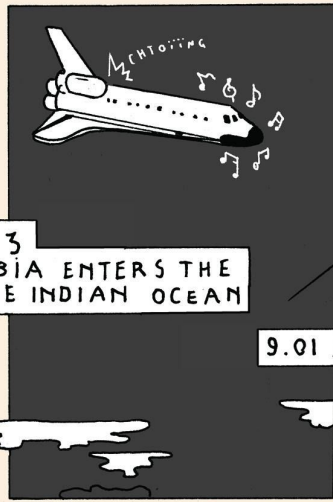
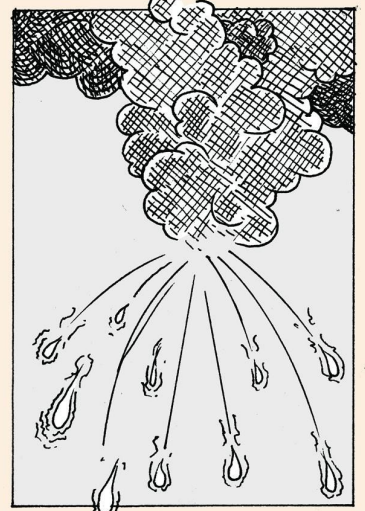
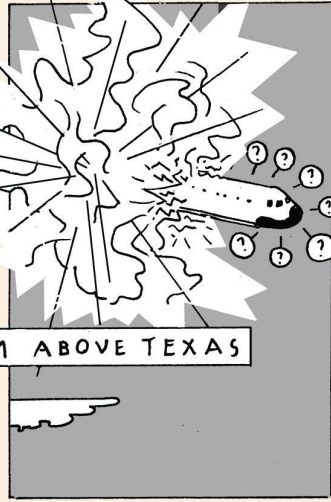




AT 8.14 AM  
ON FEBRUARY 1<sup>ST</sup> 2003  
SPACE SHUTTLE COLUMBIA ENTERS THE  
ATMOSPHERE ABOVE THE INDIAN OCEAN



9.01 AM ABOVE TEXAS



WHAT ARE YOU LOOKING  
FOR IN THIS MORBID MESS?



THIS! CAENORHABDITIS  
*elegans*



THE ONLY SURVIVOR  
OF THE CRASH

IT'LL  
BECOME  
A HERO!



NO. THE HEROES  
ARE THE  
\*  
ASTRONAUTS

# A TASTE OF LIGHT

HIGH-ENERGY  
LIGHT UNRESPONSIVE  
PROTEIN 1

BUT CAENORHABDITIS ELEGANS IS A HERO FOR OTHER REASONS, EVEN THOUGH IT'S ONLY 1MM LONG

IT RAPIDLY BECAME A MODEL ORGANISM FOR BIOLOGISTS

IT ONLY HAS ABOUT 1000 CELLS

IT IS STUDIED A LOT TO UNDERSTAND SENSOR Y TRANSDUCTION

i.e. THE PERCEPTION AND TRANSMISSION OF SIGNALS FROM OUTSIDE

YOU MADE THE RIGHT CHOICE, SYDNEY

WHAT PRESENCE!

WHAT CLASS

AND IT'S TRANS-PARENT PRACTICAL, NO?

I MUST ADMIT I'M SATISFIED

IN 1953

THE FIRST EUKARYOTE TO HAVE ITS GENOME ENTIRELY SEQUENCED

IT REPRODUCES EVERY THREE DAYS

LABS LOVE THAT

MOST ARE HERMAPHRODITES... THE OTHERS: MALE

CAENORHABDITIS ELEGANS

IT LOOKS LIKE A WORM, AND IT LIVES IN THE EARTH BUT IT'S NOT AN EARTHWORM

SURE

EARTHWORMS ARE VERY DIFFERENT AND MUCH BIGGER

I KNOW

I BREED THEM

WELL I PREFER CAENORHABDITIS ELEGANS!

THERE IS NO ACCOUNTING FOR TASTE

PFF

BUT THEY DO HAVE ONE PROBLEM...

COME ON, BRIAN, WE'RE LEAVING

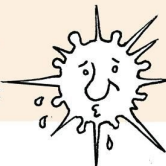
PFF

\* KALPANA, LAUREL, WILLIAM, ILAN, MICHAEL, DAVID, RICK

# ...THEY CAN'T STAND DAYLIGHT

MERRY ORGY UNDERGROUND...

A SOURCE OF



000

LIGHT APPROACHES...



DIVE!  
DIVE!  
DIVE!

LIGHT SEEMS TO MAKE THEM MOVE!

IN REALITY, THEY'RE RUNNING AWAY FROM UV RAYS, WHICH CAN KILL THEM

HOW DO YOUR CREATURES KNOW THERE'S LIGHT, WHEN THEY'RE BLIND AND LIVE UNDERGROUND?

THAT'S WHERE OUR PROTEIN, LITE-1, COMES IN. IT'S FOUND ON NEURONS INITIALLY USED FOR TASTE...

... BUT THEY'VE BEEN DIVERTED

TO SENSE UV RAYS

IT'S PHOTOTRANSDUCTION! AT ITS BEST, ONE OF THE MOST ELEGANT & POETIC PROCESSES IN BIOLOGY!

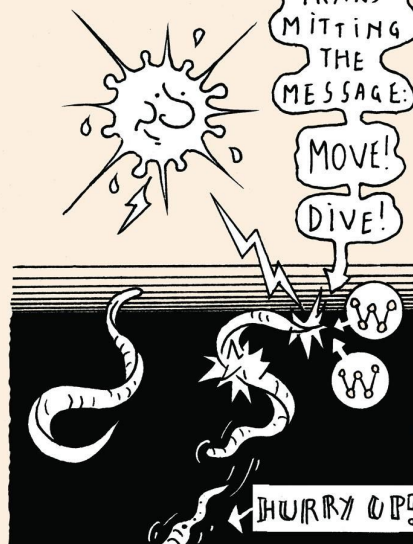
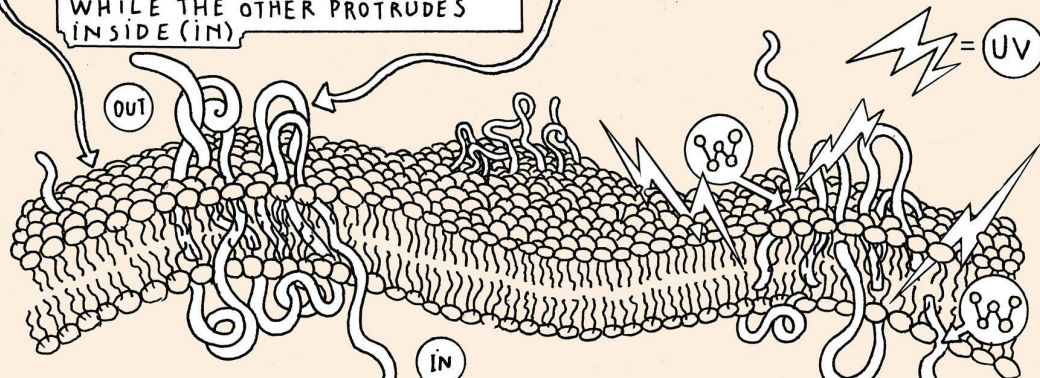


LITE 1 IS A PHOTORECEPTOR, AND LODGED IN THE NEURON'S CELL MEMBRANE

ONE OF ITS EXTREMITIES (OUT) PROTRUDES OUTSIDE OF THE CELL WHILE THE OTHER PROTRUDES INSIDE (IN)

WHEN UV RAYS PENETRATE THE FIRST LAYERS OF SOIL, TWO TRYPTOPHANS (889) IN LITE-1 CAN SENSE THEM: PHOTOTRANSDUCTION IS TRIGGERED OFF

AND CAUSES A CASCADE OF REACTIONS SENDING THE SIGNAL FURTHER DOWNSTREAM ULTIMATELY TRANSMITTING THE MESSAGE: MOVE! DIVE!



IN EACH LITE-1 PROTEIN, THERE ARE TWO TRYPTOPHANS ABLE TO BIND PHOTONS FROM UV RAYS

LITE-1 PROTEIN COULD BE USED TO PHOTOACTIVATE LIVE CELLS

TO STUDY SIMILAR SYNAPTIC SIGNALING PATHWAYS

MMMM?



AND WHAT IF WE ADDED A LITTLE TO SUN CREAMS?

TO ABSORB UVs?



COME ON CAENORHABDITIS ELEGANS, BACK TO YOUR CLOD!

