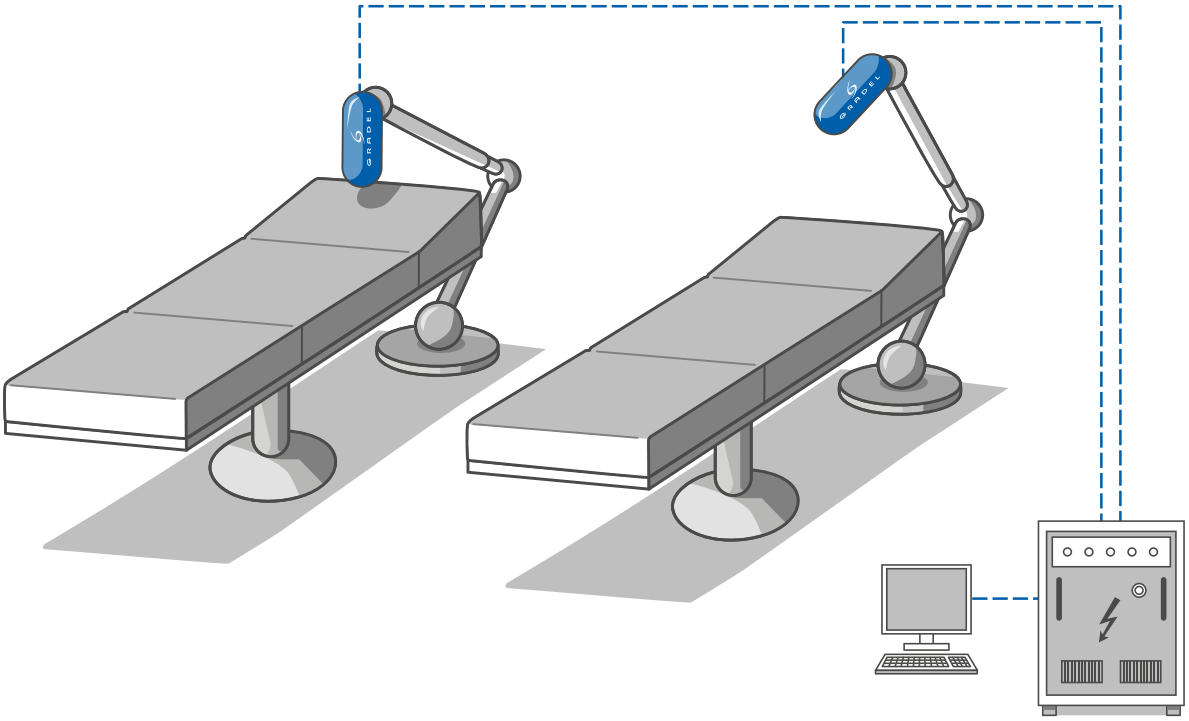

BNCT (The boron neutron-capture therapy)

Moreover, neutrons will find application in the medical field. The boron neutron-capture therapy is a potential future cancer treatment. Hence, boron compounds are introduced into the cancer cells and are irradiated with slow (thermal) neutrons. The reaction occurring thereby liberates fast helium and lithium ions, whose range and therefore destructive effect is similar to the expansion of a cell.

It is essential for this method to find non-toxic boron compounds which accumulate stronger in tumor tissue than in normal tissues accumulate in order to destroy those selectively by neutron irradiation. The special physiology of cancer cells plays a key role.

An attempt is made to bind amino acids to a boron cluster (carbaborane icosahedron). Healthy tissue could thereby be completely spared. Slow neutrons cause very little damage to tissues. With a suitable boron compound, which is hardly stored in healthy tissue, deep-seated tumors could be treated without surgery.

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