Current Status of Proton Beams Therapy in Japan #2

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Company Profile

Niihama Factory
- Industry Equipment Division -

HQ: 1-1, Osaki 2-chome, Shinagawa-ku, Tokyo, Japan (ThinkPark Tower)
Founded: Nov.20, 1888
Incorporated: Nov.1, 1934
Capital: JPY30,871M
No. of Employee: 18,139
Group: Sumitomo Corp.
  Sumitomo Mitsui Banking Corp.
  Sumitomo Chemicals
  NEC Corp.
  Asahi Breweries
What is Positron Emission Tomography (PET)?

**<Principle>**
- Positron Nuclide: $^{18}$F, $^{11}$C, $^{15}$O, $^{13}$N
- PET Scanner
- Positron (+) $\gamma$ ray $\rightarrow$ Electron (-) $\gamma$ ray
- $\gamma$ ray

**Suspected**
- Lung cancer
- Benign

**After treatment/esophageal cancer**
- Metastasis
- Lung cancer
- Malignant lymphoma
Features of Proton Therapy

Cancer therapeutic methods

1. Surgery
2. Chemotherapy
3. Radiotherapy

Features of Radiotherapy
1) Good clinical result
2) High QOL after treatment
3) Applicable for many tumors

Electromagnetic Beam
- X-ray
- γ-ray

Particle Beam
- Proton
- Carbon

Features
- Stop at a certain depth (no damage to vital organ)
- Less damage at the surface
- Concentrate energy on tumor site

Dose distribution by X-ray therapy
Dose distribution by Proton therapy
Cyclotron-based BNCT System

30 MeV Cyclotron  Target Station  Patient Positioning

1. Kyoto University Reactor Institute (KUR)
   2012 ~ Clinical Trial started

2. Southern Tohoku Hospital
   2015 ~ Clinical Trial will start

Reference in Japan

Sumitomo
СПАСИБО!