727438

Cal-4

BEST COPY AVAILABLE

PRIVACY ACT MATERIAL REMOVED

To Byron Hall - Leukemia

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-145119
Carton No.
Folder No. AM-H (95-H)
Note CAL-IV Americium
Found By A. Berge
Date

COPY

1190823

②

X-rays May 8 – May 12 – June 6 1947

Knee – lesion lower femur

Dr. J. F. Huffman – radiologist

Dec 29, 1947

Lung lesions + left hilar suggestive of metastases

#16244 adm May 19.

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-19-119
Carton No. 1
Folder No. AM H (95 H)
Notes CAL-IV: Americium
Found By A. Berge
Dates

COPY

1190824

③

i m ^{241}Am

$\boxed{3\,cc \times 10{,}000 \text{ dpm/mL}}$ (original statement) = 455 x 6 = 2730 x 2 = 5460

rat 0.5 cc = 455 cps

α meas 8/4/47

If Am-1 dose was 5460 dpm
dosage was 0.15 μCi

Some counting suggs dosage as low as
2630 cps 5260 dps

3469, 3690

7/30 α count 3738, 3660, 3585 = 3626 cps
x 2 = 7252 dps = 0.2 μCi

best estimate
from counting data sheets

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL-IV: Americium
Found By A. Berge
Dates

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1190825

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(4)

Joe.

assay of solution 5cc total gives me 10,000 desintegration per C.C.

It looks like dose should be 3 or 4 C.C.

Josephine.

The day after solution is injected please set up two rats in metabolism cages after giving them 1 cc intramuscularly of solution made from bal mentioned above. Make arrangements for daily car trips to S.F. for excreta for first two weeks. We will use same procedure as with

See — for Particulars

Thanks

K.S.S.

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Archives and Records Office

Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. Am H (95 H)
Notes CAL-IV: Americium
Found By A. Berge
Dates

CO

Sol is sterile. Do not unwrap here it is sterile

PRIVACY ACT MATERIAL REMOVED

K.S.

1190826

95H Recovery Lg LaF

Date	Counted on Type C Counter 4 mg window B				
7-8-47	Re 16H Stan	800 / 236.4	3.38	3.35	
	2 ml La straight	6,9 / 240	= .031 = .015 c/s 1 ml		
	Blank thru LaF ppt	8 / 240	.033		
	2 ml JC 95 Standard	800 / 373.2	400 / 166 = 2.4	400 / 189 = 2.1	
1	2 ml + 2 ml La	400 / 266	= 1.5 ÷ 2.1 = 71%		
2	"	400 / 333	1.2	2.1	57
3	2 ml + .2 ml La	400 / 267	1.5	2.4	63
4		400 / 340	1.18	2.1	56

β/α = 3.35/31.3 = 0.107 eff. B

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Records Series Title Joseph G. Hamilton
Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL-IV: Americium
Found By A. Berge
Dates
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1190827

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Lawrence Berkeley Laboratory
Archives and Records Office

Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. Am H (95H)
Notes CAL-IN: Americium
Found By A. Berge
Dates Dale Standard

COPY

(6)

KGS Standard = .1/100

Bg 3/.1 × 100/2 = 1500

3/.1 × 100/10 = 300

B 7-30 RE16H 800/25.4, 25.6 31.4 31.3 Avg Dose

Bg 15, 12/240 = .052

11:30 AM 2/100 KGS Stan 400 / 172.4 155.4 151.8

12 M 2/100 KGS 584/240

7-31 RE16H 800/26.1 30.6

9:00 2/100 KGS 600/240 2.5 × 1500 = 3750 7:31

10/100 KGS 800/65 12.3 × 300 = 3690 9:00 3720

Bg 12/240 = .075 RE16H

11:00 10/100 KGS 800/69.2 = 11.56 × 300 = 3468 11:00 3658

2/100 KGS 616/240 2566 × 1500 = 3849

Bg RE16H

8-4 Bg 11/240 with + without blank RE16H 800/28, 27

10/100 Standard 800/89 = 8988 × 300 = 2696

2/100 Standard 424/240 1766 × 1500 = 2649

Blank 10, 9/240 Bg 14/300

10/100 Standard 800/89, 94.8, 80 =

8-5 Bg 16/240 14/240 RE16H Stan 800/31.2, 28.4, 26.8, 28.2

10/100 Standard 800/99.2, 79, 88

800/93.2, 86

8-6 RE16H 800/27.6

95H 10/100 Stan 800/84.6 = 9.4 - .075 = 9.325 × 10 × .5/.1 = 46.625

Bg + blank 18/240 = .075

95 48 hr liver 1/10 straight 78.8 800/81.2 = 10 - .075 = 9.925 21

65 liver LaF 1/10 800/219.2

Ran 1/10 liver in LaF w 5 tubes .15 ml La

10/100 Standard 800/82.2

90 2/25 JC Standard 800/71 11.2 .075 = 11.125 × 25/2 × .5/.2 = 350

1190828

Earl Miller 1721 (+)

PRIVACY ACT MATERIAL REMOVED

Element	Date Inj	Date Surgery	ID	Surgery		
				total gastrectomy	Case # SIC 116570	
Pu^{238}	5/14/45	5/18/45		gastric - 1 rib section	i.v.	Cal-I
Pu^{239}	4/26/46	5/3/46		~~rib~~ femur biopsy (osr. Surg)	Case = UC - A 127513 225 µg i.v.	Cal-II
Pu^{238}	7/18/47	7/22/47	Pu^{238}	lower limb (~~[illegible]~~ tumor)	i.m.	Cal-III
Am^{241}?	6/10/47	6/12/47	95H	most of one entire leg (~~[illegible]~~ tumor) i.m.		

both femur + [illegible]

Excreta collected Thru 6/24/[illegible]

From pencil manuscript age ~~[illegible]~~ 57 years, wt 58.1 kg

{ using muscle analysis + Muscle = 45% Body wt estimate 20 Kg
{ also got Ce + another element, probably ij.

PRIVACY ACT MATERIAL REMOVED

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM A (95H)
Notes CAL-IV: Americium
Found By A. Berge
Dates
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1190829

(8)

S RE 16H

S.S. : RE 16 H_2 * U127513

95 H

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95 H)
Notes CAL-IV : Americium
Found By A. Berge
Dates

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1190830

(9)

PRIVACY ACT MATERIAL REMOVED

H2 Ulcer & adhesions
5/18/45 Carcinoma of stomach
Sample 5/22/45 238+239
50 yrs Pu, Ad. IV
5/ /45

Rib
ol
Spl
Tumor

~~Sec~~ [8130]
Rib? 8130

RE 16 H3 RE 16 H
Sec 3 → [RE 16 H]

RE 16 H2 S (8133)
SS 239
grafted IV solns 4/26/46, Ce Pu
Biopsy 5/3/46 4
Fat
Bone
Periost
Tumor next to cortex
" " to trabecular bone
Muscle & Tumor
Gross " & calcif. tumor
Gross specimen:
fat & cortex c̄ hard
periostal tumor formation
muscle c̄ soft tiss tumor formation

PRIVACY ACT MATERIAL REMOVED

1190831

DOCUMENT SOURCE
Lawrence Berkeley Laboratory
Archives and Records Office

Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-114
Carton No. 1
Folder No. AM-H (95 H)
Notes CAL-IV: Americium
Found By A. Berge
Dates

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(10)

PRIVACY ACT MATERIAL REMOVED

Pu 238 IM Inj. 7/18/47
tissues 7/22/47

Inj. gastrocnemius muscle
1. Tumor
2. marrow
3. N. bone
4. muscles from normal bone
5. Inj site

95 H I M Inj 6/10/47 11am
(Am) Recd 6/12/47 2pm
Dissected 6/13/47

Fermer

Tibia

S

~~(sarc.) tumor~~
~~Ost. sarcoma~~
Soft tissue tumor of leg

DOCUMENT SOURCE
Lawrence Berkeley Laboratory
Archives and Records Office

Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 14-14-119
Carton No. 1
Folder No. AM H (95 H)
Notes CAL-IV: Americium
Found By A. Berge
Dates

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PRIVACY ACT MATERIAL REMOVED

1190832

Lawrence Berkeley Laboratory
Archives and Records Office
Records Series Title Joseph Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. Am H (95H)
Notes CAL-IV: Americium
Found By A. Berge
Dates
COPY

(11)

95H check on LaF method

Date					
6-26-47	2/25 syringe straight	32/149	= 215 - .003 = .212 × 25/2		2.65
α	2/25 syringe small LaF .02 ml La	32/133.8	.24	237	2.95 > 100%
	1/5 syringe lg LaF .2 ml La	128/293	.436 - .006	.438	2.15 77%
	Blank LaF .2 ml	7/500	.014 - Bg = .009 c/s/.2 ml = .045 c/s/ml		
	Bg		.003 α		
6-30-47	Bg	16/126	= .126 c/s β		
Tracer	2/25 95H Standard JC ~~syringe~~ straight	512/91,99	= 5.4 - 1.26 = 5.14		
	2/25 lg LaF .2 ml La	512/134,2,133	= 3.85 - .126 = 2.724 =		~~53%~~
	2/25 lg LaF 2 ml La	512/132,2,132	3.9 - .126 = 2.774		Bg high
7-1	Bg = .003 α				
Type C	2/25 95H Stan JC	294,272/240	1.18 - Bg = 1.17		
	2/25 + 2 ml La	177 203/240	.794 - Bg = ~~.79~~ .788 1.17		67%
	2/25 .2 ml La	170/240	.71 - .006 .70/1.17		60%
	RS 16 + Stan	800/233.4			
7-8	2 ml La straight	6 9/240	.031 = .015 c/s/ml		
	Blank stone LaF ppt	8/240	= .033		
	2 ml JC Standard	800/373.2	③ 400/166 = 2.4	④ 400/189	2.1
1	2 ml + 2 La	400/266	1.5/2.1	71%	mass ab on dish
2	"	400/333	1.2/2.1	57%	
3	2 ml + .2 La	400/267	1.5/2.4 =	63%	
4	.2	400/340	1.2/2.1	56%	

50 ml 2N acid, 2 ml sample, .2 or 2 La, 10 ml 12N HF

1190833

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 14-14-114
Carton No. 1
Folder No. AM H (95 H)
Notes CAL-IV: Americium
Found By A. Berge
Dates

COPY

(12)

Date injected 6-10-47

PRIVACY ACT MATERIAL REMOVED

Recd Date RE 95_H Cm_H

Hospital Label	Labeled Days	Vol. of sample
6-11-47 Stool Spec. 6-11-47 ONLY	95_H F 0-1 #1	
6-11-47 Stool Spec. 6-11-47 ONLY	95_H F 0-1 #2	
6-11-47 Urine Spec 6-11-47	95_H U 0-1 #1 + #2	650 ml
6-11-47 Urine Spec 6-11-47 ONLY	95_H U 0-1 #3 + #4	475 ml
6-12-47 214 June 11 1947 Urine Spec Dr Hall Dr Lim	95_H U 1-2 #1 + #2	1000 ml
	PRIVACY ACT MATERIAL REMOVED	
214	95_H F 1-2	
June 12 Stool Spec. 7:30 a.m. Dr Hall & Lim	95_H F 1-2 #2	

1190834

95H
Date injected 6-10-47

PRIVACY ACT MATERIAL REMOVED

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Archives and Records Office

(13)

Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL IV: Americium labeled
Found By A. Berge
Dates

COPY

Rec'd date Hospital label

6-13-47 Note the B M were thrown out by nurse so no Fe for 2-3 days. Some Ur 2-3 also thrown out. This was only collection

4 Bottle
June 12-1947
Room 214
Urine Samples Dr Hall & Lim

95H Ur 2-3 350 ml

6-14-47 No B-M collected for period -

95H Ur (3-4) 2500 cc

[redacted] Bottle [redacted] Room [redacted]
[redacted] June 12-1947
[redacted] Sample [redacted] Dr Hall & Lim

6-16-47 (collected 14-15)

[redacted] Bottle [redacted] Room 214
June 14th 1947
Sample Urine Dr Hall & Lim

95H U 4-5 190

[redacted]

95H F 4-5

6-16

Urine Samples [redacted]
June 15th 1947
Dr Hall & Lim

95H U 5-6 140

(collected 15-16)

[redacted] 214 Chinese Hosp
[redacted] & Lim

95H F 5-6

PRIVACY ACT MATERIAL REMOVED

1100835

Pathology
Jesse Carr - pathology U.C. Med. Center
666 - 2507

Blocks lost or destroyed ~~Franklin Hospital~~

James H. Hall 1512 Harbor Blvd. Belmont
R.C. Howe - took over practice
Jackson St.

PRIVACY ACT MATERIAL REMOVED

Chinese Hospital #16244
Records librarian Loretta Harbaugh
982-2400
835 Jackson St.

adm. 5-19-47
St. Sarcoma
16 yrs.

SF Med. Soc. 567-6230 -
SF Vital Stat 558-3391

died
#3953 D2

101 Grove St.

PRIVACY ACT MATERIAL REMOVED

1190836

DOCUMENT SOURCE
Lawrence Berkeley Laboratory
Archives and Records Office
Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM-H (GS-H)
Notes CAL IV: Americium
Found By A. Berg
Dates
COPY

(15)

Age 16 Male

Guardian

ch. 0625

PRIVACY ACT MATERIAL REMOVED

amputation mid-Thigh left

6-2-47 Biopsy

6-9- transported to UC hospital + back

Dr. Aggeler

6-10 Injection + instructions to save

Excreta for Rad Lab messenger

6-12 surgery

Dr. Lim att physician

Discharged 7-27-47

7-1- wt 87#

Adm. 16244

PRIVACY ACT MATERIAL REMOVED

DOCUMENT SOURCE
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Archives and Records Office

Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. Am A (95 A)
Notes CAL-IV: Americium
Found By A. Berge
Dates

COPY

1190837

(6)

95H
Date injected 6-10-47

PRIVACY ACT MATERIAL REMOVED

Rec'd Date	Hospital Date	Labeled	vol
6-17	214- Stool Specimen De Hall & Lim	6/16/47 Chinese Hosp	95H F5-6
	214. Stool Spec. De Hall & Lim	6/17/47 Chinese Hosp	95H F6-7
	[redacted]	Room 21 For UC Lab De Hall & Lim	95H U 6-7 2000 cc
6-18	[redacted]		95H F 7-8
	Chinese Hosp. Urine Sampled 9am 17 to 9am 18	Room 21 For UC Lab De Hall & Lim	U-7-8 1180 cc

PRIVACY ACT MATERIAL REMOVED

DOCUMENT SOURCE
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Archives and Records Office
Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL-IV: Americium
Found By A. Berge
Dates
COPY

1190838

(6)

95H
Date injected 6-10-47

PRIVACY ACT MATERIAL REMOVED

Rec'd Date	Hospital Date	Labeled	vol
6-17			
	214- Stool Specimen Dr Hall & Lim	6/16/47 Chinese Hosp	95H F5-6
	214. Stool Spec. Dr Hall & Lim	6/17/47 Chinese Hosp	95H F6-7
	[redacted]	Room 21[redacted] For UC Lab [redacted] Dr Hall & Lim	95H U 6-7 2000 cc
6-18	[redacted]		95H F 7-8
	Chinese Hosp. Urine Samples [redacted]	[redacted] For UC Lab [redacted] Dr Hall & Lim	U-7-8 1180 cc

PRIVACY ACT MATERIAL REMOVED

DOCUMENT SOURCE
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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-19-119
Carton No. 1
Folder No. AM H (95 H)
Notes CAL-IV: Americium
Found By A. Berge
Dates

COPY

1190838

(4)

95H
Date injected 6-10-47

PRIVACY ACT MATERIAL REMOVED

Rec'd Date	Hospital Date	Labeled	Vol
6-17	214 Stool Specimen Dr Hall & Lim	6/16/47 Chinese Hosp	95H F5-6
	214 Stool Spec. Dr Hall & Lim	6/17/47 Chinese Hosp	95H F6-7
	[redacted]	Room 21 For [illegible] Dr Hall & Lim	95H U 6-7 2000 cc
6-18	[redacted]		95H F 7-8
	Chinese Hosp. Urine Sampled 9am 17 to 9am 18	[redacted]	U-7-8 1180 cc

PRIVACY ACT MATERIAL REMOVED

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL-IV: Americium
Found By A Berge
Dates

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1190839

DOCUMENT SOURCE
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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL-IV: Americium
Found By A. Berge

(18)

COPY

PRIVACY ACT MATERIAL REMOVED

6-19 [redacted] 8-9

[redacted] 8-9

[redacted] 8-9 1170cc

No FECES

6-20 [redacted] 9-10 1600cc

PRIVACY ACT MATERIAL REMOVED

FECES - NO TAG 10-11 FE

6-21 [redacted] 10-11 U 750cc

1190840

(19)

PRIVACY ACT MATERIAL REMOVED

6-23 6-21 - FECES 10-11₂ Jag?

[redacted] 6-23-47
STOOLE-SPECMENT
X214 DrS HALL LIMM

11-12

[redacted]

12-13

URINE

[redacted]

10-11₂
1400cc

[redacted]

11-12
1300cc

1480611

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 14-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL-IV: Americium
Found By A. Berg
Dates

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PRIVACY ACT MATERIAL REMOVED

Dr. James H. [illegible]
(R.C. Low) took our practice

(20)

[illegible]

PRIVACY ACT MATERIAL REMOVED

6-24 [redacted] 12-13

[redacted]

[redacted] 12-13 Ulr

1500 cc

PRIVACY ACT MATERIAL REMOVED

DOCUMENT SOURCE
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Archives and Records Office

Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No.
Folder No. AM A (95A)
Notes CAL-IV Americium
Found By A. Berge
Dates

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1190842

95 IN + 6 hr to parallel 95H Injection 6-10-47 5:15 PM
6-11-47 3:15 PM

=1.5 ml
Standard = .2 ml .25
1 to 5 Stan = .1 ml/100

Tw 217 weight

	Tissue	Wet Wt	Ash Wt	~~Acid~~	counts second		mass ab.	corrected counts			% of dose
Heart		1.36		2/3	19 / 240	19 / 240		.079			
Lungs		2.20		2/3	49 / 240	46 / 240					
Spleen		.64		2/3	23, 39 / 240	9, 18 / 240					
Blood		4.5 ml		2/3	31 / 240	33 / 240					
Liver not weighed		9.14		4/50	800 / 159	800 / 162		4.91	62		18
Kidney		1.54		2/3	326 / 240	376 / 240					
Adrenals		.14									
Thyroid		.11									
Lymph gland		.39									
Pancreas		1.05									
Brain		1.91									
Fat		.29									
~~Teeth~~											
Stomach		3.42		2/3	23 / 240	19 / 240					
Small intestine		16.15		2/60	15 19 / 240	24					
Large intestine		4.92		6/30	17 36 / 240	29					
Bone .1 ml ash		1.57		2/20	79 / 240	89 84		.31	3.1		.9
Muscle .2 ml ash		10.81		4/20	10 32 / 240	18					
Skeleton		107		2/5	38 / 240	41		.142	355		10.5
Balance				6/100	85 / 240	78					
Left leg		24.3		4/100	576 / 240	800 / 319		2.41	60		17.4
Skin .3 ml ash		25.0		6/60	53 / 240	41					
OVARIES		.34									
8-7 Liver straight Dose = 4474			5 Bq = .05	1/25	800 / 219	2.7	.05	3.65 x 25 = 92			20.5
8-6 Dose = 350 Bq = .075 Liver straight weighed				1/10	800 / 78.8	81.2	10 -	.075 =	99.25		28 %
Liver to F	"			1/10	800 / 219.	2	3.65 -	.075 =	3.575		10.4

W-1

8-5 Blank 16/240 .14/300 = .047
10/100 Standard = 800/99.2, 79, 88 = 9.0 x 50 = 450
2/25 of Standard 800/71.0 = 11.1 - .31 - .03 x 31.2 = 3.43 inaccurate

DOCUMENT SOURCE
Lawrence Berkeley Laboratory
Archives & Records
Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (ASH)
Notes CAL-IV: Americium
Found By A. Berge
Dates
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1190043

(22)

95 48 hour
Date _____

One animal
Excreta

Date & counter	Days	aliquot	c/s			% Dose
8-4-47	Urine 0-1	4/20 .1 mlta =	304/240	279/240	= 1.2 - .04 = 1.16 x 5 = 5.80	1.7
	1-2	4/20	22/240	16/240	.079 - .04 = .039 x 5 = .195	0.03

DOCUMENT SOURCE
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Archives and Records Office
Records Series Title Joseph G. Hamilton
Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No.
Folder No. AM H (95H)
Notes CAL IV: Americium
Found By A. Berge
Dates
COPY

	Feces 0-1	4/60	46/240	36/240	.17 - .04 = .13 x 15 = 1.96	.57
	1-2	4/60	33/240	32/240	.136 - .04 = .096 x 15 = 1.44	.42

Bg.

8-4 Bg + Blank 1 mlta = .4 mg

14/300
10/240 .04

10/100 Stan

800/89, 94, 8, 80 = 9.1 - .04 = 9.06 x 5

Dose = 453 for 95H (high for animal)

8-5 2/25 JC Stan = 800/71.6 = 11.1 - .04 = 11.06 x 31.2 = 343

1190844

(23)

95H Tissues injected IM 6-10-47 11:00 AM
Rec'd 6-12-47 2:00 PM
Dissected 6-13-47
Counted on [illegible] - Type C

Tissue	% Dose	% / gram	Estimated
1. Yellow marrow from tibia	-.009%	—	
2. Bone from femur presumably normal, adjacent to tumor	.08%	.0017	Bone 13%
3. Injection site	1.1 %	.66	
4. Periosteum from femur	-.001	—	
5. Muscle from femur	.38	.011	
6. Skin	-.0045	—	
7. Connective tissue + fat below skin over femur	-.0015	—	
8. Tumor (no calcification)	.122	.0035	
9. Tumor invaded into bone no calcification	.015	.00162	
10. Bone next to tumor presumably normal	.172	.0028	Bone 20%
11. Connective tissue on upper end of tibia connected to patella	.122	.0072	
12. Bone from tibia (normal)	.014	.00016	[illegible]
13. Periosteum from calf opposite injection site	.041	.0058	
14. Muscle adjacent to periosteum from calf opposite injection site	.049	.0014	
15. Subcutaneous tissue, fat + connective tissue below skin opposite injection site	.0068	.00047	
16. Skin opposite injection site	.0156	.00046	
17. Blood	.038	.00063	

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CALIV. Americium
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Dates
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1190845

(24)

Note: Dose = 3 cc
Standard
KGS 1/100 × 0.1 ml
JC 1/25 × 0.21 ml

Dose = 3000 × c/s
[redacted] × c/s
359

95H

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Date	By Counter Standard			
6-18				
6-19	.015			
6-26	.003	Tracer	1/100 KGS 128/464	.276 - .003 = .273 × 3000 = 820
11:00 AM		(Along mica-window)	1/25 JC 128/37.2, 42, 45	3.2 - .003 = 3.17 ×
1:20		Bstr	1/100 KGS 128/264.6, 286.6	= .464 - .003 = .461 × 3000 = 1380
			1/25 JC 128/35.2, 29.2, 39.2	= .37 - .003 = .367 × 357 = 1310
2:15			1/100 KGS 128/146.4	.88 - .003 = .877 × 3000 = 2630
			1/25 JC 128/56.8, 32.8, 44	.277 - .003 = .274 × 357 = 980
2:30			1/100 KGS 128/29.7	.43 .427 × 3000 = 1280
			1/25 JC 128/40.4, 40.4	.32 .317 × 357 = 1130
3:00			1/100 KGS 128/230.6	
			1/25 JC 128/33.2	
4:00			1/100 KGS 128/325	
			1/25 JC 128/33, 36.6	
6-30	.126		1/25 JC 128/24.2, 33, 29.4	? Person for changing to Type C counter
			1/25 JC 128/20, 22.6, 19.2	

1190846

Note Dose = 3cc

(25)

95H

Standard		Dose
KGS	1/100 × 0.1 ml	3000 × c/s
JC	1/25 × 0.21 ml	357
	2/25	179

Date Bg Counter Standard

			1/100 KG	34/240	0.142 − .004 = .138 × 3000 =	415
7-1	1000	1/240 = .004 Type C	2/25 JC	294, 272/240	= 1.18 − .004 = 1.17 × 179 =	210 ?
	1:30	1/240 = .004	1/100 KG	32/240	.133 − .004 = .129 × 3000 =	387
		Bctr	2/25 JC	316/240	1.32 − .004 = 1.32 ×	246 ?
			1/100 KG	32/240	.134 − .004 = .13 × 3000	390
			2/25 JC	424/240	1.76 − .004 = 1.756 × 179	316
	4:30		1/100 KG	8/60	.133 − .004 = .13 × 3000	390
7-2		0/600 0	1/100 KG	64/480	.133 − 0 = .133 × 3000	400
			2/25 JC	304/240	1.26 × 179	226 ?
			1/100 KG	28, 23/240	.106 × 3000	318
7-3			2/100 KG	99/240	.41 × 1500	6[illegible]5
			2/100	72/240	.3 × 150	450 after Bg
7-7	2:30	0/600	2/100 KG	48/240	= 2 − Bg = 2 × 1500	300
			1/25 JC			
			1/100 KG	57/480	1.19 − Bg × 3000	359
	3:00		2/100	59/240	2.46 × 1500	370
		0/600	2/100	50/240	.207 × 1500	[illegible]

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Notes CAL IV AMERICIUM
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Records Series Title Fees Joseph G. Hamilton Biomedical Research Group
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Notes CAL IV: AMERICIUM
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95H

Lunster-Date Dosafter aliquot method Total

Fees injection

7-31	Bg: 27/240 .112 c/s	0-1	#1	1/80 Am LaF .25 ml Lu	33 31 / 240 .133-.112=.021×80=1.68÷3585 .04
	Dose: 3585'		#2		27 32 / 240 .123-.112=.011×80 .88 .02
		1-2	#1		(60) 32 / 240 .133-.112=.021×80=1.68÷3585 .04
			#2		39, 42 / 240 .168-.112=.059×80=4.48 .12
		2-3	sample thrown out by nurse		
		3-4	no BM for period		
	Bg: .025	4-5			23 32 / 240 .113-.075=.038×80=3.0 3.
	Dose: 3690'	5-6	#1		25 20 / 240 .092-.075=.02×80=1.6 .0
			#2		27 20 / 240 .096-.075=.021×80=1.6 .04
		6-7			28 24 / 240 .108-.075=.025×80=2 .5
		7-8	#1		22 / 240 .083-.075=.006×80=.48 .0
			~~#2~~		~~26 20 / 240 .096-.075=.021×80=1.68~~ ~~.0~~
		8-9	#1		28 33 / 240 .12-.075=.025×80=2 .5
			#2		32 32 / 240 .134-.075=.059×80=4.72 1.2
		9-10	no BM for period		
	Dose: 3457'	10-11	#1		34 20 / 240 .112-.075=.037×80=2.96 .0
			#2		43 34 / 240 .158-.075=.083×80=6.64 .1
		11-12			26 20 / 240 .096-.075=.021×80=1.68 .0
		12-13	#1		31 / 240 .129-.075=.054×80=2.64 .0
			#2		19 / 240 .079-.075=.004×80=.24 .0

Date

7-31 Standard 10/100 = 800 / 65,69.2 = 12-1 = 11.9×300 = 3570 } Avg = 3585

2/100 = 600/240 615/240 = 25-1 = 2.4×1500 = 3600

Bg 18/240 = .076 REIGH Std 800/26.2 /

8480611

95H
Injected IM 6-10-47

Urine
d counter

8-4-47	Days Date	mlacid aliquot method	c/s	
PM	8-9		13, 11 / 240	Bz
	9-10		8, 8 / 240	Bz
8 La	10-11		14, 9 / 240	Bz
	11-12		8, 12 / 240	Bz
	12-13	~~[illegible]~~	10, 14 / 240	Bz

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Notes CAL IV: AMERICIUM
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Dates
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1190849

(28)

95H
Injected IM 6-10-47

	Feces	aliquot	%
	Days		
1+2	#1		
6-10 3-4	0-1 #2 200	1/200 LaF	
5+6	#1		
9+10	1-2 #2 200 ?	1/200 LaF	
	2-3 thrown out by nurse		
	3-4 no sample collected		
7+8	4-5 400	1/200 LaF	
7-11	5-6 #2 (13+14) 1/200 LaF	(11+12) #1 { 1/400 ng 1/200 LaF / 1/400 49/240 = .205 x 400 = 82 ÷ 810 = straight 10.	
	6-7		
	7-8 #1		
	8-9 #2		
	9-10 no sample collected		
	10-11		
	11-12		
6-24	12-13		

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Notes CAL IV AMERICIUM
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7-11 2/100 x 65 Stem = 128/240 = .53 x 1500 = 810

1190850

(29)

95H
Injected IM 6-10-47.

Epereta

Date	Urine Days	ml acid (99/200)	Liquid 10cc/200 1/200 mg 1/200 = 2.7/240 = .112 x 200 = 22.4 ÷ 810 = 2.75
6-10-47	0-1	200	
	1-2		
	2-3		
	3-4		
	4-5		
	5-6		
	6-7		
	7-8		
	8-9		
	9-10		
	10-11		
	11-12		
6-24	12-13		

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Carton No. 1
Folder No. AM 87950
Notes CAL IV AMERICIUM
Found By A BERGE
Dates
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1190851

(30)

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Carton No. 1
Folder No. AM H (95H)
Notes CAL IV: AMERICIUM
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95H Tissues
injected IM 6-10-47
Rec'd 6-12-47
Dissected 6-13-47

Date counted

		wet wt	ash wt	aliquot			
	8. Tumor (no calc.)	35	.438	2/25			
				1/25			
6-26 10:30				22/25	128/369	.35-.003=.347	.599-.03=.569 (.122)
					128/503	.255-.003=.252	x1.56x25/22 ÷ .820
7	9. Tumor invaded	9.3	.116	2/25			
7-3	into bone (no calcification)			23/25	20.23/240	.0899-.03x1.56x25/23 ÷ .615	(.015)
		99/100 in 500 ml acid					
7-1 1:30	10. Bone next to tumor (normal?)	62.0	24.8	(5/500)			
				1/100	15/240	.063-.034=.029x1.56x100/390	1.16
7-14					3.2/240	.0104x100=1.04÷.612	(.172)
7-1	11. Connective tissue on upper end tibia con. to patella	17	.213	1/50			
				49/50	120/240	.53-.004=.526	.555-.03=.525 .213
				2nd sample	8/240	.033-.004=.029	x1.56x50/49 ÷ .390
7-14					7.6/240	4.6/240	=.208+.27=.478-.03=.448x50/49x1.56÷.306 (.11)
7-7	12. Bone from tibia (normal)	88.0	35.3	1/100	3/240	.0125	.0291-.003=.026÷.300 (.014)
				#2	4/240	.0166	x1.56
7-14	99/100 in 500 ml acid						
7-7 .4 ta	13. Periosteum from calf opposite injection site	2.0	2.8	1/50	8/500		
				49/50	3/240	=.0125	.0755-.006=.089 (.0406)
				#2	20/240	=.083	÷.300=.026 x1.56
.4 ta	14. Muscle adjacent to periosteum from calf opposite injection site	47	.588	1/50	6/500		
				49/50	18/240	.075	.12-.006=.114 (.099)
				#2	11/240	.045	x50/49 x1.56÷.370

1190852

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Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 9-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAC/IV: AMERICIUM
Found By A. BERGE
Dates
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(34)

9.5 H Tissues
Rec'd 6-12-47
Dissected 6-13-
6-18 2
6- Tracer
7- Tissues

Date counted — wet wt — ~~ref wt~~ — ~~ref wt adjusted~~ — Tissue

2-1-47 1. Yellow marrow 3.2 g .04 1/10
4:30 PM from tibia 2 mo to
9/10 240 2,1 / 240 .0063 − .03 = < 0 <0 %
2-14
~~2-6-47~~ 2. Bone from femur 99/100 in 500 ml acid
presumably normal 47.0 g 18.8 1/100 4 / 240 .003 = .018 .019 − .003
2-1-47 4:30 adjacent to tumor 2 mo to 1 / 240 .004 − .003 = .001 ×160 = 4.6 = 39 ×1.56 0.6
2 / 240 8 / 240 .004 − .003 = .001 = 306 .05
2-14 AM
6-18 3. Injection site 16.70 2.08 1/50 −.50 / 55 6.5 322.7/30000 = 1.0%
6-19 1/25 128 / 75
6-26 2:30 Eg 2 mo to 1/25 128 / 35, 35.4 3.65 − .033 = 3.617 × 25 × 1.56 / 1280 1.1%
4. Periosteum from 8.40 .088 ~~1/50~~ ~~50 / 500~~ 1/10 3 / 500
2-26 femur
9/10 2 / 240 0 / 240 .0042 − .03 −%
2-2 2 mo to
2,2 / 240 = .0083 − .03 = < 0 <0
2-14
5. Muscle from femur 35 .438 49/50 96,87 / 240 .58 .98 − .03 = .95 × 1.56 × 50 / 49 .376
2-2-47 2 mo to 1 sample 138,152 / 240 .60 400
84,80 / 240 149,139 / 240 .34 × 6 = .94 − .03 = .91 × 1.56 × 50 / 90 = 1.44 ÷ 4 = (.3
2-14
2-1-47 4:30 6. Skin 13 .163 1/10
9/10 2 / 240 .84 − .008 × 10 × 156 ÷ 390 .0017
2 mo to 9
(23) 6.3 / 240 .0187 − .03 = < 0 <0%
2-14
2-1-47 4:30 7. Connective tissue
+ fat below skin over 10.0 .125 1/25
femur 2 mo to 24/25 1 / 240 .0042 − .033 −%
Corr factors: ~~partial~~ .003 c/s for the instrument.
multiply results by 100/64 = 1.56 for recovery = 100

1190853

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Records Series Title Joseph G Hamilton Biomedical Research Group
Accession No. 2:00 PM
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL IV AMERICIUM
Found By A BERGE
Dated

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(72)

95H Tissues
injected IM 6-10-47 11:00 AM
Rec'd 6-[illegible]
Dissected 6-13-47

Date counted

		wet wt	ash wt (est)	aliquot	c/s					%	%/g
7-7 2 to #15	Subcutaneous tissue, fat + connective tissue below skin of injection site	14.5	.181	1/25							
				24/25	1/240	.004	.016 − .003 × 25/24 × 1.56				.0068
				#2	3/240	.012	÷ 313				
7-7 2 to 16	Skin opposite injection site	34	.425	1/25							
				24/25	1/240	.004	.033 − .003 = .03 × 1.56				.0156
				#2	7/240	.029	× 25/24 ÷ 313				
7-[illegible] 2 to 17	Blood	60g	.750	1/25	4/500						
				24/25	3/240	.012 − Bg = .08	.12 − .03 = .09				.038
					2/240	.008 − Bg = .04	× 1.56 × 25/24 ÷ 387				

Date counted

	Bg			Standard						
6-18										
6-19				Hour:	11:00 AM	1:20	2:15	2:30	3:00	4:00
6-26			1/100 KGS		820	1380	2630	1280		
7-1					415	387				390
7-2					400					
7-3					450					
7-7							300	359		
7-14 AM	Bg	7,3/240 = .02	2/100	Standard =	52/240	52				
		0/240			49/240					
PM		1/240			56/240	.23 × 1500 = 345				

1190854

(33)

95 H
Injected I M 6-10-47

Urine
& counter

Date & counter

	Days	Date	mlaid	aliquot	method			
	0-1	6-10	200	1/200 ug. 1/200	straight	27/240	.112 x 200 22.4 ÷ 810	2.75
8-4-47 AM			200	99/100	hg ba F .8 ea	16, 20/240	.075-.04 = .035 x 100/99 ÷ 2418	.00
	1-2		200	all		19, 21/240	.084-.042 = .042 ÷ 2418	.00
	2-3					15, 15/240		.00
	3-4					19, 18/240		.00
	4-5					13, 18/240		.00
	5-6					12/240		.00
PM	6-7					8, 11/240		-By
	7-8					16, 15/240		.00

RE 16 H 800/29, 28.4

AM By 11/240

Blank 11, 9/240 = .042

10/100 KGS Standard 800/89 = 2418 4/5

2/100 424/240

PM By 14/300

Blank 10/240 .042

10/100 800/89

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[illegible] 5-47

Date Counted

6-26-47 #4 Periosteum femur 1/10 3/500

3:00 #13 Perios fr calf
of injec site 1/50 8/500

4:00 1/100 Stan K G B 128/325

1/25 Stan J C 128/33 36.6

#5 Muscle fr femur 1/50 50/500

#14 Muscle adj to #13 1/50 6/500

#1 Yellow marrow 1/10 ——

6-30-47 2/25 Stan J C 128/20, 22.6, 19.2

AM 1/25 Stan J C 128/24.2, 33, 29.4

Blank ? 2ml La 16/95.4 101 = .167 c/s

16 Stan 512/69, 63.2, 66

2/25 95% Stan J C 512/91, 99

2/25 Lg La F .2ml La 512/134.2, 133

2/25 Lg La F 2ml La 512/132.2 132

By 16/126 = .126 c/s

1190856

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2.00) 1,600 .004

95H

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Date counted [illegible] V

7-1	10:00	RE16H Standard 1825	800 / 150		
		Bg +3.5			
		1/25 95H Stan JC			
		2/25 95H Stan JC			
	10:30	RE16H Standard 1800	440 / 240		
		+2			
		Bg	1 / 240		.00416 c/s
		2/25 95H Stan JC	294 / 240	202 / 240	1.18 - Bg = 1.17
		1/50 95H Stan KGS	34 / 240		
		2/25 2 ml La	177 / 240	203	.797 - Bg = .79 / 1.17 = 68%
		2/25 0.2 ml La	170 / 240		.71 - Bg = .70 / 1.17 = 60%
		Blank - La 2 ml	2 / 240		.083 = 2 x Bg
	#8	Tumor 22/25	40 / 480		.084 - Bg = .08 x 25/22 = .091 = .037
		2/25 95H Stan	320 / 240	176 / 120	1.4 - Bg = 1.396 x 25/2 = 17.5 x 1.4 = 24
		2/25 2 ml La	188 / 240		
7-1	1:30	RE16H Standard 1800			
		G.M. region at +5 +3	400 / 187.6		
		+2	400 / 244.4		
		+1	400 / 280+		
		1800 V +2	400 / 209		
		Bg	1 / 240		
		1/100 KGS 95H Standard	32 / 240		.133 - .004 = .129 x 3000 = 387.0
		2/25 JC Stan	316 / 240		= 1.32 - .004 = 1.316 x 25/2 x 3/.21 = 235
		2/25 95H +2 ml La	243 / 240		
	#17	Blood 48/50 Sample 1.	2 / 240		.014 - Bg = .010 x 50/48 = .012
		2.	2 / 240		

1190857

(36)

95H

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Date counted [illegible] V

7-1 10:00 RE16H Standard 1825 — 860 / 150

Bg +3.5

1/25 95H Stan JC

2/25 95H Stan JC

10:30 RE16H Standard 1800 — 440 / 240

+2

Bg — 1 / 240 — .00416 [illegible]

2/25 95 Stan JC — 294 / 240 — 202 / 240 — 1.18 - Bg = 1.17

1/25 95 Stan KGS — 34 / 240

2/25 2 ml La — 177 / 240 — 203 — .797 - Bg = .79 / 1.17 = 68%

2/25 0.2 ml La — 170 / 240 — .71 - Bg = .70 / 1.17 = 60%

Blank - La 2 ml — 2 / 240 — .0083 = 2 x Bg

#8 Tumor 22/25 — 40 / 480 — .084 - Bg = .08 x 25/22 = .091 = .037

2/25 95H Stan — 320 / 240 — 176 / 120 — 1.4 - Bg = 1.396 x 25/2 = 17.5 x 1.4 = 24

2/25 2 ml La — 188 / 240

7-1 1:30 RE16H Standard 1800

GM region at +5 +3 — 400 / 187.6

+2 — 400 / 244.4

+1 — 400 / 220+

1800 V +2 — 400 / 209

Bg — 1 / 240

1/100 KGS 95H Standard — 32 / 240 — .133 - .004 = .129 x 3000 = 3870

2/25 JC Stan — 316 / 240 — = 1.32 - .004 = 1.316 x 25/2 x 3/.21 = 235

2/25 95H +2 ml La — 243 / 240

#17 Blood 48/50 Samples 1. — 3 / 240 — .014 - Bg = .010 x 50/48 = .012

2. — 2 / 240

1190058

Date [illegible] Type C Cyclotron [illegible]

7-1-47	RE16H Standard		400 / 198	
	2/25 Standard		424 / 240	= 1.76 - Bg = 1.756 × 25/2 = 2.2 × 3/.21 = 314
	1/100 Standard		32 / 240	= .134 - Bg = .13 × 300/.1 = 390
#11	Con tis con tapatella	#1	120 / 240	.53 - .008 = .522 × 50/49 = .53 =
	49/50	#2	8 / 240	
4:30	RE16H Standard		[illegible]	
#10	+ Bone next tumor	1/100	15 / 240	
#1	Yellow marrow	18/20	0 / 240	
#2	Bone adj to tumor	1/100	1 / 240	
#6	Skin	18/20	2 / 240	
#7	Con fat below skin tis	48/50	1 / 240	
	1/100 Stan		8 / 60	.133 - Bg = .13 × 3900
7-2	RE16H stan		353 / 240	
#4	Periosteum fr femur	18/20		
#5	Muscle fr femur	49/50		
#9	Tumor in bone	23/25		
#13	Periosteum fr calf of injection site	49/50		
#15	Subcutis	48/50		
#16	Skin of injec site	48/50		
#14	Muscle adj to periosteum fr calf of inj site			

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Carton No. 1
Folder No. AM H (95H)
Notes CAL IV : AMERICIUM
Found By A BERGE
Dates

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1190859

95H

Date counted Type C Cyclotron Specialties + tube in case

7-2-47	RE16H Standard ✓	400 / 134.4		
	Bg	0 / 240		
	1/100 Stan KGS	64 / 480	1.33 x 3/.1 x 100 = 400	
	2/25 Stan JC	304 / 240	1.26 x 3/.21 x 25/2 = 225	
#5	Muscle from femur	96 / 240	87 / 240	
	49/50 2nd sample	136 / 240	152	
#4		2 / 240	0 / 240	.0083 ÷ 318 = .0026
	1/100 Stan KGS	28 / 240	23 / 240	= .106-0 = .106 x 3000 = 318
	RE16H	560 / 240		
7-3-47	RE16H Stan 1850	612 / 240		
	2/100 KGS Stan	99 / 240	.41 x 50 x 3/.1 = 615	
#9	Tumor in bone	20 / 240	23 / 240	
	Bg	0 / 480		
	2/100 KGS Stan	72 / 240	= .3 x 50 x 3/.1 = 450	
? #13	2/100 Periosteum	3 / 480		
#15				
#16				
#14				

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Carton No. 1
Folder No. AM H (95H)
Notes CAL II: AMERICIUM
Found By A BERGE
Dates

COPY

(39)

95 H

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95 H)
Notes CAL IV: AMERICIUM
Found By A BERGE
Dates

COPY

7-7-47	[illegible]		
2:30	[illegible]		800/2982
	2/100 KGS Stan		48/240
	1/25 JC Stan		
	1/100 KGS		57/480
.4 La #13	[illegible]		
	[illegible]	#1	3/240
		#2	20/240
3:00	[illegible]	1225	480/1792
	2/100 KGS Stan		57/240
.4 La #14	[illegible]	#1	18/240
	[illegible]	#2	11/240
	[illegible]		
.2 La 15	[illegible]	#1	1/240
		#2	3/240
.2 La 16	Skin [illegible]	#1	1/240
	[illegible]	#2	7/240
	1/100 KGS Stan		50/240 = .207 × 1500 = 625/2 = 313
	Bg		0/600
.2 La #12		#1	3/240
		#2	4/240
	5 cc syringe	1/5	62/240 .26
	[illegible]	1/25	39/240 .162
	Bg		0/240

√ 2.7300

1190861

(40)

95H

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Notes CAL IV : AMERICIUM
Found By A BERGE
Dates

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Date counted

7-14 am Bg $\frac{7.3}{240}$ = .0207

RE 16 H $\frac{500}{315}$

2/100 KGS Stan $\frac{50}{240}$

2/100 KGS $\frac{52}{240}$

5-6 #2 $\frac{1}{240}$

#1 $\frac{1}{240}$

LaF = .0016 x 100 x 1.56 ÷ 306 = .082

Tissues #2 Bone + ? femur $\frac{0.2}{240}$ ~~.00416 x 100 = .416 ÷ 306 = .736~~

#10 Bone next tumor $\frac{3.2}{240}$ = .0104 x 100 = 1.04 ÷ 306 = .1[illegible]

Stan 2/100 KGS $\frac{49}{240}$ .204 x 1500 = 30260

Bg $\frac{0}{240}$

#3 Injection site $\frac{86}{240}$ = .36 ÷ .06 = 3.3 x 2.5 = 8.27 x 1.26 ÷ 306 = 3.4 high

7-14 PM

Bg $\frac{1}{240}$

RE 16 H Stan $\frac{800}{322}$

2/100 KGS $\frac{56}{240}$ .23 x 1500 345

Fe 4-5 1/200 -5 $\frac{1}{240}$ .0042 x 200 = .84 ÷ 345 = .2[illegible]0

Fe 1-2 #2 -3 $\frac{1}{240}$

#1 -43 $\frac{0}{240}$

Fe 0-1 #2 $\frac{3}{240}$

#1 $\frac{0}{240}$

#11 Contra cor to $\frac{4.6}{240}$ .208 ÷ .428 - .03 = .448 x $\frac{50}{49}$ x 1.56 ÷ 306 .112

patella #2 $\frac{7.6}{240}$ .27

2/100 KGS Stan $\frac{72}{240}$

#1 Yellow marrow $\frac{}{240}$

1190862

95 H

Date

counted	Bg $\frac{0}{240}$		
7:14 PM	2/100 KGS Stan	$\frac{56}{240}$	.232 x 1500 = 350
#1	Yellow Marrow	$\frac{2.1}{240}$	.0063 - .03 = <0
#4	Periosteum femur	$\frac{2.2}{240}$	.0083 - .03 = <0 KGS Stan $\frac{64}{240}$ = 400
#5	Muscle femur in 2 samples	$\frac{84\ 80}{240}$ $\frac{149\ 139}{240}$	.34 + .6 = .94 - .03 = .91 x 1.56 x 50/49 = 1.44 = 400 .3
#6	Skin	$\frac{23.6.3}{240}$	.0187 - .03 <0
#7	Contis over femur	$\frac{6}{240}$	
#8	Tumor (nocale)		
#9	Tumor in bone		
#13	Periosteum fr calf		
#14	Muscle adj to 13		
15	Subcutis		
16	Skin of pinjec site		
17	Blood		

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Carton No. 1
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Notes CAL IV: AMERICIUM
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Dates

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1190863

95H 6/cuts

7-15 Added 3 more ml out of sample of Fe to 2 ml already on disk ∴ samples now are 5 ml/4000 with .05 ml/samp
= 5 x .05 = .25 ml x .015 c/ml = .00375 c. to 1 sample

Fe 0-1 #1 5/400 = 1/80
#2
1-2 #1
#2
4-5
5-6 #1
#2

7-16 Took 5 ml La + put in 5 centcones to ea of wh added .05 ml La ∴ have .25 ml La in ea sample
.015/1 ml x .25 ml = .0037 c/s from ta contam
6-7 5/400 = 1/80
7-8
8-9 #1
#2
10-11 #
#2

7-18 Ar 0-1

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Carton No. 1
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Notes CAL IV: AMERICIUM
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1190864

(43)

2/100 [illegible] 800/19.

800/208.6

.0237

390

390/.030

Bg
Blank 296/240

55
40
95
47

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Accession No.
File Code No. 19-74-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL IV : AMERICIUM
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Dates

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1190865

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL IV: AMERICIUM
Found By A. BERGE
Dates
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(44)

95H

copy

counted days after aliquot method c/s

7-30-47 injection pm ta F

0-1 1/80 .25 ml ta 24.27/240

#2 24.22

1-2

#2 56.243/240 repeat

PM α RS 16H 800/25.6

2/100 KGS Standard 400/155.4 2.57 2.494 × 1500 = 3738

Bg 8, 13, 7/120 .078

#12-13 #1 26/240 12/120 17/240

#2 34/240 25

10-11 #1 28/240

7-31-47 RS 16H Stan 800/26.2

Blank 7-29 (Run with 95 48 hour samples) .1 ml ta

ie ran 2 1 ml samples .05 ml ta / sample 26/240 = .108

Bg no sample 27/240 .109

0-1 #2 Fe 27/240 32/240

0-1 #1 Fe 33/240 31/240

1-2 #2 39/240 42/240

1-2 #1 60/240 32/240

95H Stan 10/100 KGS 800/65 12.31 12.2 × 300 = 3660

2/100 KGS 600/240 2.50 2.39 × 1500 = 3585

4-5 23/240 32/240

Bg — 18/240 = .075

5-6 #2 27/240 20/240

5-6 1 25/240 20/240

7-8 #1 18/240 22/240

#2 26/240 20/240

1190869

95 4 — Epre ±

7-31: 5/100 = 5/65 = 500/69.2 = 12.1 × 300 = 3570 } Avg = 3580
2/100 = 60/240, 600/240 = 2.5 − .1 = 2.4 × 1500 = 3600

Bg = 18/240 = .076 RE 104 standard 800/26.2

Depaftin alignment method

Counted Feces Dryeiten

7-31 — Bg = 27/240 = .112

0-1 #1 1/80 conta F .25 mlten 33,31 / 240 .133 − .112 = .021 × 80 = 1.68 ÷ 3585 .0
#2 27,32 / 240 .123 − .112 = .011 × 80 = .88 ÷ .02
1-2 60,32 / 240 .133 − .112 = .021 × 80 = 1.68 ÷ 3585 .0
#2 29,42 / 240 .168 − .112 = .056 × 80 = 4.48 .1
2-3 sample [illegible] cut
3-4 no BM for period

7-28 55,70 / 240 = .198 × 80 ÷ 108 = 14.7

Bg = 18/240 = .075
Plan 800/65

4-5 23,32 / 240 .113 − .075 = .038 × 80 = 3.0
#1 25,20 / 240 .092 − .075 = .02 × 80 = 1.6 .0
5-6 counted 78 — 18,6 / 240 .05 } .27 × 80 ÷ 108 = 19.8%
40,61 / 240 .21
#2 27,20 / 240 .096 − .075 = .21 × 80 = 1.6 .0
6-7 28,24 / 240 .108 − .075 = .025 × 80 = 2.0 .0

7-8 counted 78 — 12,8 / 240 .05 × 80 ÷ 108 = 3.7% #1 18,22 / 240 .083 − .075 = [illegible] .0
#2 26,20 / 240 .096 .0
8-9 23,33 / 240 .10 − .075 = .035 [illegible]
8-9 #2 22 / 240
9-10 no BM for period

10-11 30,20 / 240
#2 43,34 / 240
11-12

12-13 #1 31 / 240
#2 1 / 240

10 / 100 ten 800/69.2
1153 × 300 = 3459

7-28 5/100 KGS ten = 43/240 .18 × 6000 = 108 [illegible]
Bg + Plant = 0

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Records Series Title: Biomedical Research Group
Accession No.: 19-14-119
File Code No.: —
Carton No.: 1
Folder No.: AM II 745 H
Notes: CA IV. American
Found By: A. Berge
Dates:
Joseph G. Hamilton
LBL

(46)

8-1 10/100 1565 Stan 800/82.8

3+4 Bg + Blank: —

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Records Series Title Joseph G. Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM H (95H)
Notes CAL IV AMERICIUM
Found By A BERGE
Dates

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1190868

(47)

copy

95/4

Date 7-31

6-7 Fe		28,24 / 240	
8-9 #2		32,32 / 240	
8-9 #1		28,33 / 240	
Re 95	2/100		616 / 240
	10/100		8[illegible] / 692
10-11	#2	43 / 240	34 / 240
	#1	34 / 240	19 / 240
12-13		31 / 240	
26 3 / 24 12-13	#2	19 / 240	

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Records Series Title Joseph G Hamilton Biomedical Research Group
Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM-H (95H)
Notes Cal-Av: Americium
Found By A. Berge
Dates
COPY

1190869

95H α counter

Date

8-4-47 Bg $\frac{56}{240}$; cleaned out: $\frac{59}{240}$, alcohol $\frac{320}{240}$ no gas:

Re 16H $\frac{800}{28,27}$

95 10/100 KGS

Blank 1 ml La(NO3)3 sol'n $\frac{59}{240}$

Re 16H Standard

800/59 KV 1300 Dials coarse at 3, fine at 7.2

Gain coarse at 32

800/41 40

800/29.6 50

800/25.8 60

Bg with coarse gain at 50 $\frac{21}{240}$

RE 16H 800/35

RE 16H with coarse gain at 60 $\frac{800}{24,29,28.4}$

Bg 11/240

Bg + Blank $\frac{11}{240}$ .046

95 48 hr Left Leg $\frac{800}{267}$ 3-.09 = 2.91 x 25 = 73 ÷ 455 = 16%

10/100 KGS Stan - $\frac{800}{89}$ = 9.0-.046 = 8.954 (x 5 = Dose for animal: 455

2/100 KGS $\frac{424}{240}$

Ur 0-1 (95 $\frac{16\ 20}{240}$

1-2 $\frac{19\ 21}{240}$

2-3 $\frac{15\ 15}{240}$

3-4 $\frac{19\ 18}{240}$

Blank $\frac{9}{240}$

Ur 4-5 $\frac{13\ 18}{240}$

5-6 $\frac{12}{240}$

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. Am-H (95H)
Notes Cal-IV: Americium
Found By A. Berge
Dates
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92

1190870

(49)

95H α counter copy

8-4-47

By 14/300

Blank (1 ml La sol'n = .4 mg) 10/240

6-7 Ur 8/240 11/240

Re 16 H

10/100 KGS Stan 95 800/87

7-8 16/240 15/240

8-9 13/240 11/240

9-10 8/240 8/240

10-11 14/240 9/240

11-12 8/240 12/240

12-13 10/240 14/240

95H KGS Stan 800/94.8 800/80

Recheck on Fe 4-5 29/240 22/240

95 48 hr animal

L Leg 4/100 800/302 use former value - lost some

Fe 1-2 33/240 32/240

a-1 46/240 36/240

Ur 1-2 22/240 16/240

a-1 304/240 279/240

12
22 + 1.88
34 50
8 34
272 8
304

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. Am-H (95H)
Notes Cal-IV: Americium
Found By A. Berge
Dates

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1190871

95 48hr α counter — copy

(50)

8-5

RE16 H	800 / 31.2, 28.4, 26.8, 28.2		
Bg	16 / 240	14 / 300	(+ Blank with Hml La
95 48hr Skel	38 / 240	41 / 240	
95 H 10/100 Standard	800 / 99.2	800 / 79	800 / 88
95 H 2/100 Standard			
Lg Int 48hr	17 / 240	36 / 240	29 / 240
Bil	85 / 240	78 / 240	
Sm Int	15, 29 / 240	24	
Stomach	23 / 240	19	
Lungs	49 / 240	46 / 240	
Liver	800 / 159	800 / 162	
Bone	79 / 240	89 / 240	84 / 240
4/1000 L Leg La F	576 / 240	800 / 319	
heart	19 / 240	19 / 240	
spleen	23 / 240	39 / 240	18
muscle	10 / 240	32	18
10/100 K G S Stan	800 / 93.2	86	
Skin	53 / 240	41 / 240	
Kidney	326 / 240	376 / 240	
Blood	31 / 240	33 / 240	

34
29 79
20+4
41 74
35 + 4
6 15
3 8
48
15
33

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Accession No.
File Code No. 19-14.119
Carton No. 1
Folder No. Am-H (95H)
Notes Cal-IV Americium
Found By A. Berge
Dates

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1190872

TTA method check
β counter
Bg

		416/240	= 1.74 c/s
8-11	5 ml RE16	800/44.4	= 18.2 = 3.6 ÷ 4.05 = 89%
	RE16 2 ml Standard	800/99.0	= 8.1 = 4.05 c/s/ml
	5 ml RE16 1	800/45.6	17.8 = 3.6 ÷ 4.05 = 89%
	5 ml RE16 2	800/59	= 13.6 = 2.7 = 67%
	5 ml RE16 3	800/50.8	16 = 3 = 74%
			4 | 3 | 9
			Recovery = 79%

Corr factor – 100/79 = 1.26

8-12	α counter RE16		800/31.4, 30
	Bg		240
	Bg + Blank		12 22 14 / 240
19 2	#3	20/500	15 22 18 / 240
	#5 ①	20/500	12 12 / 240
	②		12 12 / 240
	2/100 Injec site		800 / 57.6 55.6
	2/100 Dose after		800 / 30.6 29.8
	2/100 Dose 2/21		800 / 35

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Carton No. 1
Folder No. Am-H (95H)
Notes Cal-IV: Americium
Found By A. Berge
Dates
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1190873

(52)

95 H

Date 8-5

Counter Fe 0-1 | 17/240 | 26

1-2

2-3

3-4

4-5

5-6

6-7

7-8

8-9

9-10

10-11

11-12

12-13

Re 16 H | 800/29

Bg + Blank = | 14/240 | .058

10/100 Standard | 800/99.8 86.6 | 8.58 | 8.52 X 300 = 2558

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. Am-H (95H)
Notes Cal-IV: Americium
Found By A. Berge
Dates
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4L80611

(53)

95

Date

Fe 0-1

1/80

395 10/400

10/400

40/400

40/400

8-7 R.E 16 H 14/240 = .05

39 Bg 10/100 K G S Standard 800/89 = 9-258 = 8.942 x 50 = 447.0

87 Fe 4-5 40/400

16/240

28/240

.116 - .05 = .066 x 10 = .66 .148

447

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Carton No. 1
Folder No. Am-A (95H)
Notes Cal-IV Americium
Found By A. Berge
Dates

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1190875

(54)

95H Tissues 54 hr Date injected 6-10-47 11:00 AM
Rec'd 6-12-47 2:00 PM Preliminary stuff
Dissected 6-13-47

Bg .015 6-19		Wet Wt g	Ash wt (est)	Aliquot						
Method										
Small LaF / Lg LaF	1 Yellow Marrow from Tibia	32	.040 (20 ml)	2/20 18/20						
	2 Bone from Femur									
Lg LaF 6-26	presumably normal adjacent to tumor	47.0 g	18.8 (500 ml)	5/500	4 / 293,384.6	.021-.003=.017x100=17	.001			
6-19				1/50 at	128.0 / 72.6					
6-17	3 Injection site	1670 g	2.08	1/50	400 / 55	6.5 c/s	302.70/30000 = 1%			
6-19	LaF 1/25 128/45 6-26	Lg LaF	(6-26)	13/25	128 / 35,35.4	.364-.003=.361x25=9	.9			
Sm LaF 6-26	4 Periosteum from femur	1.4 g	.018 (20 ml)	1/10	3 / 500					
Sm LaF 6-26 Lg LaF	5 Muscle from femur	35 g	.438 (100 ml)	1/50	50 / 500					
	6 Skin	13	.163 20 ml	2/20 18/20						
	7 Connective Tissue + fat below skin over femur	10 g	.125 (50 ml)	1/25 48/50						

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Accession No.
File Code No. 19-14-119
Carton No.
Folder No. AM-H 1934
Notes Cal-IV: Americium
Found By A. Berge
Dates
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1190876

95_H Tissues 54 hr Date Injected 6-10-47 11:44 AM

Rec'd 6-12-47 2:00 PM
Dissected 6-13-47

			wet wt	ash wt	dilution								a/o
					1/25 straight	1/200							
Lg 6-17													
LaF 6-26	8	Tumor (no calc.)	35 g	.438	23/25	$\frac{128}{369} = .35 \quad .003 = .347 \times \frac{25}{22} = .397 =$							.034
LaF. 6-26				(50 ml	22/25								
	9.	Tumor invaded into bone (no calc.)	9.3 g	.116	2/25								
				(25 ml	23/25								
Lg LaF	10.	Bone next to tumor (normal bone?)	62.0	24.80	5/500								
				(500 ml)									
Sm LaF Lg LaF	11.	Connective tissue on upper end ~~fibula~~ tibia connected to patella	17.0	.2125	1/50								
				(100 ml)	50/100								
Lg	12.	Bone from tibia (normal)	?	35.3	7/500								
				(500 ml)	5/500								
Sm LaF Lg Sm F	6-26 13.	Periosteum from calf opposite injection site	7.0	2.8	1/50	8/500							
				(100)	49/50								
	14.	Muscle adjacent to periosteum from calf opposite injection site											
Sm Lg F Lg LaF	6-26		47	.588	1/50	6/500							
				(100)	49/50								
Sm LaF Lg LaF	15.	Subcutaneous tissue Fat + connective tissue below skin of injection site	14.5	.181	1/25								
				50	48/50								
					1/25								
	16.	Skin opposite injection site	34	.425	48/50								
					49/50								
Sm Lg LaF	6-26 17.	Blood	60 g	.750	1/25	4/500							
				(50)	48/50								

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Accession No. 19-74-114
File Code No. 1
Carton No. Am. E. (95 H)
Folder No. Cal-Iv. American Lung
Notes
Found By A. Berge
Dates
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1190077

15 H

Using Re 16 H as counter check

(56)

	Time	Voltage		RE16 #2		Bg
6-25-47	9:50	about	1350-20	512/97	= 5.28 c/s	
	10:00		1300-20	512/55.8, 57.2	= 9.15 c/s	128/83.8 = 1.5
	10:00		1375-20	512/75.4		
	10:10		1350-20	512/78		2/400 = .005 c/s

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Carton No. 1
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Notes Cal-IV: Americium
Found By A. Berge
Dates
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1190878

(57)

Standard = .5 ml / 100 ml sol n

95H
Run 6-25-47

Save - Original counting data

Date counted	Time	Voltage	RE16 H Stan	95H 1/100 Stan	Bg	
6-26-47	10:30	@ ~~1250-20~~	~~512/150.6~~		4	
		1275-20	512/106.2, 105.6		2c/600	.005 C/S
	11:00	1275-20	512/72.2		3/800	
	1:30	~~1250-20~~	~~512/102.8~~			
		1275-20	512/59, 60.4		2/500	
	2:15	1275-20	512/57			
	2:30	1275-20	512/59.6		0/500	
	4:00				3/500	
6-30-47	11:00	1275-20	512/58.2, 54.6, 58			

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM-H (95H)
Notes Cal-IV: Americium
Found By A. Berge
Dates
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1190079

(58)

95 H
Date injected 6-10-47

6-11 1/25 Standard .2 ml/25

1/25 Syringe for 95 48 hr 1 rat

Bg
Re_{16H} Stan
U_{233} Stan

6-30 1 1/25 Stan .2 ml $LaNO_3$
2 2 ml $LaNO_3$
1/25 Stan

3 Blank .2 ml $LaNO_3$
4 Blank 2.0 ml $LaNO_3$

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Carton No. 1
Folder No. Am-H (95 H)
Notes Cal-IV: Americium
Found By A. Berge
Dates
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1190880

95H Run 6-27-47 Fig 1a F

	Blank	ml			
# ✓ 1.	Yellow Marrow	18/20		1 ml	.05 ml
4	Periosteum from femur	18/20		50	50
5	Muscle from femur	50/100	Rest of sample		300
6	Skin	18/20			
7	Con tis + fat below skin over femur	48/50			
9	Tumor in bone	23/25		1 ml	.05
11	Con tis on upper end tibia con to patella	90/100		50 ml	50
13	Periosteum from calf opposite injection site	50/100	?		250
14	Muscle adj to periosteum fr. calf of injection site	50/100	?	20 mg/ml	
15.	Subcu tis.	48/50	?	50	
16.	Skin of injec site	48/50		1,000	
17	Blood	48/50			

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM-H (95H)
Notes Cal-IV: Americium
Found By A. Berge
Dates

COPY

1190081

(66)

.5/100

.78.

.21

.21

17.5 = .21

$\frac{3}{.5} = 6$

.001

.78 ⟌ .5 30

17.5 = .21

$\frac{.5}{100}$

17625

.091 — 17.5

$\frac{100}{.5}$

17.5 = .21

$\frac{2}{25}$

3 = $17.5 \times \frac{3}{.21} = 250$

.00001

.09100

25000

.21 ⟌ 3.00

17.5

.084

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Carton No. 1
Folder No. AM-H (95H)
Notes Cal-IV; Americium
Found By A. Berger
Dates

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1190082

(61)

95 H Tumors

LaF ±

sample method

	#	
	1	
	2	
4xLa=0.1	3	Injection site 2/100 st, 4/100 LaF small
	4	
	5	
	6	
	7	
4xLa=0.1	8	Tumor 2/5 st 4/50 LaF (small) - 44/50 lg cent
	9	LaF small -
	10	
	11	
	12	
	13	
	14	
	15	
	16	
	17	
	18	
	19	
	20	

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6-25-47

Ra 16 Stan 258/3 7.4 sec

Testing Syringe 1/25 straight 16/47,80,50

Method Syringe 1/25 LaF method (small) 16/73,55 .266

Syringe 5/25 lg cent

.05 ml La Blank .025 ml La + F small) 128/76

1190083

U Standard

Plateau on 1.2 mg wire [illegible] Tube Type C Cyclo Spec

← No α counts at 1350 - 20

β SV	1350	800 / 64	
	1400	800 / 21.2	
	1450	800 / 14.2	
	1500	800 / 13	200 V
	1550	800 / 13	
	1600	800 / 13	
	1650		

Plateau on tube in lead case Type C Cyclo Spec

S V	1950	[illegible]
	2000	800 / 18.6
	2050	800 / 18
	3000	800 / 19.0
	3050	800

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1190884

Date counted on Tracer Lab + then window tube

6-30-47	RE16H Stan	512 / 62.2, 64, 60	
P.M.	1/2 595H Stan	512 / 93.6, 78, 88.4, 98	Voltage variation
	2/25 (1275-20)	512 / 72, 43.8, 57.6, 70	amplification in Cyclotron Spec
	16H 1250-20	512 / 65.4, 86.6, 105.4, 103.8	
	16H 1275-20	512 / 52.8, 58.4	
	2/25 (1275-20)	512 / 46.2, 62.6, 75, 74.2	
	Bg	16 / 126 = .126 c/s	

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Notes Cat-IV Americium
Found By A. Berge
Dates
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1190085

(64)

95_H Counter or alpha Gas chamber
6-30-47
needle valve touchy

Date

RE 16_H Standard 800/38.6, 39
Bg $\frac{37}{240}$ = 0.154 c/s
1/25 95_H Standard 800/124.4, 132.4
2 ml La Blank
Blood 48/50 #1 } $\frac{86}{240}$ $\frac{86}{240}$
#2

800/ = 53 c/s 4000 = 1 μc.

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Notes Col-IV: Americium
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Dates
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1190086

.2 X
.04
.008

		Amt taken
6-24	Small La Fm 95H	
1+2	(1) Yellow Marrow	2/20
3-4	(4) Periosteum	2/20
5-6	(5) Muscle fr Femur	2/100
7-22	(6) Skin	2/20
9-10	(7) Con tis & fat below skin over femur	2/50
		2/50
11-12	(9) Tumor in bone	2/25
13-14	(10) Con tis patella	2/50
15-16	(13) Perios fr calf	2/100
17-18	(14) Muscle adj to periosteum	2/100
19-20	(15) Subcu tissue	2/50
7-8	(16) Skin op inj site	2/50
23-24	(17) Blood	2/60

1, 8

#6 Skin

52.8
37.8
44
13.8
46.3

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Found By A. Berge
Dates

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1190887

(66)

Notes

Dark 5/100 : $\frac{c}{s} \times \frac{100}{5} \times \frac{3}{1}$

$= \frac{c}{s} \times 600$

By		240 = .0048		
[illegible]	5/100 K&S stan	$\frac{43}{240}$	.18 c/s × [illegible] × 600	108
Blank		$\frac{0}{240}$	use 0 for By	
12-13 #1	1/80			
#2				
4-5	aliquot			
0-1 #1	1/80 5/400	$\frac{0}{240}$		
#2	5x.05 mlta	$\frac{1}{240}$	0 c/s	
1-2 #1	25 mlta	$\frac{0}{240}$		
#2		$\frac{0}{240}$		
4-5		$\frac{55}{240}$ $\frac{40}{240}$	= .198 × 80 ÷ 108 = .147	14.
5-6 #1		$\frac{18}{240}$ $\frac{6}{240}$	= .05 } .27 × 80 ÷ 108 = .198	19.
#2		$\frac{40}{240}$ $\frac{61}{240}$	= .21	
6-7				
7-8		$\frac{12}{240}$ $\frac{8}{240}$	.05 × 80 = 4.00 ÷ 108 = .037	3.7
				38.

1/300 6 7/400

6/400

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Carton No. 1
Folder No. Am-H (95 H)
Notes Cal-IV: Americium
Found By A. [illegible]
Dates

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1190888

(67)

Am H (95H)

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Accession No.
File Code No. 19-14-119
Carton No. 1
Folder No. AM-H 195H
Notes Cal-IV: Americium
Found By A. Perez
Dates

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1190089