



**PTCS**

Proton Therapy Center Switzerland AG

## 8 Will the patient be radioactive after treatment?

Both with high energy X-rays and with protons, there is production of both neutrons and secondary radio nuclides within the patient's body. The proportion of the neutron dose is about 1'000 times less than the therapeutic dose. The neutron dose of a typical routine treatment anywhere in the world using intensity modulated X-ray therapy is comparable with the neutron dose for proton therapy carried out with the spot scanning method. Moreover, with proton radiation, short-lived radio nuclides are also produced in the patient's body. The most common radio nuclide produced by this process is C-11, which has a half-life of about 20 minutes. However, the dose additionally absorbed in the patient's body is negligible, as is the radiation dose released to relatives, because the activity of the radio nuclides produced is rather low and their half-life is in the range of minutes.