Damage Control

Cells are constantly under assault from toxic agents in the environment. Chair of Microbiology & Molecular Genetics Susan Wallace, Ph.D., has spent her career understanding how a cell can recover from 10,000 "hits" a day, and how that process sheds light on cancer care and other therapies.

by Edward Neuert | photography by Mario Morgado
Well, they gave that grant to me, and it's the work that did not have this enzyme. "When it is missing, years of work to determine what would happen to cells back in the primordial soup," says Wallace. She performed within the damage. Though her work involved studying this reaction known to be involved in the recognition of free radical caused by free radicals. She identified the first enzyme enzymes that could recognize and repair damage to DNA of cancerous tumors. Six to ten thousand of these types of damage take place in these molecules to combine and react with others, and unpaired electron circling their outer shell. This free electron provides a sort of handhold, an opportunity for these molecules to combine and react with others, and these reactions increase the possibilities of DNA damage. Six to ten thousand of these types of damage take place in each cell every day, and they must be repaired, or the cell could die. If this repair system did not exist, we humans would not be around to study it — mice who have had this cellular repair system removed cannot survive the embryo stage. Besides cellular death, damage can lead to mutation and unregulated cell division — the formation of cancerous tumors. Within cells, a wide variety of toxic agents cause these assaults. Ionizing radiation, several different chemicals, and the normal oxidative metabolism that has governed our cells since oxygen became a major component of our atmosphere eons ago all combine to produce a welter of our cells since oxygen became a major component of our atmosphere eons ago all combine to produce a welter of our cells since oxygen became a major component of our atmosphere eons ago all combine to produce a welter of our cells since oxygen became a major component of our atmosphere eons ago all combine to produce a welter of our cells since oxygen became a major component of our atmosphere eons ago all combine to produce a welter of our cells since oxygen became a major component of our atmosphere eons ago all combine to produce a welter of our cells since oxygen became a major component of our atmosphere eons ago all combine to produce a welter of our cells since oxygen became a major component of our atmosphere eons ago all combine to produce a welter of our cells since 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