

Personal Memo from
JOSHUA LEDERBERG

Jared Diamond
1/10/90

Auxo vs Prototrophe.
(I just happened on your 1986
essay.
Do you know of more recent
findings?)

As you may have no reason to
recall, I've been puzzled by the
phenomenon for a long time; and
I agree that "saving energy" is
a feeble explanation - though it
would be hard to measure % growth
differentials except in a competition
experiment. It is especially
puzzling to see nuclear competition
in a heterokaryon - though there's an
outside possibility that homo- or
uni-karyotic hyphal tips are the
unit of selection.

One thought: the auxotroph is
not just relieved of a biosynthetic
step, it is also blocked in
part of it - though this is

*Ryan + Lederberg PNAS 1946.

THE ROCKEFELLER UNIVERSITY NEW YORK 10021

Personal Memo from
JOSHUA LEDERBERG

Prof of Physiology
U of Ca
LA 90024

usually also true in the presence
of the nutrient through coordinate
repression and feedback inhibition.
However different processes do come
into play and there are bound to
be quantitative differences; and
variations in just which auxotroph
is inhibiting. So some of the
intermediate metabolites may be
secreted by x⁻ and processed dif-
ferently by x⁺ cells. That's a
long shot - but what else?

As I recall (dimly) there was
some evidence that frp⁻ cells make
a "fixin". †

Any how any further thoughts
data would be welcome

Sincerely

Joshua Lederberg

† in *B. subtilis*

see Barlati - Baer 1970 101:355

orig. by P269 +7 1/11/90

THE ROCKEFELLER UNIVERSITY NEW YORK 10021

and periodit selection in
culture than the s.