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HERBCLIP

FILE: Plants & Cancer

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RE: **Plants' Protection Against Cancer**

Doonan, J. & Hunt, T. Why Don't Plants Get Cancer? *Nature*, Vol. 380, April 11 1996, pp. 481-482.

Plants are resistant to cancer. Chronic exposure to ionizing radiation in the form of ultraviolet light damages DNA in animal cells, which leads to the uncontrollable proliferation of cells (cancer). Plants are remarkably unharmed by exposure to high levels of ionizing radiation. Scientists have determined that increasing or decreasing the number of cells in a plant makes very little difference in plant health. This article looks at two studies that describe what happens when cell division is stimulated or impaired in plants.

In this study, researchers increased the number of cells in the roots of transgenic *Arabidopsis* plants by inserting extra copies of the gene encoding B-cyclin (a protein that helps alter cell division in plant and animal cells) into the genome of the plants. Even though the number of cells in the *Arabidopsis* roots was significantly increased and the roots were longer, the plants looked completely normal. The plants appeared to incorporate the extra cells into their body plans and continued functioning as usual.

Cell proliferation differs in plants and animals. In plants, cell identity is determined by the position of one cell in relation to its neighbor. In animals, cell lineage determines the identity of a cell. Cells produced in the root meristem (proliferative zone of a plant) become root cells.

In another study, when plants were altered to produce fewer cells (less than half the normal number), the size and growth rate of the plants remained almost the same. The size of the individual cells increased to compensate for the decreased number of cells. Scientists seek an understanding of the interplay between cell-cycle controls, growth, and development. This knowledge could one day be used to produce larger fruits and vegetables.

—Leela Devi, MSN, RN

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