

Evaluation of the HAVAB(R) Kit for Assay
Hepatitis A Antibodies

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OBJECTIVE : To evaluate the sensitivity and specificity of the HAVAB (R) commercial kit for measurement of antibodies to hepatitis A virus (HAV).

BACKGROUND : In 1978 the first commercial kit for assay of antibodies to hepatitis A became available - the HAVAB (R) kit (Abbott Laboratories). As continued research into hepatitis in Thailand required the capability to measure anti HAV antibodies, arrangements were made for purchase of the kit and for preliminary evaluation of its sensitivity and specificity.

METHODS : A battery of 17 serum, plasma, and globulin specimens were provided by MAJ Stanley Lemon, Department of Virus Diseases, Walter Reed Army Institute of Research (WRAIR). Characteristics of the specimens are presented in Table 1. In addition, samples of two lots of immune serum globulin were obtained from the Health Clinic at the U.S. Embassy in Thailand (Hyland ISG, Lot # 0632E0022AA; and Metabolic Incorporated ISG Lot M 8324). The HAVAB (R) assay (a blocking solid phase radioimmuno assay) was performed according to the Manufacturer's recommendation without modification.

RESULTS : Graphs of the raw counts per minute (CPM) obtained with serial ten-fold dilutions of positive specimens are shown in Figures 1 and 2. Note that in the HAVAB system the lowest dilution of serum (or plasma) which may be tested is 1:20. The titer of a specimen was determined as that point where the dilution versus CPM curve intersected the cut-off value.

The \log_{10} of the reciprocal of the HAVAB (R) titers are presented in Table 2 along with similar data obtained by other laboratories using different assays on the same specimens. (Data provided by MAJ Lemon).

Table 1. Blood Products Tested to Evaluate HAVAB (R).

Code	Type of Solution	Animal Host	Source
Chim 173 PRE	Plasma	Chimpanzee	SRAIR-LEMSIP study
Chim 267 PRE	"	"	" " "
Chim 173 Post	"	"	" " "
Chim 267 Post	"	"	" " "
E 353	Serum	Human	ALASKA outbreak
Ex272	"	"	" "
Ex337	"	"	" "
Smith AK 003	Plasma	Human	" "
LEE AR 005	"	"	" "
Bennett AK 059	"	"	" "
Hylton AK 019	"	"	" "
WHO ref A	1/10 dilution of ISG in PBS	Human	BOB, USA
B	"	"	"
C	"	"	"
D	"	"	"
E	"	"	"
F	"	"	"

Table 2. Evaluation of HAVAB Comparative Results with Other Anti-HAV Assays.

Serum or Plasma Source	AFRIMS HAVAB (R) Log ₁₀ titer	Purcell NIH-IAHA Log ₁₀ titer	WRAIR SPRIA % Block	Baylor SPRIA % Block
Chim 173 pre	<1.3	1.0	0	-
Chim 267 pre	<1.3	1.0	0	-
Ex 353	<1.3	-	0	0
Ex 272	<1.3	-	0	18
Ex 337	<1.3	-	0	36
Chim 173 post	3.7	3.3	74	-
Chim 267 post	3.7	3.6	69	-
Smith (AK 003)	4.9	4.2	74	98
LEE (AK 005)	4.2	4.3	71	-
Bennett (AK 059)	3.9	3.6	80	98
HYLTON (AK 019)	4.5	3.6	71	-
WHO Ref A	4.8		4.8*	
B	4.3		4.5*	
C	3.4		3.1*	
D	4.3		4.2*	
E	4.2		4.6*	
F	5.5		4.5*	
LOCAL ISG				
Hyland	4.6			
Metabolic, Inc.	4.6			

* Log₁₀ of reciprocal dilution of 50% blocking end point.

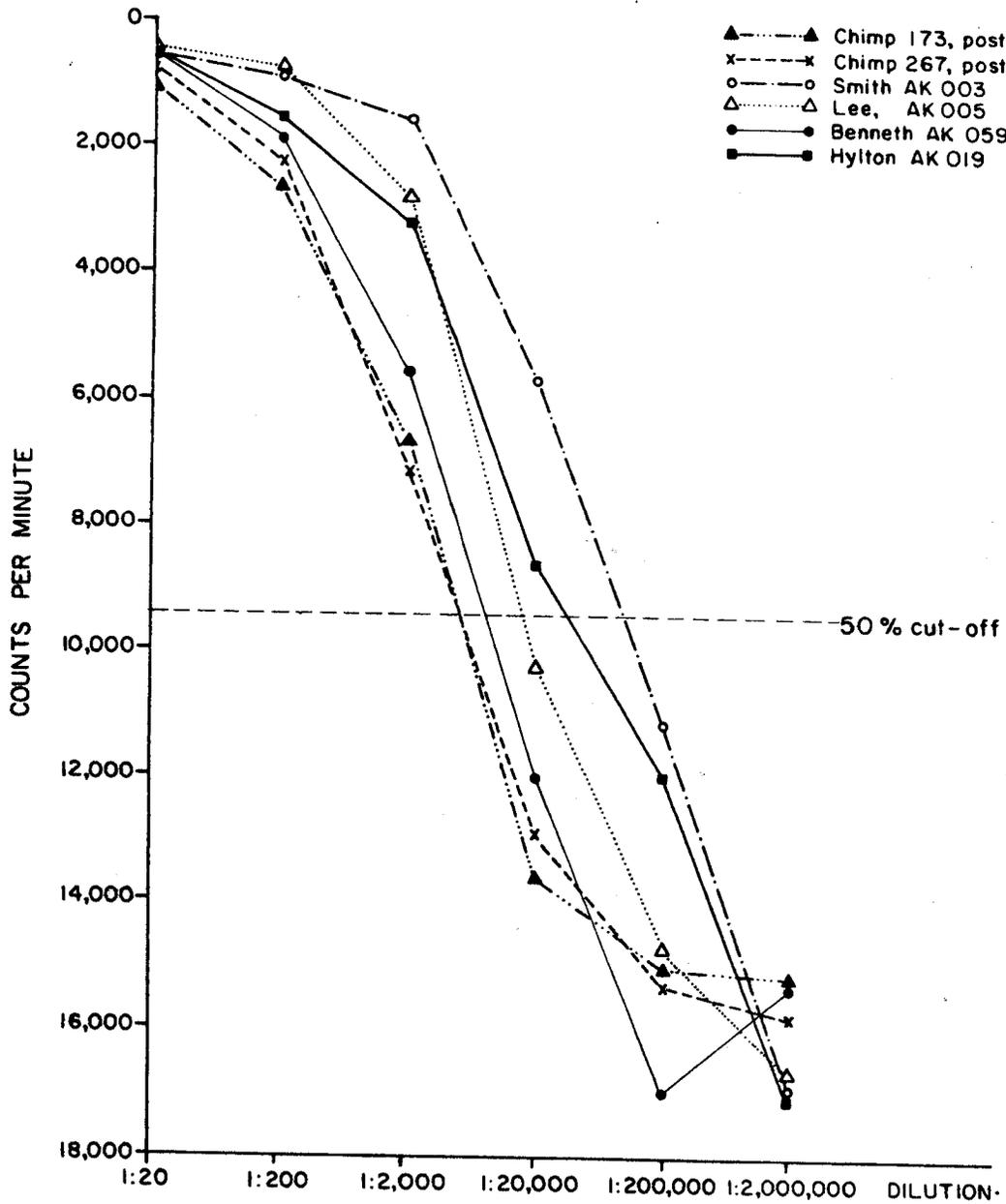


Figure 1. Graph of Counts per Minute Versus Dilution of Chimpanzee or Human Plasma or Serum in HAVAB (R).

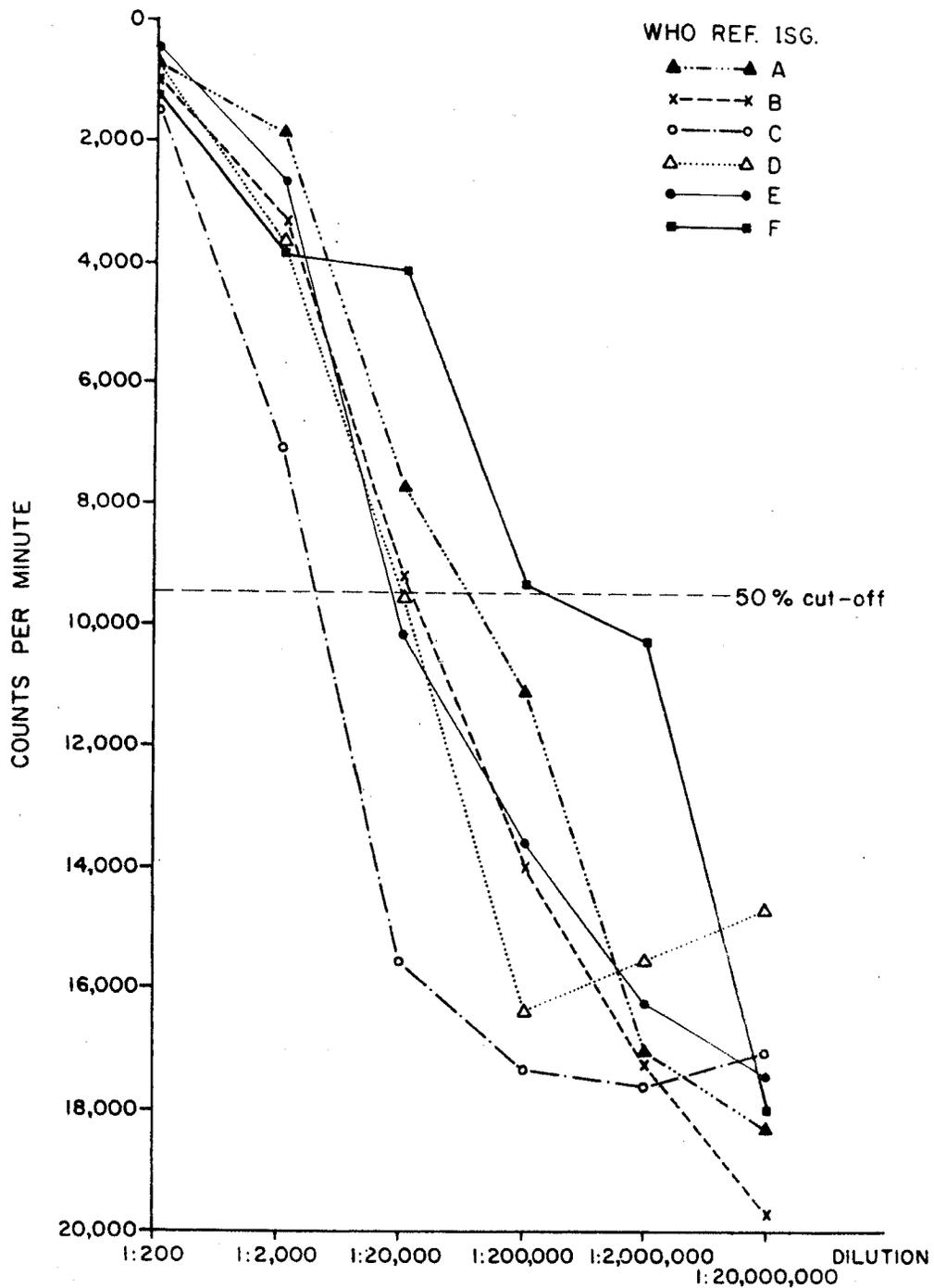


Figure 2. Graph of Counts per minute versus Dilution of Immune Serum Globulin Specimens in HAVAB (R).