Sterile Water	1000 mL	1194

Calculated osmolarity of infusions for each dose level. Infusion contained 2 mL of magnesium chloride.

SUPPLEMENTARY TABLE 3. STUDY COLLECTION TIMETABLE

Descriptive Time	**Clock Time Minutes**	**Clock Time Hours/ minutes**	**Blood Draw #**	**Blood Amount**	**Urine Sample #**	**Urine Amount**
Pre-infusion	-0	0;00	1	5 ml, 10 ml	1	5 ml
IV Begins	0	0:00	0	0		
	30	0:30	2	2 ml.		
	60	1:00	3	2 ml.	2	5 ml
	90	1:30	4	2 ml.		
End of Dose	120	2:00	5	2 ml.	3	5 ml
	150	2:30	6	2 ml.		
	180	3:00	7	2 ml.	4	5 ml
	210	3:30	8	2 ml.		
	240	4:00	9	2 ml.		
	300	5:00	10	2 ml.		
	360	6:00	11	2 ml.	5	5 ml
	420	7:00	12	2 ml.		
	480	8:00	13	2 ml.	6	5 ml
	600	10:00	14	5 ml, 10 ml	7	5 ml
24 Hour		24:00	15	2 ml	8	5 ml
Totals→		24:00		56 ml		40 ml

Study sample collection timetable. Blood sampling = 56 mL/participant for each dose level. Sample #1 for plasma WBC, metabolic screen, prothrombin time, PTT, and ascorbate. Blood samples 2 through 13 and 15 for ascorbate only. Sample 14 for plasma WBC, metabolic screen, prothrombin time, PTT, and ascorbate. Urine sample collection 1 and 8 for urate and oxalate, and ascorbate. Samples 2-7 for ascorbate only.