

Radiosensitivity of Organs and Tissues

Active cell division High sensitivity

Hematopoietic system: Bone marrow and lymphatic tissues
(spleen, thymus gland, lymph node)

Reproductive system: Testis and ovary

Gastrointestinal system: Mucous membrane and small-intestinal
villus

Epidermis and eyes: Hair follicle, sweat gland, skin and lens

Other: Lung, kidney, liver and thyroid gland

Support system: Blood vessel, muscle and bone

Transmission system: nerve

No cell division Low sensitivity

Actively dividing cells that are less differentiated tend to show higher radiosensitivity. For example, hematopoietic stem cells in bone marrow are differentiated into various blood cells, while dividing actively. Immature (undifferentiated) hematopoietic cells that have divided (proliferated) from stem cells are highly sensitive to radiation and die due to a small amount of radiation more easily than differentiated cells.

As a result, the supply of blood cells is suspended and the number of various types of cells in blood decreases. In addition, the epithelium of the digestive tract is constantly metabolized and is also highly sensitive to radiation.

On the other hand, nerve tissues and muscle tissues, which no longer undergo cell division at the adult stage, are known to be resistant to radiation.

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