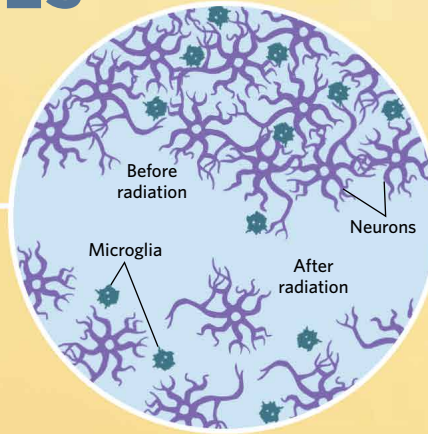


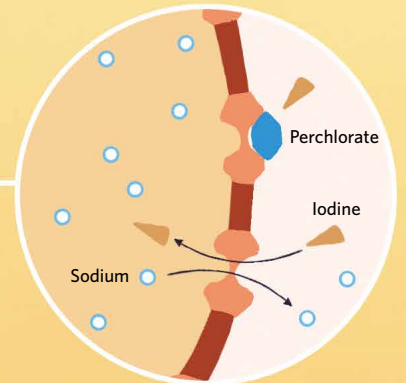
# MARTIAN MALADIES

Humans may have grand dreams of colonizing Mars, but before that happens, scientists and engineers will need to devise ways to protect travelers from the planet's hostile environment. Spacesuits can help protect against most environmental harms, such as frigid temperatures and low oxygen. However, high levels of space radiation, which is the biggest concern, will be the most difficult to avoid.



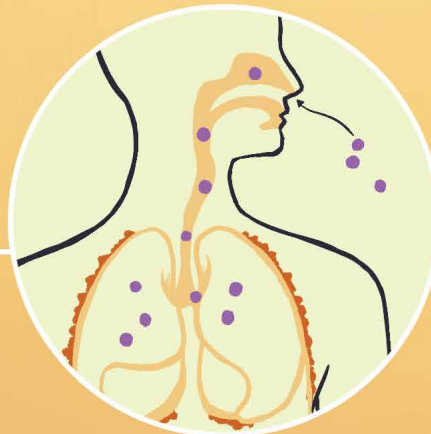
## BRAIN

Studies on rodents show that after exposure to cosmic radiation, the neurons in the brain suffer significant damage, primarily in the medial prefrontal cortex, a region involved in key cognitive functions, including decision-making and memory.



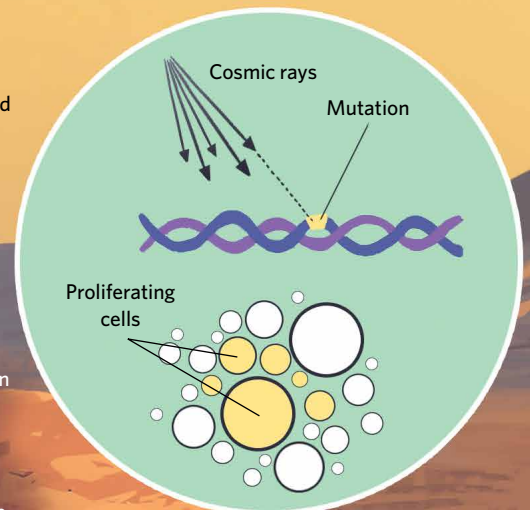
## THYROID

Perchlorates, a type of salt found in Martian dust, can impair thyroid gland functioning by inhibiting the uptake of iodine, a building block of hormones produced by the organ. If ingested, the salts block the activity of sodium iodide transporters on thyroid cells.



## LUNGS

Aside from the basic problems associated with breathing in fine-grained particles, Martian dust could contain chemicals hazardous to human health.



## CANCER

Extended exposure to cosmic rays can increase the chances of developing tumors by causing carcinogenic mutations and modifying the tissue microenvironment. Cancers that are already common, such as those of the lung, liver, and blood, would see the greatest uptick.