



# When you Come to a Fork in the Road...

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NASA ARC

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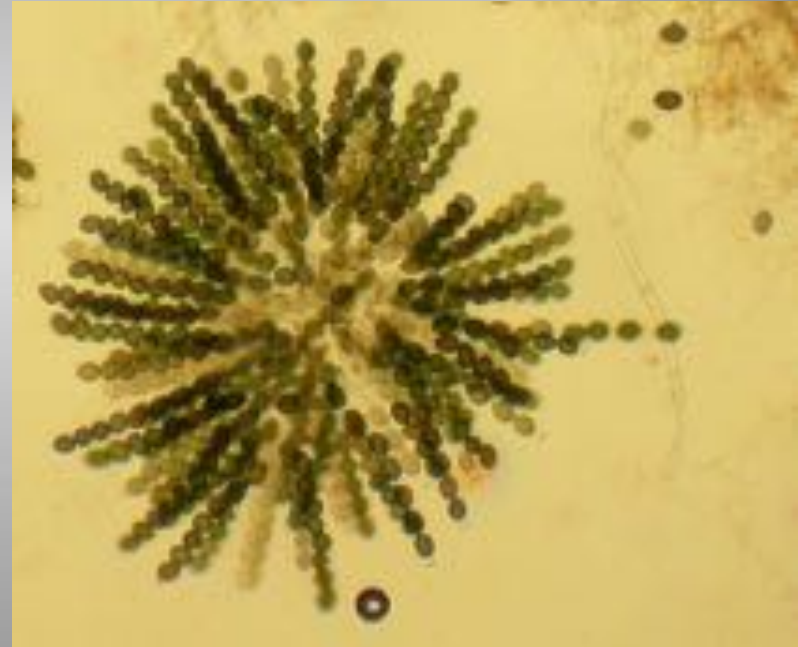
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# Take-aways from my career

- 1) Look for what you don't know
- 2) Don't be afraid to change directions
- 3) Be Persistent

# Look for what you don't know

“*Neurospora crassa* – is that a plant or an animal?”



– question from another MIT undergraduate  
in my senior biology laboratory section...

# Don't be afraid to change directions



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Abstract

## Tissue-Specific Protein Expression in Plant Mitochondria.

C. A. Conley, M. R. Hanson

Published January 1994. DOI: <https://doi.org/10.1105/tpc.6.1.85>

Botany



Volume 81, Issue 5  
May 1994  
Pages 630-640

Article

## Effects of *Petunia* cytoplasmic male sterile (CMS) cytoplasm on the development of sterile and fertility-restored *P.parodii* anthers

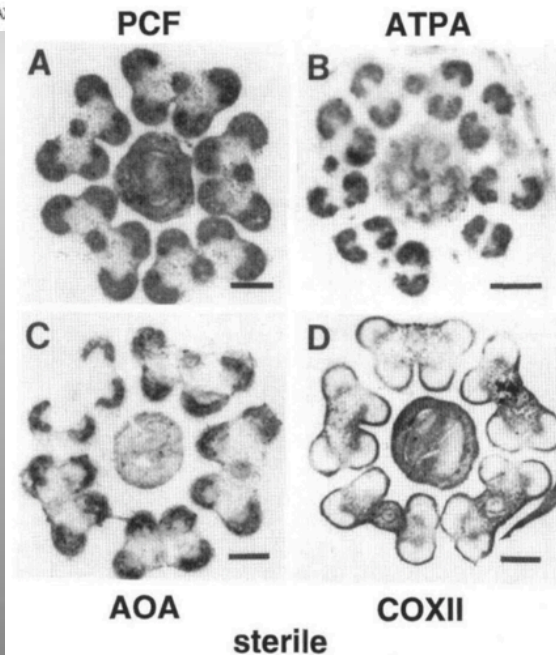
Catharine A. Conley, Mandayam V. Parthasarathy, Maureen R. Hanson

First published: 01 May 1994 |

<https://doi.org/10.1002/j.1537-2197.1994.tb15494.x> | Cited by: 5

✉ Author for correspondence (FA)

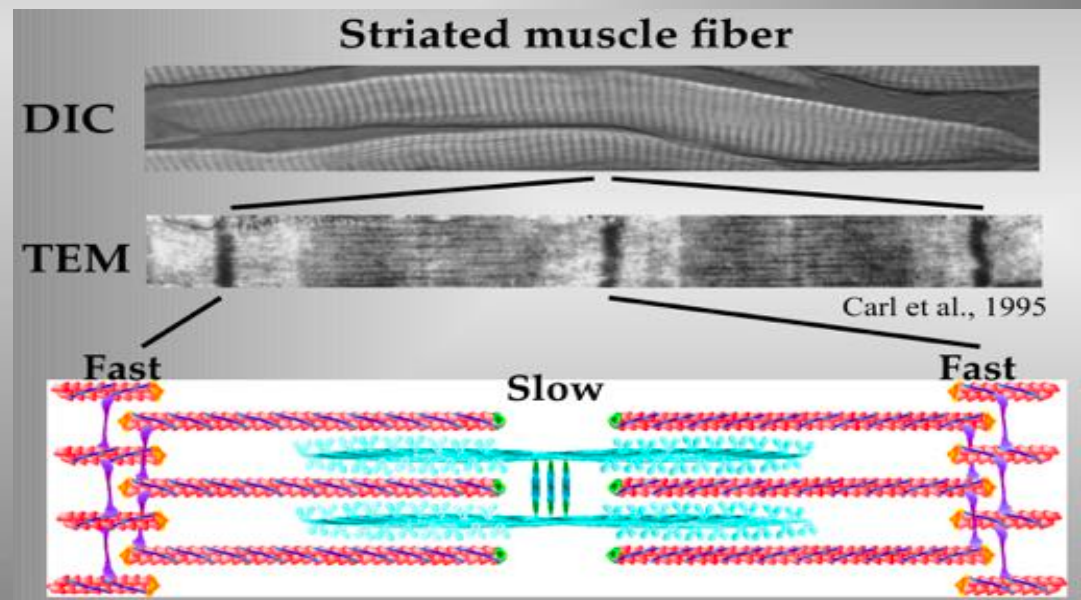
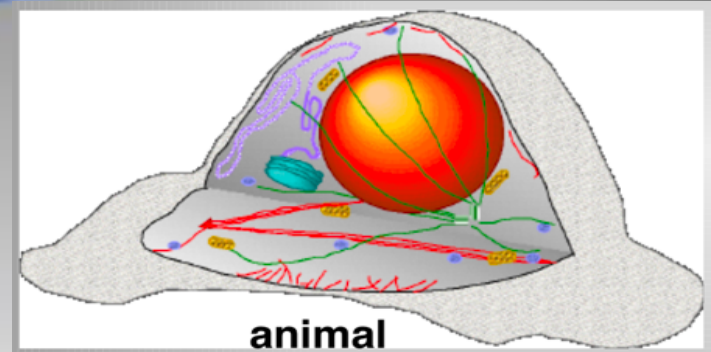
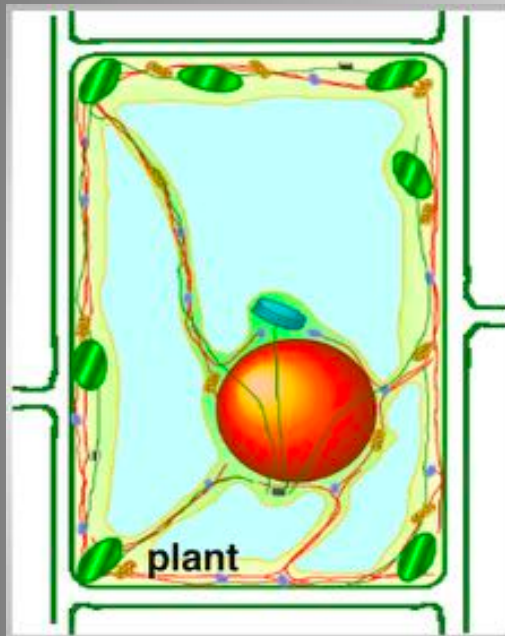
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Realizing I didn't know much about Earth organisms other than laboratory model systems, I took extra classes in taxonomy, and then did my graduate work on plants.

# More than once, sometimes...

Being interested in plant actin cytoskeleton,  
I took a postdoctoral position in a lab  
studying actin in animal muscles.



# Which led to a job at NASA...



On agar plates, the force of surface tension around the body of a worm is approximately  $10^6 \times G$



We use axenic liquid culture media:  
-- removes surface tension issues  
-- no sedimentation of nutrients  
-- large surface area for gas exchange



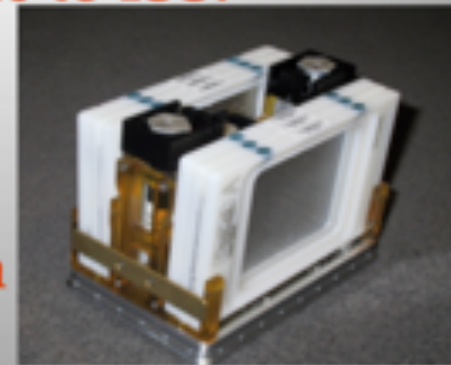
**STS-107:  
CeMM,  
reentry**



**ICE-first: many researchers  
in one  
flight:  
related  
results**



**STS-116 to ISS:  
E/PO,  
long  
term  
growth**



where I developed a culture system to study worm muscles in space.

# And another change in direction...

Astrobiology's Big Questions:  
What are the origins, distribution, and future  
of life in the universe?



It's trivial to find life, if we bring it with us...

to serve as  
NASA Planetary Protection Officer 007.



Larry Hall



Dick Young

Don DeVincenzi

John Rummel

Michael Mevri



Cassie Conley

Protecting the Universe from  
the Scum of Earth  
(and vice versa)



# Be Persistent

## Looking for Life on Earth

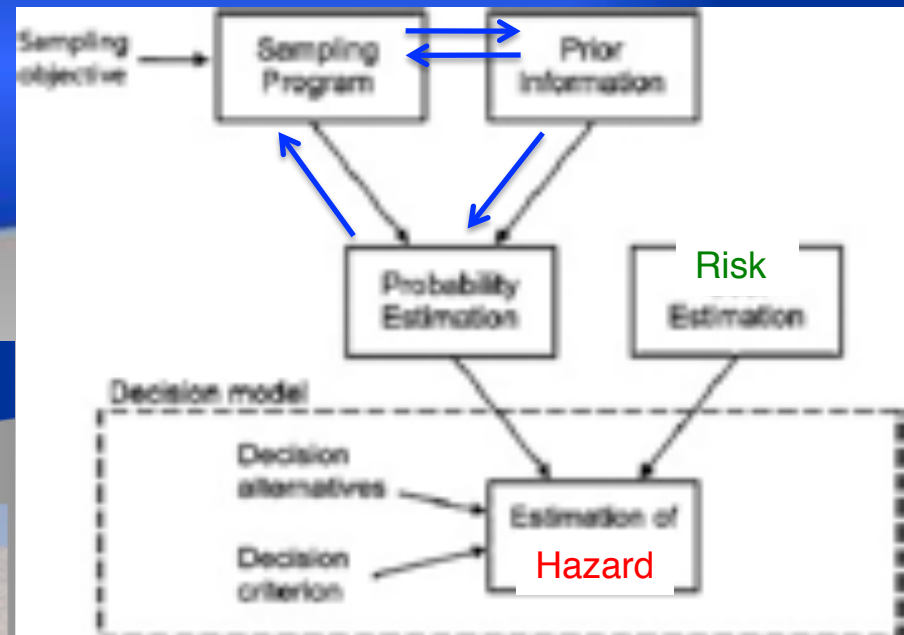
- Why the Atacama? a good test site for Martian instruments

- How did I get involved?

I was a roving test subject: Stanford CPODs



But I'm now back to my original interest: how to get a planet like Earth.





Pick it up!



Questions?