



Hokkaido University Hospital

---

# Proton Beam Therapy Center

---

PBT Center

<http://www.huhp.hokudai.ac.jp/proton/english/>

proton therapy Hokkaido University

Search

2019.09



# Proton Beam Therapy at Hokkaido University Hospital

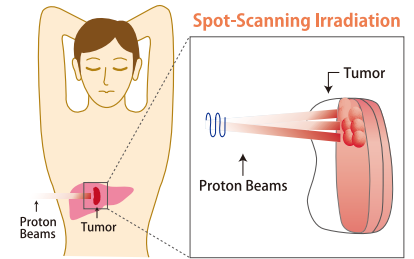
~Highly accurate proton irradiation of tumors subject to respiratory motion~

The proton beam therapy that will be available at the center is groundbreaking therapy that irradiates proton beams accurately onto tumors moving due to respiration.

## Spot-scanning Irradiation Technique

Proton beam therapy offered at the center incorporates a so-called Spot-scanning Irradiation Technique.

This enables rapid adjustments of the point of irradiation of tumors with the narrow pinpointing proton beam, and makes it possible to treat tumors with complicated shapes.



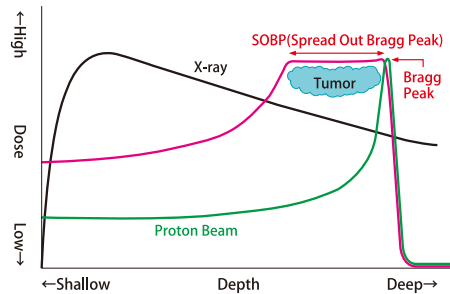
## Real-time-image gated, intensity modulated, real-time adaptive technology

The proton beam therapy in our center has achieved the world-leading precision especially for the tumors in moving organs by combining the state-of-art technology such as spot-scanning and intensity modulation with the real-time tumor tracking and cone-beam CT technology which we have developed in photon radiotherapy. Now we can use it for real-time adaptive proton therapy in which we can adapt for the change in the position, size, and shape of the tumor in each patient.



## Features of the proton beams

The X-rays currently used in radiation therapy have the property of transmission through the body. Due to this it is impossible not to irradiate the normal tissue behind the tumor. Proton beams display a feature known as a "Bragg Peak", where the main portion of the contained energy is released at the limit of the irradiation depth. Due to this feature proton beams release the main dose of energy close to the target, here the cancer tumors, and the surrounding normal tissue is not affected. This remarkable feature of proton beams makes them attractive for use in therapy.



## Information about the Proton Beam Therapy Center

The proton beam therapy features an exterior that melds into the appearance of existing hospital buildings. The interior was designed to create a comforting and warm atmosphere for patients by extensive use of wood.

### Details of the Facility

**Facility** Reception (2nd floor), Consultation rooms (1st floor, 2 rooms), Treatment Room (1st floor, 1 room)

**Structure** Reinforced concrete, 4 stories

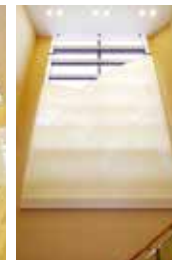
**Completion of the building** March, 2014



Interior of the treatment room



Staircase



A tapestry of hand-made Japanese paper decorates the staircase landings. A world-renowned Washi (traditional Japanese paper) artist, Eriko Horiki, has created this artistic feature employing circles as the motif, inspired by the facility.

Exterior view

