Proton therapy is used today to treat many cancers and is particularly appropriate in situations where treatment options are limited and conventional radiotherapy presents an unacceptable risk to the patient.

These situations include eye or brain cancers, tumors close to the brain stem or spinal cord, prostate cancers, and pediatric cancers.
ON COURSE TO EXCELLENCE

Proteus PLUS is a unique proton therapy solution for leading cancer centers striving to meet the treatment needs of a large and growing patient base, while further advancing your clinical reputation in cancer care, regionally and nationally. Its cutting-edge features can be configured into a tailored solution to meet your research, clinical and business objectives.

Proteus PLUS is inspired by clinical excellence with an extensive attention to patient experience. Its versatility powers your institution to rise to the challenges of treating a broad array of complex cancer conditions and to expand your research potential to advance cancer care.

Concretely, Proteus PLUS arms your team with the latest advances in precise, image-guided and intensity-modulated proton beam delivery. It enables them to offer new treatment options to patients and investigate new protocols and retreatment opportunities.

From an administration perspective, its optimized workflow will allow you to maximize the use of the system to offer proton therapy to the largest number of patients possible, while its upgradability will ensure you stay on the leading edge. Proteus PLUS is the perfect solution to differentiate your institution and sharpen its competitive edge.

Proteus PLUS is a made-to-measure platform to forge the future of radiation therapy. It will put your institution on course to excellence in cancer treatment.
As your practice drives our designs, Proteus PLUS technologies and features focus on helping clinical teams to deliver the most effective treatment. To do so, Proteus PLUS incorporates IBA’s latest innovations that bridge the gap with imaging and offer Image-Guided Proton Therapy (IGPT) capabilities.

Our various targeting strategies allow customers to provide the most appropriate and most diversified methods for cancer treatment in order to achieve optimal clinical results. Proteus PLUS integrates Intensity Modulated Proton Therapy (IMPT), which will enhance your capacity to treat complex tumours - and/or Double Scattering, which offer advantages to manage motion for moving tumours.

This solution offers a unique patient-centric workflow that is the fruit of years of experience with clinical teams and patients. Beside innovation, passion and determination to challenge the traditional ways of doing things and enhance cancer care is what sets IBA apart.
Over 30,000 patients have already been treated with Proteus PLUS, the IBA tailor-made proton therapy solution. 30 years of collaboration with physicians, nurses and physicists have guided us to design the most advanced and compassionate form of treatment available for localized cancer care.
ProteusPLUS is inspired by clinical excellence. Its versatility powers your institution to rise to the challenges of treating ever more complex cancer conditions while giving your patients new treatment options. ProteusPLUS cutting-edge features, open architecture and research collaboration programs make it the perfect platform to fuel your research capabilities and power innovation.

ProteusPLUS is a made-to-measure platform to invent the future of radiation therapy.
The Proteus PLUS developed by IBA is the only proton therapy system available that gives you the opportunity to select the most appropriate configuration to meet your patients’ needs and your institution’s goals. The wide clinical and technological flexibility offered by Proteus PLUS increases the variety of treatment applications, ensuring long term clinical and commercial success.
Every human being is different, every hospital is unique. Everyone has the right to be treated individually.

Physicians need flexibility when it comes to cancer treatment to meet their clinical goals. Administrators need optimization to meet commercial constraints.

Why compromise? Configure ProteusPLUS to meet the specific needs of your patients and of your institution.

VERSATILE CONFIGURATIONS
The ProteusPLUS offers the possibility to configure your center in accordance with your needs, allowing you to choose from — 2 different beam delivery modes — 3 types of treatment rooms — solutions for accurate patient positioning.

IBA ProteusPLUS relies on a cyclotron to generate the high-energy proton beam which is then allocated to the treatment rooms, thanks to the Energy Selection & Beam Transport Systems.

OPTIMIZED INTEGRATION
On top of the technological versatility and clinical know-how, IBA will design a center for you that is fully integrated and offers an optimized patient flow. IBA unmatched experience in designing, installing and operating proton therapy centers for renowned clinical institutions worldwide has allowed our teams of experts to gain a deep know-how to cleverly integrate the different parts (imaging, software, patient positioning devices, building ...) of an efficient clinical center.
The ProteusPLUS environment is designed to be patient- and staff-friendly and to support clinical procedures, helping to optimize patient flow and throughput.

The IBA Proton Therapy System is currently the only commercially available proton therapy system that has obtained clearance on three continents, thereby assuring quality and safety.
To be able to meet clinical challenges raised by the complexity of cancer treatment, IBA has chosen to propose to its customers 2 different nozzles enabling a variety of treatment modalities.

1. PBS DEDICATED NOZZLE
The PBS Dedicated Nozzle allows the user to deliver the Pencil Beam Scanning (PBS) mode.

Thanks to the PBS Dedicated Nozzle, the system is able to provide:
— large field size and sub-millimetric precision;
— the best 3D conformation of the dose;
— multiple fast repainting.

2. UNIVERSAL NOZZLE. THE “ALL-IN-ONE” BEAM DELIVERY SYSTEM
To help ensure optimal treatment for each patient, the ProteusPLUS proposes a unique feature: an all-in-one integrated system, the Universal Nozzle. The Universal Nozzle enables physicians to use one of the two beam modes, depending on the cases they face, in an automated way.

The key advantages of the IBA Universal Nozzle are:
— diversity in treatment modalities;
— compactness;
— ease of use (Automated mode switching);
— flexibility in patient scheduling.
2 TREATMENT MODES TO MEET THE UNIQUENESS OF EACH CLINICAL CASE

Experience has shown that every treatment mode offers specific advantages. Hence having the ability to propose different treatment modalities is a real clinical advantage to the benefit of your patients.

— **Double Scattering** delivers a uniform dose in large fields. It is a simple, polyvalent treatment mode. It is adapted to treat moving tumors, amongst others.

— **Pencil Beam Scanning.** In PBS, the beam is steered across the target volume, one layer at a time, to precisely match the shape of the target. This active scanning technique allows physicians to modulate or change the intensity of the beam at any specific location in the target. PBS is easy to operate and does not require the use of patient specific devices. PBS enables Intensity Modulated Proton Therapy (IMPT) giving the ability to precisely target the tumor by **controlling the intensity and spatial distribution of the dose to the millimeter.**

**PATIENT POSITIONING**

Each treatment room includes a patient positioning system. This robot is capable of moving the patient so that the target is placed in the precise treatment position.

IBA’s **Robotic Patient Positioning System (RPPS)** offers:

— patient positioner with 6 degrees of freedom;
— high positioning accuracy and reproducibility;
— increased smoothness and reliability.

**PATIENT ALIGNMENT METHODS**

The IBA basic configuration in all room types includes **lasers** that allow approximate alignment of the patient. The therapist positions the patient using the visual indications of the laser lines on the patient’s skin.

In the Universal Nozzle, a **light field** is installed to project a bright “shadow” of the aperture onto the patient, exactly at the location where the proton beam will be targeted. This allows the therapist to visually check the position of the proton field on the patient’s skin.
VARIOUS TREATMENT ROOM CONFIGURATIONS FOR NUMEROUS CLINICAL CONDITIONS

1. IBA FULL GANTRY ROOM
By adopting the IBA Full Gantry Room, you ensure that the target is reached with the highest accuracy in any location of the body. Advantages of the IBA Full Gantry Room include:
— flexibility: 360° of gantry room rotation around the patient;
— speed: maximum of 1 minute for a complete rotation;
— precision: sub-millimetric accuracy of the targeted position at all times;
— ability to treat large field sizes in one field (30*40cm) in PBS modes;
— safety and comfort of the patient and staff: gantry rolling floor.

2. FIXED-BEAM TREATMENT ROOM
The FBTR offers 1 treatment angle appropriate for, amongst others, intracranial, head and neck, and prostate treatments, or for proton beam research. The advantages are a shorter installation time and lower costs.

3. RESEARCH AREA
A research area allows your institution to focus on academic research with future technologies, enabling you to continuously explore the leading edge of cancer treatment. IBA can equip your facility with the necessary equipment and beam line for your research needs.

The proton beam is delivered to the patient in the treatment room. For optimal results, it is essential that the patient is properly positioned, to the nearest millimeter, in order to avoid radiation outside the tumor. IBA has developed treatment rooms designed to ensure that the beam reaches the tumor as accurately as possible.
TURNING HEALTHCARE INTO HUMAN CARE

While focusing on clinical efficiency and interoperability, ProteusPLUS also incorporates environmental features to help keep patients relaxed and comfortable during imaging and treatment.

Based on insights from proton patients, healthcare staff and experts, Philips Healthcare and IBA integrated a solution that improves the overall patient and staff experience; turning a cold, impersonal environment into one that comforts and reassures.

BENEFITS OF AMBIENT EXPERIENCE

— For the patients and families:
  • Reduced anxiety and increased comfort.
  • Higher patient satisfaction.

— For the staff:
  • Increased working comfort.
  • Better patient interaction.
  • Higher job effectiveness with improved staff experience and satisfaction.

— For the hospital management:
  • Improved workflow and throughput.
  • Improved patient satisfaction leading to word-of-mouth endorsement.
  • Attracting and retaining highly trained clinical staff and reducing overhead costs.

AMBIENT EXPERIENCE IN FIGURES*

— 76% increase in staff satisfaction
— 4% overall decrease in procedure duration
— 6% overall patient increase

*Philips installed base survey “What do our customers say”, 100 customers interviewed, 27 countries (excl.NA) in September 2011.
TOWARDS ADAPTIVE IMAGE GUIDED PROTON THERAPY

IBA’s ProteusPLUS incorporates the latest imaging technologies so clinicians can deliver Image-Guided Proton Therapy (IGPT) to cancer patients. IGPT relies on high-resolution and high-sensitivity X-Ray digital imaging systems that provide low-dose stereoscopic and 3D imaging in various geometrical arrangements.

The advanced imaging technologies integrated in ProteusPLUS ensure quick and accurate patient position verification by comparison with diagnostic CT imaged during the treatment planning process.

IBA presents its integrated proton therapy software suite, adapt Treatment Suite. This modular software platform is proposing a truly integrated treatment environment for safe and efficient proton therapy delivery.

adapt prescribe allows editing of treatment plans and prescriptions for standalone or QA modes.

adapt insight is the IBA imaging platform. It incorporates image-guidance features such as 3D CBCT and stereoscopic X-Ray imaging for highly accurate patient treatment, as well as tight integration with adapt deliver. An open architecture and programmable workflow configurability builds a solid foundation for the development of future proton specific image-guided solutions.

adapt deliver is the front-end of the treatment delivery. It incorporates the different delivery techniques, such as Pencil Beam Scanning, and it offers ergonomic screens for streamlined control of the patient treatment, along with full integration of the TPS and OIS through DICOM connectivity.
2.5D ORTHOGONAL X-RAY
True Orthogonal with Beam-Eye view stereoscopic X-Ray imaging allow accurate patient position verification and monitoring.

3D CONE-BEAM CT IMAGE-GUIDED PROTON THERAPY (IGPT)
3D volumetric X-Ray imaging, Cone-Beam Computed Tomography (CBCT), can be directly acquired in the treatment room at isocenter. It can then be compared with treatment planning CT for patient position verification and anatomical modification assessment.

Advanced acquisition software, shading correction, accelerated inline and offline image reconstruction algorithms support high-speed, high-resolution, uniform and low-dose CBCT.

CBCT offers excellent soft-tissue contrast, providing much more information than a conventional stereoscopic alignment system, and allowing more accurate patient treatment through anatomical modification assessment, the first step towards adaptive radiation therapy.

With the advanced imaging technologies built into ProteusPLUS, clinical users can now apply similar advanced positioning and Quality Assurance protocols as those used in their Image-Guided Radiation Therapy (IGRT) practice.

IBA’s ProteusPLUS brings the advantages of:
— Acquiring CBCT image in room and at isocenter.
— Enabling the detection of anatomic modifications within the patient along the radiological path.
TUNING THE BEAM FOR CLINICAL FLEXIBILITY AND OPTIMIZED THROUGHPUT

The ProteusPLUS proton beam is generated by a cyclotron and is transported by the beam transport system to the different facility treatment rooms. With over 400 accelerator systems installed worldwide, you can certainly rely on IBA and its commitment to perfecting cyclotron technology, design and operation.

1. ISOCRONOUS CYCLOTRON
   Thanks to a small footprint (33% less than a synchrotron solution) and an extraordinary uptime, the IBA isochronous cyclotron-based solution offers clinical and financial advantages. It is today the simplest and most effective way to produce 230 MeV protons. It offers two key advantages:
   — **Beam accuracy**: the smooth and continuous beam enables fast and accurate beam regulation;
   — **Simplicity and maintainability**: the cyclotron yoke splits at the median plane for easy access to all components, making it easy to maintain and operate.

2. ENERGY SELECTION SYSTEM & BEAM TRANSPORT SYSTEM
   The IBA Energy Selection System (ESS) offers you the exact energy you need, from 70 MeV to 230 MeV, tuned perfectly in less than a second, enabling a large range for the treatment of deep-seated tumors.

   The precision of the IBA selection systems allows for an optimized distal fall-off, thus sparing more healthy tissues.
OPERATION AND MAINTENANCE SERVICES IN A NUTSHELL

With more than 70 service professionals across three continents, you can have access to our qualified field support team at any time, day and night. In addition to personalized support, other key services are provided:

— 24/7 remote support service, online or over the phone, is an important component to keep your equipment’s high uptime.
— A team of IBA trained specialists will operate the system onsite to ensure the highest level of availability for clinical treatment.
— In case of emergency, we can deliver spare parts the same day via our extensive spare parts worldwide network with hubs in America, Asia and Europe.
— Because technology changes quickly, IBA develops both update and upgrade packages tailored to your center’s configuration and training programs to increase your team’s efficiency.

NEW SERVICE FEATURES INCLUDE:
— Remote Service Connections to proton therapy accelerator systems;

STAY FOCUSED ON PATIENT CARE, WE CAN RUN THE SYSTEM FOR YOU

Our experience with more than half of the clinical proton therapy centers worldwide has led us to understand the worries and clinical complexities that arise when treating cancer. Our commitment is to ensure your clinical success by providing reliable tools with the highest availability possible (over 96% uptime). This will enable your institution to become a reference cancer center using the latest radiotherapy modality, proton therapy.

To date, being part of the IBA proton therapy client network and benefiting from our service organization experience has helped centers around the world to successfully deliver more than 300,000 fractions to cancer patients.

Your team will be able to focus on the clinical aspects of cancer care while the IBA team takes care of ensuring that your proton therapy system runs at top performance and meets the highest safety and reliability standards.

LEADING INSTITUTIONS HAVE ALREADY CHOSEN IBA. JOIN THEM TO DEVELOP THE FUTURE OF CANCER CARE TOGETHER

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LEADING INSTITUTIONS HAVE ALREADY CHOSEN IBA. JOIN THEM TO DEVELOP THE FUTURE OF CANCER CARE TOGETHER
With more than 30 years of experience, IBA has designed and equipped the majority of clinically operating proton therapy centers around the world and helped to treat over 30,000 patients.
To meet the needs for qualified clinical staff of the fast-developing proton therapy modality, Penn Medicine’s Roberts Proton Therapy Center, OncoLink and IBA have developed an exclusive training offer to share the experience and know-how gained over years of proton therapy treatment. Specific education and hands-on training sessions have been designed to put your staff at ease when using your system. Your team being prepared and educated will be able to perform their mission from day one: Looking after patients and carrying out safe and effective treatments.

**PROTON THERAPY CLINICAL EDUCATION PROGRAM OVERVIEW**

The Proton Therapy Clinical Education program encompasses both experience and expertise of the three partners, which are leaders in their respective fields. Penn Medicine’s Roberts Proton Therapy Center shares its deep clinical understanding and longstanding hands-on experience in proton therapy. IBA brings in its unrivalled experience and knowledge in proton therapy technology. Finally, the program benefits from OncoLink’s online platform and learning capabilities to deliver in-depth education online.

**A dedicated program for each specialty**

On top of a common-core module addressing the basics of proton therapy, the Proton Therapy Clinical Education program proposes specialized modules with proton specific education targeted
The education program covers the necessary concepts and topics for the different members of a proton therapy practice team. It is developed to meet the needs of each specialty. They include, among others:

- **Proton therapy** in general: physics and clinical perspectives;
- **Clinical indications** for adult and pediatric cases (Prostate, Lung, GI, Liver, CNS, Sarcoma, Head and neck, CNS, Neuroblastoma, Sarcoma, etc);
- **Treatment volumes and treatment planning** in proton therapy;
- **Delivery modes and techniques**: Double Scattering, Uniform Scanning, Pencil Beam Scanning;
- **Treatment delivery workflow**: Immobilization, Positioning, Simulation, and Verification;
- **Imaging for proton therapy**: Patient Alignment and Verification;
- **Use of the IBA Proteus System** (incl. software);
- **Proton Beam delivery and measurement Methods**;
- **Quality Assurance Program** for proton therapy with Scattered and Scanned Beams (incl. Importance of Proton Range and Range uncertainty);
- **General Patient Management** (Symptoms and site specific).

for each specialist active in your clinical team:
- physicians,
- medical physicists,
- dosimetrists,
- radiation therapists,
- nurses.

The overall training is composed of e-learning sections followed by an **internship at Penn Medicine’s Roberts Proton Therapy Center** to gain hands-on experience with international clinical experts. Participants first have access to online educational material. This material mainly consists of recorded lectures given by Penn Medicine’s Roberts Proton Therapy Center specialists, each covering specific topics. Each participant will have to complete the module and take an online examination to receive a certificate of completion. Once this is achieved, participants will be hosted for the internship where they will be given the chance to observe experienced users. In short, your team can be trained at one of the most state-of-the-art proton therapy with leading experts in the field.
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**ProteusPLUS** is the brand name of the Proteus 235 FDA cleared and CE marked product. Empath is a registered trademark of IBA Particle Therapy.

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REALIZING THE PROMISE OF PROTON THERAPY

We brought proton therapy to clinical cancer care.

Ever since we started more than 30 years ago, our collaborations, our visionary roadmap and progressively unrivalled experience have led us to innovate. Care givers now benefit from leading, side-effect-minimizing, cost-effective proton therapy technologies.

Today, our complete range of Image-Guided IMPT solutions can easily be integrated in most healthcare settings to make it available to all patients who need it. Backed by IBA’s unique service offer (financing, workflow optimization, education), our solutions range from the single-room ProteusONE to the tailor-made ProteusPLUS. These are supported by robust processes (installation, operations and upgrades) and are developed in collaboration with our endusers.

Tomorrow, our unique and open culture of sharing will further strengthen clinical and patient communities that we have always cared for. As we work collectively we make proton therapy available to anyone who needs it.

We’re simply offering more cancer patients better quality of life.

Request more information: pplus@iba-group.com

VISIT US ONLINE AT:
www.iba-protontherapy.com