B1. (called B1 uni. pneumo). Ca. 5 x 10^8 plaque / plate.

U.V. - GE lamp at 92 cm. = 4.2 ergs/sec. Exposed to plate

X-Ray 180kv 25ma 1000 mili.

!!

When batching concentrated to give 10^9/cc.

(was depleted from plugging???) Immersed 0 - 4 min.
to lysis?

(Distinct increase in throms from 0 to 295 of mutations immuno. only.)

remark. greater in U.V.

After 2 hours, increase of 10X over controls

1 min vi. 4.4

2 min 2.2

4 min 1.6.

Mutation rate unmodified 1-2 dni. fell to normal by the 13th dni.

(6 hours) Killing not given.
Rubor, RJ & BD Davis J EM 83: 405 - 1946. Factors influencing the growth of the bacillus in typical media.

Alici sotius (water del) facilitating reverse growth. Serum albumin, same and - attitude - yes.
Hendriks, V.


1. homeogen to foot hormone

2. cultured tumor cells - Mitchell


T/0 essentially pH 7.2 - 7.4 \( \pm \) NaOH.

Cystine 1M/10mL

Part 1M/mL (intest)

No. 1M/mL (urine) methionine, or another eq. effective.

Test of medium: medium \( \times 2 \) as healthy as synthetic (in amae.)

Cystine + methionine is only essential amino acid. Cystine better.

Other a.a. have little effect.

Of aqueous rts., animal materials have a stimulating effect.

Nawaline, valine, threonine and tryptophan react inhibitory, but

reversed by other amino acids.

Premire + pyrimidine had no effect.

No. 12s. : B1, B2, B6, choline, biotin, folie, pab, ning, piu, iude, glutamic...

All tried = effect.

Try Vitamin C, folie inrules, K, etc.

The nutrition of Proteus morgani: sulphur requirements.

Basal:

\[
\begin{align*}
\text{NH}_4\text{Cl} & \quad 1 \\
\text{NH}_4\text{SO}_4 & \quad 1 \\
\text{K}_2\text{CO}_3 & \quad 1 \\
\text{K}_2\text{HPO}_4 & \quad 1 \\
\text{K}_2\text{HPO}_4 & \quad 1 \\
\text{H}_2\text{O} & \quad 18 \\
\end{align*}
\]

3. Atten 3- compounds (cystine 4+):

- Lanthionine
- Methionine
- Norleucine
- Homocystine

- Nore, + (variable)
- 2+ (variable)
- 3+
- 2+ var.


Wettstein: all 72 compounds (except 20 am. ac. homocystine) increased by 200 mg. ag. by leucine, meth. valine, leucine (D, L, D L methionine, Leucine 17/100)
The cen camoponin of microorganisms
above.

Pettis of natural reproduction cycles in elephants.
S. typhosa  nov.  crypt.
S. pullorum 2/45  nec.  through  luc.  esp., arg.
S. gallinarum  B1.  histidine  luc., esp., glut

Highly - Salmonella para H.
nei required in presence of glucose.

Doele, D.R. - Eff. action with arg. Shigella, facultatives...
Yale J.B.M. Dec'45 - Bact. Dept. NZ

typhosa
1x, 2%

gallinarum
pullorum

\[ E + S \rightleftharpoons ES \rightarrow E + P. \quad K_s \]

\[ E + I \rightleftharpoons EI. \quad K_i \]

\[ \frac{1}{v_i} = \frac{1}{V_0} \left( R_s + \frac{K_s}{R_i} (I) \right) \frac{1}{(S)} + \frac{1}{V_0} \]

Thus \( \frac{1}{v_i} \propto \frac{1}{S} \)

\[ \frac{1}{v_i} = k_s \left( 1 + \frac{(I)}{K_i} \right) \frac{1}{(S)} + B' \]

\[ \frac{K_s}{V_0} = k_s \]

\[ B = \frac{1}{V_0} \]

\[ k_b = \frac{R_s}{V_0} \]

\[ \frac{k_s}{B} = k_s. \]
infusinvely injected material numbered by the plating method.

Alternation of formation in C. spp.

C. variecolor

Breard, T. + Biegette, F. - BA 1:82
2.5
1 cell 2.98 x 10^{-12} g N; 9.8 x 10^{-12} P


* Herrag, Ann Bot 23:181 1801
* Stedlow, Zbot 21:625-92 1921. C. paradoxa x Keteleeria
Kanoni.-Referate, Best. Berlin.


70° 75°C 15 min. -> rate mutation 8.3%
600Np
- 0.02%.

60: 143-66 1940. Homentosia.


ke Homostosia.

11. witterbares Copulation. Synmotes = Zygoten. In 2-3 wochen 

zygotische 

sporangiate 

32 haploitom zygosporen

wachst.

60: 484-198 (1940) Botrydium granulatum


Fusarium alge of McLeod. (Cheeset- 

19) best best. Dielen. C. falciparum form: new form


Chlamydomonas pseudocroceus - resistant to .015%

Hoevees, Zentr. Abst. 78: 118 1940 beschrieben. Eine in

Knoop's Zygote generatim. By spilenstrahl 10-14x1 (generation).

"The action of feeding was especially marked in a rat which had previously received alcohol really for a month."

Fasting 24. diminishes $tet$ atior level.

Alcohol tolerant animals fastened with $tet$ atior = 8, at upper range of normal variation.

Pyruvic acid stimulated alcohol disappearance, especially in fasted animals. It undoubtedly an acceptor.

Alcohol disappearance more rapidly in intact tolerant animal, site of difference might be kidney?
+ Bassani, E. Studien über das Verhalten des Blutserums gegenübers künstlichen Lähmungen u. Skeletmuskulatur vor und nach erfolgten parenteralen Zufuhr desselben zentralwirkender.

Usually, no optical changes noted vs. normal serum control. Do. with serum affords no amino acids + vs. controls.

+ Wiedemann, F. Weitere Untersuchungen über das Verhalten des Blutserums gegenübers künstlichen Lähmungen u. nach erfolgten parenteralen Zufuhr desselben Direkterk. Versuche wurden gemacht. Serum 388-418.

The adapted rabbit showed no polynuclear activity or necrosis or galleria. "Ein vorläufiger Versuch, durch Verfütterung von Milch eine Änderung des erwähnten Resultats herbeizuführen, war bis jetzt ohne Erfolg. Es wurden noch Versuche mit parenteraler Zufuhr von Milchzucker im Versuch gemacht, um festzustellen, ob auch gänzlich spezifischer Skeletmuskulin vorliegt."

Used 10 cc 10% sugar. Activity found within 24 h.

Ice serum (ω = -28° → +25° initially → +16 at 23 h.)
Verandheam Hurdun. murder, affects earth, Sanooamal.
It is has some decay apparent that LA-22 is actually generally a single mutant although isolated in two steps, does not revert, and has a complex mutation.
Röhrmann, F. (1917) Berol. 3. 84: 382—Uher die durch parenterale Lachstuckinjektionen "hervorgebrachten" Fermente des Tierkörpers von Fruchtjung Rattenchen.

In repeated earlier work, found adaptation to increase to be quite irregular. Studies gravid animals to determine amounts with lactogenesis. Regularly found sucrose in 7-10 days of sucrose ingestion


Dr. lactase metabolism:
JBC 81: 581- (1939)
80: 33 36.

Also JGP 19:357 lactate by other means, mainly gland.
J Phys 71: 342

To begin disposal of lactose in lactose non-absorbent ruminants. Unfermentable sugars not utilized in ruminants. >75% accounting for in the rumen as non-fermentable sugars. Insulin has no effect. Ammonia resulted normally slightly delayed removal. No blood lactose found.

Waltanard of milk in souring. Lactation can continue confinement.
Plains to not adapt to life.

Adapted plains to life.

Adapted plains to life.

Adapted plains to life.

Adapted plains to life.

Adapted plains to life.

Adapted plains to life.

Adapted plains to life.

Adapted plains to life.

Adapted plains to life.

High fat diet did not increase citric acid oxidase activity of liver, nor could fat fed liver show marked decreases in octanoic oxidase when lysed. Succinylase < in high fat + high carbohydrate animals.
Lightbody, HD & Kleinman, A (1939) Vacations produced by food differences in the concentration of arginase in the livers of white rats. JBC 129: 71-78.

High protein diets caused:

a) increase in arginase

b) increase in relative arginase concentrations

delta augmentation caused b) > a).
Determined spectrophotometrically at 240 nm in 0.5 cm cell,

\[ \text{Half-saturated } \mathrm{MgSO}_4 \text{ in phosphate buffer at } 2.8 \times 10^{-3} \text{ } \mathrm{pH} 6.74 \]

<table>
<thead>
<tr>
<th>Hypotheses for inhibition:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. binds ( \mathrm{Mg} )</td>
</tr>
<tr>
<td>2. displaces substrate from enzyme ( \mathrm{Mg} )</td>
</tr>
<tr>
<td>3. a ( \mathrm{MgF} ) complex displaces ( \mathrm{Mg} )</td>
</tr>
</tbody>
</table>

When the product \( \mathrm{Mg} \) \((\mathrm{PO}_4)^- \) \((\mathrm{F}^2) \) has same value, inhibition is same. \( \text{E} \mathrm{Mg} \) \( > \) \( \mu \) of 100, no inhibition was noted.

To produce inhibition, \( 3.2 \times 10^{-12} \) \((\text{M})^2 \)

Arsenate disrupts phosphate. Using arsenate cannot, but in itself inhibits. It is a substituted and ineffective.

Cadmium is inhibited by thiolate and thiorhodanide; \( \text{Po} \) had no effect.

Understanding selection vs. slow fermentation.

See Adams: "Principles of Pathology" 1908, I:104.

and J. Exp. Med. 1: 349 (1885).

n intermediate coli-typhi reacted.

Prompt (<24h) fermentation; glucose at 22°. Negligible. >10^9.

+ 37.


+ 37, M, H, M. and E. fermented 3 gaco.

White form of Ec uses very little lactose (determined as reducing sugar with Cu) before the red forms appear. NH₃ production indicates that amino acids are used as C source if lactose is unavailable.


Used Shaffer-Somogyi (JBC 100: 695-713 '33) method, with Reagent # 50 and 15 minutes heating. Thymol used to sterilize heavy cell suspensions (req. 1 hr.) Dry cells prepared after Morrison & Hisey (JBC 117: 693-706). Substrate was 50 ml 3% lactose in 1% acacia an M/10 P buffer 7.0-7.2.

Dried cells suspended in 25 ml 2% acacia in .2M P buffer, 10-20 mg thymol added and incub. 37 1-1.5 h. 25 cc. 1% lactose added, and samples taken for analysis. 0.01% Cu used to stop enzyme action. Activity expressed as u = 2.5 mg lactose split / 12 h/ mg.

Lac+ grown on lactose had activity ca 2.8 if grown on lactose; 0.2 on plain agar, 0.1 on glucose. Lac- had activity of 1.0 on lactose, etc. on others. No difference whether dried or not. These values characterize the Lac- itself, as no Lac+ were seen at this interval, on Endo's agar.


"Earlier experiments led us to believe that the antiseptics employed "activated" the lactase which was present, but inactive, in living growing cultures of the non-lactose-fermenting (white) form." Later found that drying would also activate lactase while only partially inhibiting glycolysis, so that Q_o2 might increase.

Garrett white: /plain agar: Wet: Lac 11.7 Dry: 30.7 Glu 139 91.7

/Lac Wet: Lac 19 Glu 136 132 -- 9

Red: /plain Lac 19.2 Glu 117 42.5 88.9

Red:/Lac Lac 128 Glu -- 1.8 1.9 This prep. was obviously overdried. but may have been

Ex tracts of dried cells contained demonstrable lactase. too acid.

No valid test was made of the possibility of lactase activation in Lac+, but he concluded that adaptation was based upon increased permeability rather than increased enzyme.
Papacostas G. + J. Daté - Les associations microbiennes:
leurs applications thérapeutiques.
Pourquoi unique culture phénomène.