

TRANSPORTATION AGENTS SHOULD NOT ACCEPT THIS CERTIFICATE UNLESS THE OFFICER OR EMPLOYEE PRESENTING IT SHOWS SATISFACTORY CREDENTIALS

Form 731  
TREASURY DEPARTMENT  
INTERNAL REVENUE SERVICE  
(Revised April 1955)

# EXEMPTION CERTIFICATE

Tax on Transportation of Persons—Seats, Berths, or Staterooms

Place of issue of ticket \_\_\_\_\_ Date \_\_\_\_\_, 19\_\_\_\_

Name of issuing carrier \_\_\_\_\_

Ticket Form No. \_\_\_\_\_ Ticket No. \_\_\_\_\_  
(To be filled in by agent of carrier issuing ticket)

For \_\_\_\_\_ Via \_\_\_\_\_  
(Transportation—seat, berth, or stateroom)

From \_\_\_\_\_ To \_\_\_\_\_

I CERTIFY that the charges for the service indicated above have been, or will be, paid by a State or Territory, or Political Subdivision thereof, or the District of Columbia, as indicated below, are incurred in the performance of my official duties, and are exempt from the tax imposed under section 4261 of the Internal Revenue Code of 1954.

UNIVERSITY OF COLORADO  
DEPARTMENT OF MEDICINE

\_\_\_\_\_  
(State etc., subdivision and service for account of which exemption is authorized)

\_\_\_\_\_  
(Signature)

**PENALTY FOR FRAUDULENT USE, \$5,000 OR IMPRISONMENT, OR BOTH.**

\_\_\_\_\_  
(Title)

NOTE.—A separate exemption certificate will be required for each payment for transportation and/or seating or sleeping accommodations furnished in connection therewith.

ONPG product =  
 $= 1.6 \times 10^6 \text{ mM/min/mg N of pure } \beta \text{ galactosidase}$

maximum constitutive =

$10,000 \text{ units/min}/10^9 \text{ cells}$  1 unit = 1 mM ONPG/min

maximum induced

$2200 \text{ units/min}/10^9 \text{ cells}$

maximum weak const induced

$6000-7000 \text{ units/min}/10^9 \text{ cells/min}$

8 mg Protein

$8 \cdot 10^{-3} \cdot 10^{-12}$

$4 \cdot 10^{-15} \text{ gm}$

~~2.4 x 10<sup>-15</sup> gm~~ 2.4 gm

$2 \cdot 10^9 \text{ cells} = 500 \text{ } \delta \text{ dry wt } ?$

$10^{12} \text{ cells} = 500 \text{ mg } \frac{1}{2} \text{ gm dry weight}$

$1000 \text{ units}/10^9 \text{ cells} =$

$= 10^{-6} \text{ units per cell}$

$= 10^6 \text{ units per } 10^{12} \text{ cells} = \frac{1}{1.6} \text{ mg N} = 4 \text{ mg Protein}$

$\frac{4 \text{ mg Protein} \times 6 \cdot 10^{23} \times 10^{-5}}{1000} = \text{Mole Protein}/10^{12} \text{ B}$   
 ~~$2.4 \cdot 10^{16}$~~   $= 2.4 \cdot 10^{15} = 2.4 \cdot 10^{16} / 10^{12} \text{ B}$

or  $2.4 \cdot 10^4 \text{ molecules (at } 10^5 \text{ unit weight)}$

fully induced wild type

$\sim 2.5 \cdot 10^4 \text{ molecules/cell}$

per second  $30 \times 60 = 1800 \frac{50}{1.2} = 27.5/\text{sec}$

if mol weight  $10^6$   $2.75/\text{sec}$

The Quadrangle Club

1155 EAST FIFTY-SEVENTH STREET

CHICAGO 37, ILLINOIS

*Diamino-pimelic-acid*

Bernhard

15 Volts

$$\frac{225}{50} = 4.5 \text{ Watts}$$

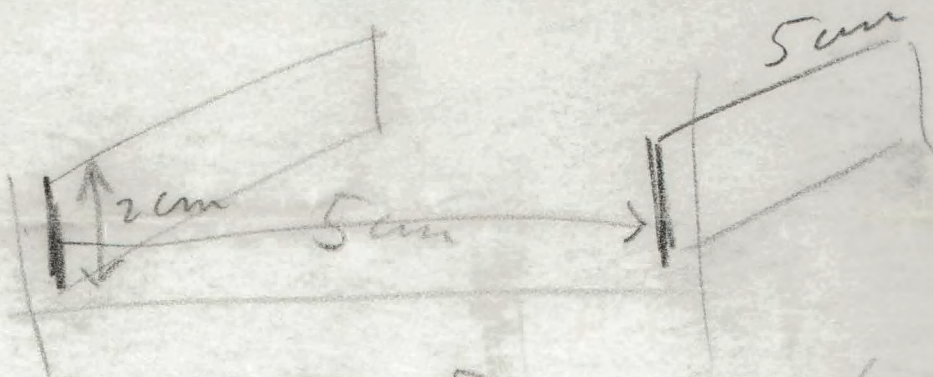
~~100 100~~

~~200 Watts~~

~~$$g_m = \frac{V}{r}$$
  
$$g_m^2 = \left(\frac{V}{r}\right)^2$$~~

THE ROCKEFELLER INSTITUTE FOR MEDICAL RESEARCH

66TH STREET AND YORK AVENUE  
NEW YORK 21, N.Y.



50  $\Omega$  resistance

in Rubzer

spec. Res = 100  $\Omega$  per/cm<sup>2</sup> and  
for 1 cm length

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Member, Resistance  
at 100 mV volts input,  
= 6000  $\Omega$ /cm<sup>2</sup>

drops to at 40 mV volts  
input in 500  $\Omega$ /cm<sup>2</sup>

*[Signature]*

~~Transition to~~ Field max in tuboch

rises at 600 Volt/cm sec to a max  
El. energy maximum of 3 Volt/cm  
 $570 \text{ erg} = 1.3 \cdot 10^{-5} \text{ cal}$  / per gm per  
impulse

Time during which depolarized  $6 \cdot 10^{-4} \text{ sec}$

1.3 to 1.8 ~~to~~  $10^{-3} \text{ Mol Co}^{++}$

in bath

Na  $110 \cdot 10^{-3} \text{ Mol}$

K  $2 \cdot 10^{-3} \text{ Mol}$

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$10 \times 10^{-3} \text{ Mol Calcium raises membrane}$

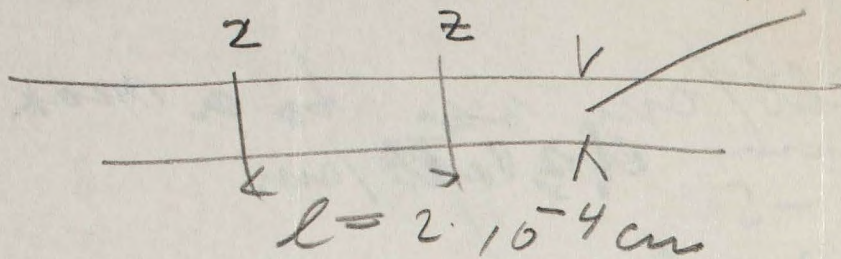
Part by  $10 \times 10^{-3} \text{ Volt}$

beput. Muscl  $\approx 50 \times 10^{-3} \text{ Volt}$   
Normal  $100 \times 10^{-3} \text{ Volt}$

Calcium increases 5 to 10 fold

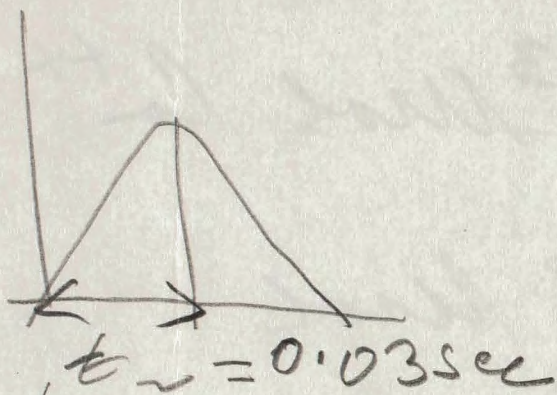
Chapov, sec 3/56

$$d = \cancel{2.10} 10^{-2} \text{ cm}$$

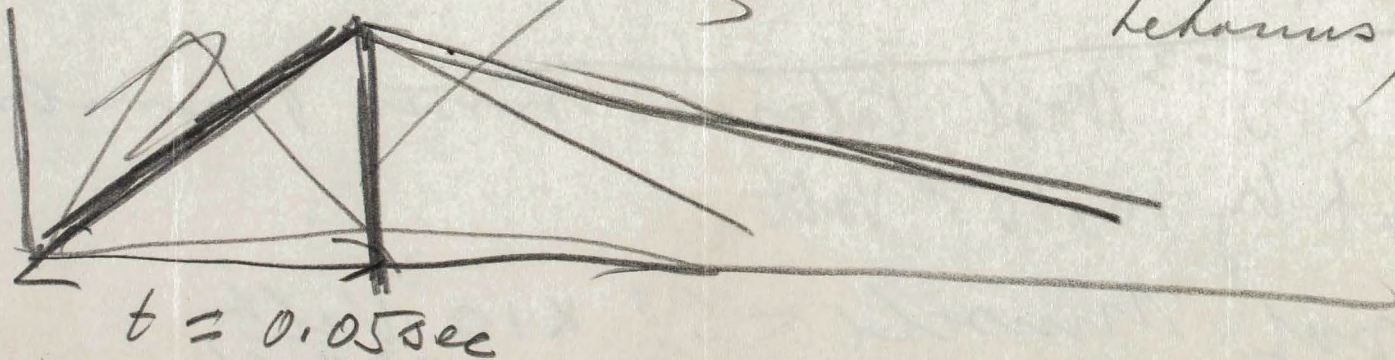


$$v = 200 \text{ cm/sec}$$

$t_1 = 0.003 \text{ sec}$  begin of action state



tension



lines of muscle fiber

P.T.O.