

The Iba logo is located in the top left corner, featuring the letters 'Iba' in a white, cursive font on a green rectangular background.

Iba

iba-worldwide.com

A close-up portrait of a woman's face, showing her eyes, nose, and lips. She has a neutral expression and is looking directly at the camera. The lighting is soft and even, highlighting the texture of her skin.

**PROTECT, ENHANCE  
AND SAVE LIVES**

# IBA

## World leader

We are world leaders in the design, production and marketing of innovative solutions for the diagnosis and treatment of cancer and other serious illnesses, and for industrial applications such as sterilization of medical devices.

Around the world, thousands of hospitals use particle accelerators and dosimetry equipment designed, produced, maintained and upgraded by IBA, as part of our mission to protect, enhance and save lives.

Through our four core activities: Industrial Solutions, RadioPharma Solutions, Proton Therapy and Dosimetry, we offer health care professionals the solutions that allow them to take a fully integrated approach to their patient care.

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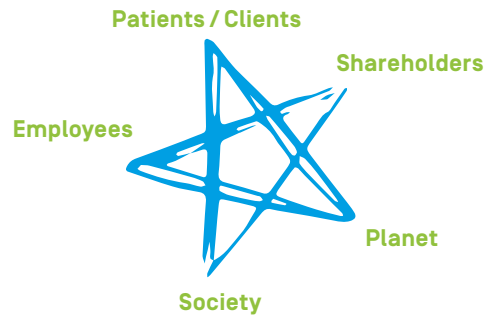
**A committed company | 32 |**

## How do we work?

At IBA, we believe that companies can be one of the most powerful levers for positive action on the planet, but they are also potentially one of the most important sources of negative impact. At best, companies encourage collaboration, innovation and progress, thereby delivering solutions that meet societal needs in a sustainable way from an economic, social and environmental point of view. At worst, businesses can cause considerable social and environmental damage.

We believe that the world must evolve towards a model that creates shared and sustainable value for all stakeholders. Since its creation, IBA has always put the purpose of the company and its project at the heart of its activities, as expressed in our mission to "Protect, Enhance and Save Lives". As such, we consider the impact of our daily policies and practices on our employees, customers, suppliers, shareholders, the community at large and the environment. In doing so, we want to drive society in a more inclusive and sustainable direction.

As a company, we are focused on striking the right balance between our stakeholders: increasing our market share and the return for our shareholders, improving the quality of life of our customers, patients and employees, and contributing to the well-being of our society, while also maintaining and restoring our planet's health.



## Why do we do that?

### TO PROTECT, ENHANCE AND SAVE LIVES

For over thirty years, our particle physics-based technology has contributed to treating those in our society who are ill. This desire is reflected in our mission to protect, enhance and save lives.

All our activities are targeted towards the same objective of making a positive impact on patient health by providing health care professionals with the most effective and accurate solutions for diagnosis and treatment. This goal is implemented in different ways that benefit each of the various stakeholders involved.

### A FLEXIBLE AND RESILIENT BUSINESS MODEL

In today's global and increasingly volatile economy, we have demonstrated flexibility, adaptability and resilience.

These are fundamental to the continued success of our business activities.

Consistent with emerging technologies, such as proton therapy, the pace of growth can vary from year to year. We were able to offset this variability over the past year by delivering an improved performance in all business units, where each saw strong order intake.

We continue to focus on quality and innovation and thanks to excellent sales in our businesses (Proton Therapy, Dosimetry, Industrial Solutions and RadioPharma Solutions) we are managing an increasingly larger installed base and are thereby working more on service and upgrades.



#### Our customers and their patients:

we develop the most effective technology for our customers so they can provide the best available diagnosis and treatment for their patients.



#### Our employees:

we offer them quality jobs in a stimulating, friendly environment guided by ethical values.



#### Our society:

we promote a sustainable entrepreneurial business model that serves society while respecting the limits of our planet.



#### Our planet:

we continually work to reduce the environmental impact of our operations.



#### Our shareholders:

we show that we are worthy of their trust by being a sound financial investment and acting in accordance with our values.



# OUR VALUES



## CARE

We care about the well-being of our clients and patients, our employees, our society, our planet and our shareholders.

## DARE

Creativity, innovation and passion are mandatory for a company that continually stretches the frontiers of technology. Day after day, we dare to create better results.



## SHARE

We share our ideas and expertise with our stakeholders to create better results.

## BE FAIR

We implement our mission to protect, enhance and save lives with ethical standards and transparency to remain worthy of our stakeholders' trust.



# IBA IN 2019

## at a glance

**100 000**

patients treated on  
IBA PT equipment

**580+**

accelerators  
sold

**5**

continents

**4**

business  
activities

**10%**

of turnover invested  
in R&D

**40**

countries

**1 466**

employees

**58**

PT centers  
sold

**52**

Service  
contracts

**+10%**

revenues in 2019

**Score C**

Awarded score C  
in the CDP project

**56**

nationalities

**26%**

women

**40%**

proton therapy  
market share

**|| IBA is an exciting and growing company with one core objective: using particle accelerator technology to benefit society. In conjunction with our customers and partners, our employees are driven and motivated by the Company's mission to protect, enhance and save the lives of more patients every day. ||**

**Olivier Legrain**  
Chief Executive Officer



# MESSAGE

## from Olivier Legrain

At IBA's core is our deep, world-leading expertise in particle acceleration. This unrivalled understanding, combined with more than 30 years of experience, has seen IBA build four robust business lines: Proton Therapy, Dosimetry, Radiopharma and Industrial Solutions. We have begun 2020 with a streamlined focus based around three core drivers: know-how, execution and innovation.

### **Know-how**

IBA's unparalleled expertise in particle acceleration is at the center of everything we do. With 550 accelerators in operation for the sterilization of medical devices, the production of radiopharmaceuticals and the treatment of almost 100,000 proton therapy patients worldwide, IBA holds a leading advantage in the application of particle accelerator technology, while maintaining a profitable business model. This will be a significant driver of our future success as we continue to leverage this knowledge to provide the most attractive offering in all IBA's business lines.

### **Execution**

IBA consistently delivers the fastest installation of our solutions on the market, a feature which continues to improve, delivering further efficiency for the business. In 2019 we completed the installation of eight proton therapy systems to reach a total of 37 operating sites, further advancing IBA's mission to treat more patients with its solutions. In addition, 14 machines were delivered to RadioPharma and Industrial customers, further increasing IBA's global presence. Several dozen upgrades have also been made alongside this.

IBA's continued focus on seamless and faster execution without compromising quality will continue to be a core driver for success in the tendering process, whilst helping to drive improvement of the Company's margins.

### **Innovation**

To continue to execute and lead the markets in which IBA operates, the Company constantly innovates to stay ahead. IBA currently employs 200 engineers and experts in R&D, working to increase the affordability, proven clinical benefits and ease of use for our customers. IBA also holds more than

500 patents, close to half of which protect the IP of IBA Proton Therapy technology.

The technological roadmap of IBA Proton Therapy is focused on three areas: Motion Management for treatment of moving targets, ARC therapy and FLASH irradiation, and we continue to invest in these innovative new technologies to drive the future growth of the business.

For IBA Industrial Solutions and IBA RadioPharma Solutions, IBA is developing a new accelerator, the Rhodotron® TT300-HE, to produce radioisotopes such as molybdenum-99 and its decay product technetium-99 that are widely used for medical diagnostics, in a safer and cleaner way.

The Dosimetry division is also developing several innovative products to renew Patient QA for the conventional radiotherapy offering in order to continue to expand its 10,000+ customer base worldwide.

IBA is firmly committed to operating its business in a responsible and sustainable manner. The Company has a long tradition maintaining a consistent sustainability philosophy and in 2019 we continued the journey towards a model that creates shared and sustainable benefits for all stakeholders: our customers and their patients, employees, shareholders, the community at large and the planet.

The first part of 2020 has brought a period of global uncertainty with regards to the ongoing COVID-19 crisis. IBA's first priority remains the health and safety of our employees, our clients and their patients, and our suppliers and we are making decisions in light of this as we continue to confront COVID-19's impact on family's lives and business operations.

I would like to offer my warmest thanks to all of our IBA employees for their efforts, loyalty to our mission and values, and passionate commitment to satisfy all of our stakeholders.

### **Olivier Legrain**

Chief Executive Officer







# PATIENT CARE, what makes our heart beat

By providing innovative and high-quality solutions, IBA aims to support patients throughout their journey. As such, our mission to protect, enhance and save lives takes them from diagnosis with radiopharmaceuticals to treatment by particle beam therapy, and includes sterilization of medical equipment for safer operations and quality control of equipment.

## 1

### **Sterilization**

Industrial Solutions mainly focuses on developing solutions for applications such as medical device sterilization. Its products enable the medical industry to be significantly more environment-friendly by avoiding toxic chemicals and radioactive materials, and their associated pollutions and hazards.

## 2

### **Diagnosis**

RadioPharma Solutions develops products that are used for producing isotopes and radiopharmaceuticals, vital for use in cancer diagnosis, as well as in the cardiology and neurology fields. We assist hospitals and radiopharmaceutical product distribution centers by helping them design, build and operate their radiopharmacy units.

## 3

### **Treatment**

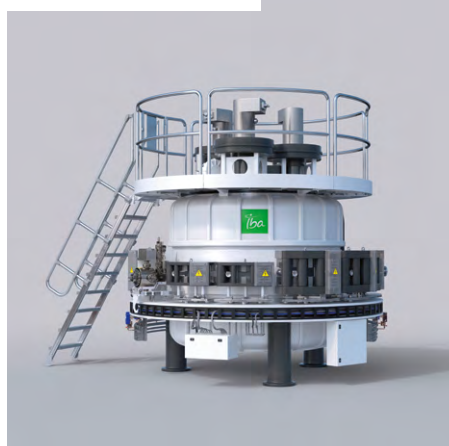
IBA is the worldwide technology leader in the field of proton therapy. Proton Therapy is considered the most advanced form of radiotherapy in cancer treatments using ionizing rays. Thanks to the unique properties of protons, tumors can be targeted more accurately. In effect, protons deposit the majority of their energy in a controlled zone, limiting exposure of the surrounding healthy tissues to potentially harmful radiation.

## 4

### **Dosimetry**

The Dosimetry business offers hospitals a comprehensive range of monitoring tools and software, for example, for the calibration and control of their radiotherapy and radiology equipment. This technology is crucial to ensuring the prescribed dose is delivered within a precisely defined area of the patient's body. Precision and control are vital to ensure patient safety and proper dose administration.

# 1 | Industrial Solutions



Protect, enhance and save lives  
by contributing to more  
sustainable irradiation  
solutions for

# MEDICAL DEVICE STERILIZATION

## E-beam and x-ray accelerators are increasingly the preferred choice

The medical devices industry has a wide range of products that enable patient diagnosis and treatment. Within this large multi-segment industry, Disposal Medical Devices (DMD) include all single-use devices e.g. surgical gloves, dialysis tubes, diabetes patches, orthopedic implants, syringes, etc. And yet DMDs, produced in large volumes, can only be commercialized and used if they are sterilized. Finding the right sterilization modality therefore is crucial.

Today, Disposal Medical Devices sterilization has year on year growth of 7% and relies for ~90% of its volume on two modalities: ethylene oxide (EtO) (~55%) and Gamma (~35%). For different reasons, these two modalities are under pressure. Not only do e-beam and x-ray mitigate the risks inherent in the use of either EtO or Gamma, but they also make it possible to address the challenges related to the increasing complexity of products and the optimization of the logistics and production process.

For these reasons, IBA is collaborating with industry players to promote and facilitate access to e-beam and x-ray technologies. It is just the beginning of the adventure and over the next few years IBA will continue to move sterilization forward for the benefit of patients.

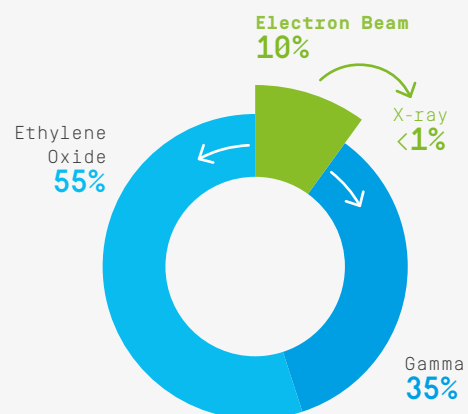
IBA Industrial is the world leader in electron accelerators for industrial applications and focuses on two markets: the sterilization of single-use medical devices and food irradiation.

In the sterilization market, IBA proposes innovative solutions based on the Rhodotron®. These solutions allow customers to sterilize medical devices either by e-beam or x-ray and enable the industry to break their dependency on chemical or radioactive-based sterilization processes.

Today, the sterilization of single-use medical devices is experiencing a strong growth and the interest in e-beam and x-ray sterilization is mainly motivated by the increasing risk based on EtO and Gamma.

➤ Always on the cutting edge of innovation with advanced research programs

Sterilization technology market shares





## Main sterilization technologies



### EtO

- Requires special expensive permeable packaging to allow the gas to enter the package;
- An aeration period is required to allow the gas to escape;
- Residues left on the product are potentially carcinogenic and mutagenic;
- EtO is explosive, toxic, harmful to the environment.



### GAMMA

- Requires cobalt-60, a radioisotope which continuously emits gamma-rays;
- Products are typically processed in totes, carriers, sometimes on pallets;
- Increasing issues related to the management of radioisotopes (supply, transport and disposal);
- High product penetration.



### E-BEAM

- Electricity based;
- Cheapest sterilization technology;
- Typically, high energy e-beam sterilizes products packaged in boxes;
- Low product penetration.



### X-RAY

- Electricity based;
- Offers much more penetration than e-beam and slightly better penetration than Gamma;
- Allows products to be treated directly on pallets with excellent dose uniformity.

## The customer at the heart of our solution

Always with the aim of placing the customer at the center of our concerns, and being much more than just an accelerator producer, IBA is now a complete irradiation solution provider.

Our expertise allows us to be at our customers' side throughout their project, from the moment they have the idea, to the processing of their products and the maintenance and upgrades of the systems.



### FEERIX, Excellence Center for Radiation Processing

Officially opened in September 2019, Feerix, the Excellence Center for Radiation Processing is a unique experimental irradiation platform based on advanced electron accelerators and high-energy x-ray generation technologies.

There, the new Rhodotron® TT300 will be used to study and test new products and processes. It has an original configuration of two separate beam lines and conveyors at 10 MeV e-beam for boxes, and 5 or 7 MeV x-rays in suspended totes.

All multi-sector applications of radiation processing, such as the sterilization of medical devices, improvement of polymer properties or food ionization will be investigated. Product dose mapping will also be provided for all industries.

Intended for R&D and training, this center uses machines that are very similar to those installed at customers. This makes it possible to transfer the results to industry in an optimal way. With this test center in the heart of Europe, IBA is committed to supporting all newcomers and existing players in the field and industry at large in their discovery of e-beam and x-ray modalities.

## From innovation to reality

Innovation is in the DNA of IBA. As such, we continuously undertake new R&D challenges such as product improvements and new developments for different applications. Each innovation is carefully considered in that it either improves product quality and simplicity, or responds to new challenges, such as the reduction of electricity consumption for environmental and economic reasons. The lower power consumption of the Rhodotron® in pulsing mode, for instance, has now become a reality and is already operational at several sites.

The Rhodotron® TT300-HE project was established a few years ago when we realized there was a need to produce radioisotopes by nuclear photoreaction for diagnosis in oncology or cardiology. By producing molybdenum-99 from high-energy electrons with the Rhodotron®, our customer Northstar will be able to avoid the use of uranium and propose an optimized way to deliver its decay product technetium-99 that is widely used for medical diagnostics. The Rhodotron® based solution will produce the most used radioisotopes in a safer and cleaner way for the benefit of the nuclear medicine community and the planet.

This project has come about via the combination of IBA Industrial know-how and RadioPharma Solutions' network and expertise in medical applications, both divisions being part of the IBA Group. The detailed engineering of the machine is now completed, and the first machine is now installed in the new IBA factory. It will be tested for 4 months in one of our underground vaults, before being shipped to Northstar in Wisconsin in the summer of 2020. A second system will be shipped at the same time.

## Other applications – FOOD

In addition to sterilization, many other applications are moving from a development phase to an introduction or even a growth phase. In that regard phytosanitary and food irradiation represent interesting developments.

Food irradiation is a process in which food products are exposed to a controlled amount of radiant energy to kill harmful bacteria such as E. coli, Listeria and Salmonella. The process can also control insects and parasites, reduce spoilage and inhibit ripening and sprouting. Several beta projects are currently being commissioned, and IBA is well positioned to be competitive in this emerging market.

➤ We support newcomers to the industry in their discovery of e-beam and x-ray



Rhodotron® TT300HE



Rhodotron® TT200-300

# 2 | RadioPharma Solutions





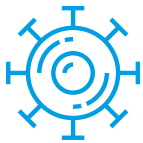
Protect, enhance and save lives  
by contributing to

# MORE ACCURATE DIAGNOSIS

Based on longstanding expertise, IBA RadioPharma Solutions supports hospitals and radiopharmaceutical distribution centers in two ways: with their in-house radioisotopes production; and by providing global solutions, from project design to the operation of their facility.

In addition to high-quality technology production equipment (cyclotron solutions, targetry systems, synthesizers, control systems, ...), IBA has developed in-depth experience in setting up cGMP radiopharmaceutical production centers.

## Oncology



World Health Organization (WHO) figures from 2018 indicate that 9.5 million people die from cancer each year, and yet patients' lives and chances of survival are significantly improved if the cancer is detected early. In fact, a cancer diagnosed at an earlier stage is more likely to be treated successfully resulting in a higher likelihood of survival, reduction of morbidity and lower cost of care. Cancer Research UK confirmed that the average cancer survival rate for the 8 most common cancers amongst patients with stage 1 cancer is 90%. However, the survival rate plummets to just 5% when the patient is diagnosed as having stage 4 cancer.

In light of these findings, and in keeping with our mission to protect, enhance and save lives, our RadioPharma Solutions division is committed to making cancer diagnosis more accessible around the world by working on several levels:

First, by reducing the size of the radiopharmacy where the radiopharmaceutical tracers for cancer diagnosis are produced. The IntegraLab®ONE solution is the most compact radiopharmacy solution on the market, facilitating installation and reducing the building cost.

## ➤ Early detection substantially increases the chances of survival

### 3 million undiagnosed cases of childhood cancer

A modeling study published in The Lancet Oncology<sup>1</sup> projected cancer incidence for 200 countries worldwide and suggested that the number of undiagnosed cases of childhood cancer could account for more than half of the total in Africa, south-central Asia and the islands of the Pacific. In North America and Europe, by contrast, only 3% of cases are undiagnosed. If there is no improvement, the authors of the study estimated that more than 3 million new cases of childhood cancer would be missed between 2015 and 2030.

1. Zachary J Ward, MPH, Jennifer M Yeh, PhD, Nickhill Bhakta, MD, A Lindsay Frazier, MD, Prof Rifat Atun, FRCP, Estimating the total incidence of global childhood cancer: a simulation-based analysis. 26 February 2019. [https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045\(18\)30909-4/fulltext](https://www.thelancet.com/journals/lanonc/article/PIIS1470-2045(18)30909-4/fulltext)

Next, by increasing the cyclotron production capacity for the production of isotopes in the radioactive tracers. IBA's Cyclone® KIUBE cyclotron offers the highest production capacity enabling increased diagnostic capabilities.

Finally, RadioPharma Solutions offers adjustable production solutions. The Cyclone® KIUBE produces the widest range of radioisotopes, enabling it to produce fluorodeoxyglucose (FDG, the most commonly used radiopharmaceutical for cancer diagnosis), Gallium-68 for the diagnosis of neuroendocrine tumors, and Copper-64 for a more accurate diagnosis of prostate cancer.

|| **After 10 years of excellent experience with Cyclone® 18/9, we have now added the new Cyclone® KIUBE. Our experience is outstanding! The engineering details make operation unprecedentedly easy and reliable, and maintenance is quick and safe thereby lowering dose exposure. But best of all, with the custom energy option and the liquid target technology for radiometals production, the Cyclone® KIUBE has expanded our radioisotope production significantly.** ||

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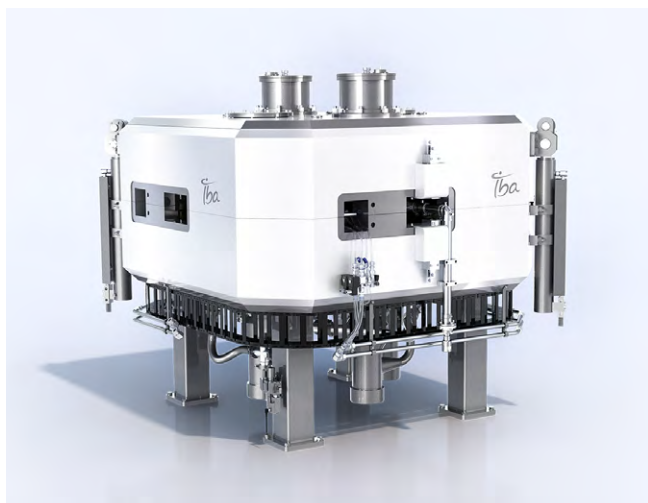
**93.6%**

IBA USERS SATISFACTION  
Result of the Customer  
Satisfaction Survey  
Cyclotron 2018

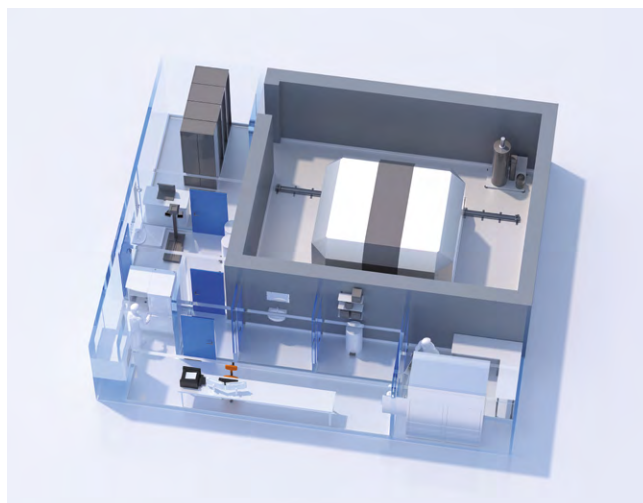
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**Francisco Alves**

Chief physicist & head of Cyclotron  
ICNAS-Univ. Coimbra - Portugal



Cyclone®KIUBE

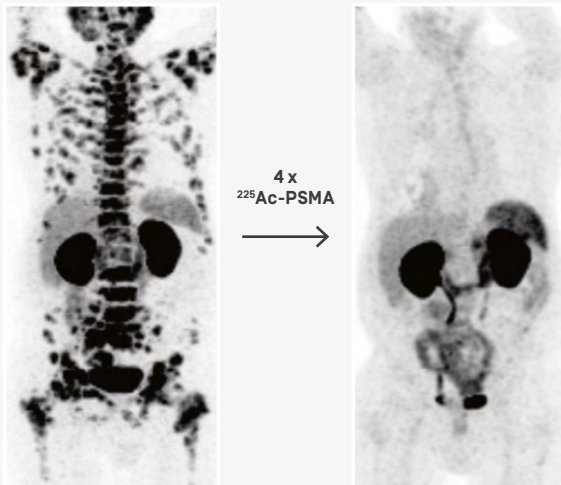


Integralab®ONE

## A combination of diagnosis and therapy: theranostics

Theranostics is a new field of medicine that combines specific targeted therapeutics with targeted diagnostic tests. Medical imaging is revolutionizing personalized medicine by helping avoid costly and unnecessary therapies.

Fig. 1.



Dec 2014  
PSA = 2923 ng+ml

Sep 2015  
PSA < 0.1 ng+ml

Example of the use of theranostics in the treatment of prostate cancer: Therapy conducted by JRC Karlsruhe and University Hospital Heidelberg with  $^{225}\text{Ac}$ -PSMA617 can induce remarkable responses in patients suffering from late stage metastatic castration-resistant prostate cancer as shown in Fig. 1. With an initial PSA value of approximately 3000 ng/ml and widespread metastatic disease, the patient achieved complete remission following 4 treatments with  $^{225}\text{Ac}$ -PSMA617 and still benefits from the successful therapy today.

|| The contribution of molecular imaging in prostate cancer is increasing rapidly, especially for Positron Emission Tomography (PET). The introduction of PSMA receptor tracer is probably the biggest success in Nuclear Medicine in recent years.  $^{68}\text{Ga}$ -PSMA has rapidly become the preferred radiotracer for PET imaging in prostate cancer, for its excellent theranostic characteristics.

### Stefano Fanti

Prof. Professor of Diagnostic Imaging and Director of the Nuclear Medicine Division & PET Unit at the S.Orsola Policlinic Hospital, Bologna - Italy



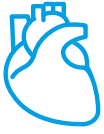
### IBA supports the Oncidium Foundation

The Oncidium foundation focuses on raising awareness about radiotheranostics as an alternative to cancer therapy and providing support to accelerate global access. Priorities include promoting awareness among patients and physicians, investing in research and scholarship, supporting and financing the development of new radiopharmaceuticals for therapy, as well as supporting clinical best practice and improving access to patients.

➤ This theranostic principle has acquired greater importance in personalized medicine in recent years, particularly in oncology, where advanced tumors can be treated effectively with low side effects



# Cardiology



## > A preferred modality for cardiac imaging

**Cardiac PET imaging can be very useful for the management of many patients with suspected or known heart disease. Cardiac PET imaging is increasingly used as new centers are established and clinical guidelines incorporate cardiac PET imaging into the management algorithms.**

In cardiology, a PET scan of the heart is a non-invasive nuclear imaging test using radioactive tracers. It is used to diagnose coronary artery disease and damage following a heart attack. PET scans are also used to define the best therapy treatment.

Major technological breakthroughs were achieved in the diagnosis of coronary heart disease through Positron Emission Tomography (PET). IBA's 70MeV cyclotron enables the production of Rubidium-82 while the Cyclone® KIUBE produces <sup>13</sup>N-Ammonia — both are used for non-invasive myocardial perfusion tests.

### Terrence D. Ruddy

MD, FRCPC, FACC, FAHA, FCCS Professor of Medicine and Radiology, University of Ottawa Director of Nuclear Cardiology, University of Ottawa Heart Institute



# Neurology



**Imaging amyloid- $\beta$  and tau aggregates with PET are highly sensitive biomarkers for early and differential diagnosis of Alzheimer's disease before irreversible brain damage or cognitive decline has occurred. Molecular imaging may also offer new strategies to monitor disease progression and assess the effectiveness of next-generation, disease-modifying treatments.**

## Udunna Anazodo, PhD

PET/MRI Neuroimaging Scientist, Lawson Health Research Institute, Assistant Professor, Depts. of Medical Biophysics & Clinical Neurological Sciences, Western University, London, Ontario, Canada

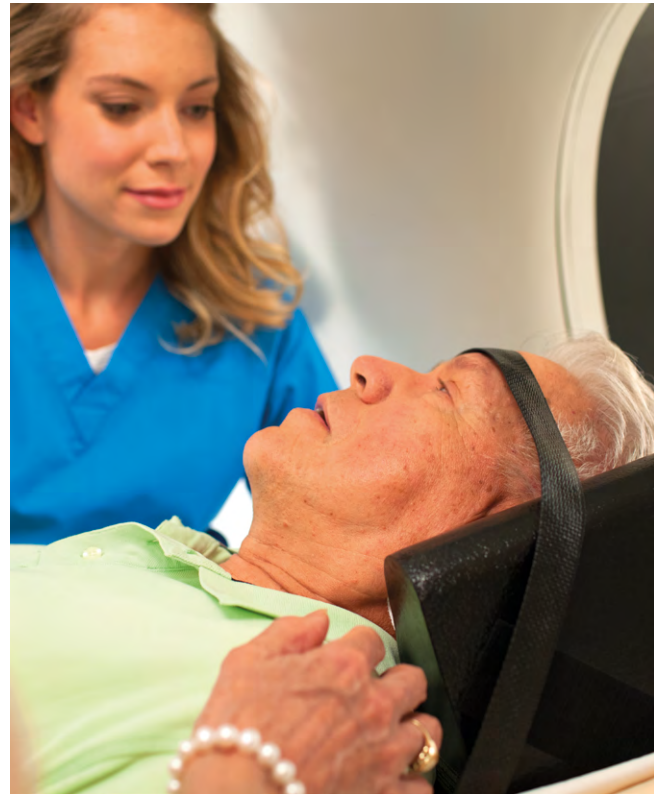
According to the [WHO](#), around 50 million people worldwide suffer from dementia, with the majority diagnosed with Alzheimer's disease. The total annual global societal cost of dementia is estimated to be USD 818 million, equivalent to 1.1% of global gross domestic product.

The evaluation of brain functionality with PET molecular imaging is playing an increasingly important role in the positive diagnosis of neurodegenerative diseases, in particular dementias and Parkinsonian syndromes.

Amyloid PET imaging offers a diagnostic accuracy of 90% in the diagnosis of Alzheimer's disease.

Several tracers have received marketing approval for this indication, including 18F-florbetaben, which was developed and produced using IBA equipment.

**> A technology that is also used for the diagnosis of heart disease and neurodegenerative diseases**



## Collaboration in the field of Neurology

IBA RadioPharma Solutions recently announced several long-term collaboration agreements in the field of Neurology with three top mental health hospitals and research centers: the Azrieli Centre for Neuro-Radiochemistry at CAMH (Centre for Addition and Mental Health), the Neuro's McConnell Brain Imaging Centre (BIC) and Invicro LLC.

These joint research and development activities focus on facilitating the use of new PET imaging agents in clinical applications, as well as on improving the role and function of imaging in translational drug discovery and development.

# 3 | Proton Therapy





Protect, enhance and save lives  
by contributing to

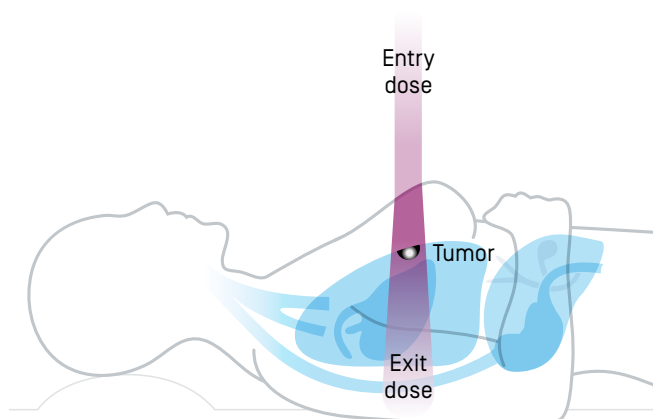
# MORE TARGETED TREATMENT

Proton therapy is considered the most advanced currently available and a valuable treatment modality for thousands of women, men and children who are diagnosed with cancer.

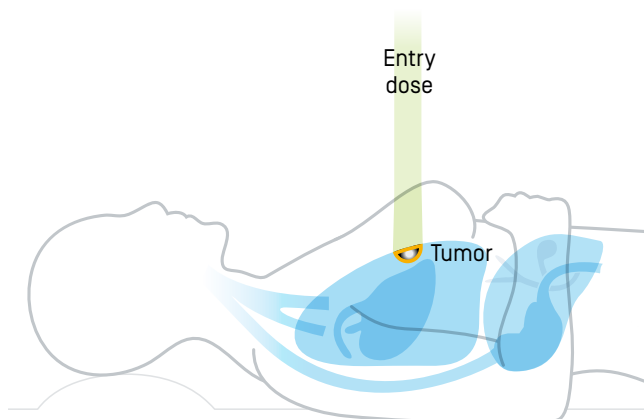
Proton therapy aims to destroy cancer cells by delivering proton beams to a target tumor. Protons release the maximum energy within the tumor target area while limiting the radiation exposed to the surrounding healthy tissues. This is not the case for photon radiotherapy, the most common type of radiation currently used in cancer therapy.

Moreover, proton therapy has the potential to enable dose escalation to tumor target without increasing the risk of side effects or long-term complications. As a consequence, this may improve the outcome of the treatment and enhance patient's quality of life.

Photon-based Radiotherapy



Proton Therapy



Deposits most of its energy before reaching the tumor

Deposits most of its energy inside the tumor

➤ Proton therapy has the potential to reduce radiation-induced side effects and enhance the quality of life of patients during and after the treatment

## IBA is the world leader in proton therapy

With 56% of proton therapy patients having been treated using IBA technology, IBA is the world leader in proton therapy.

The company has been leading proton therapy development for the last 30 years and has built the largest user community

# 56%

OF PROTON THERAPY PATIENTS  
have been treated using  
IBA technology

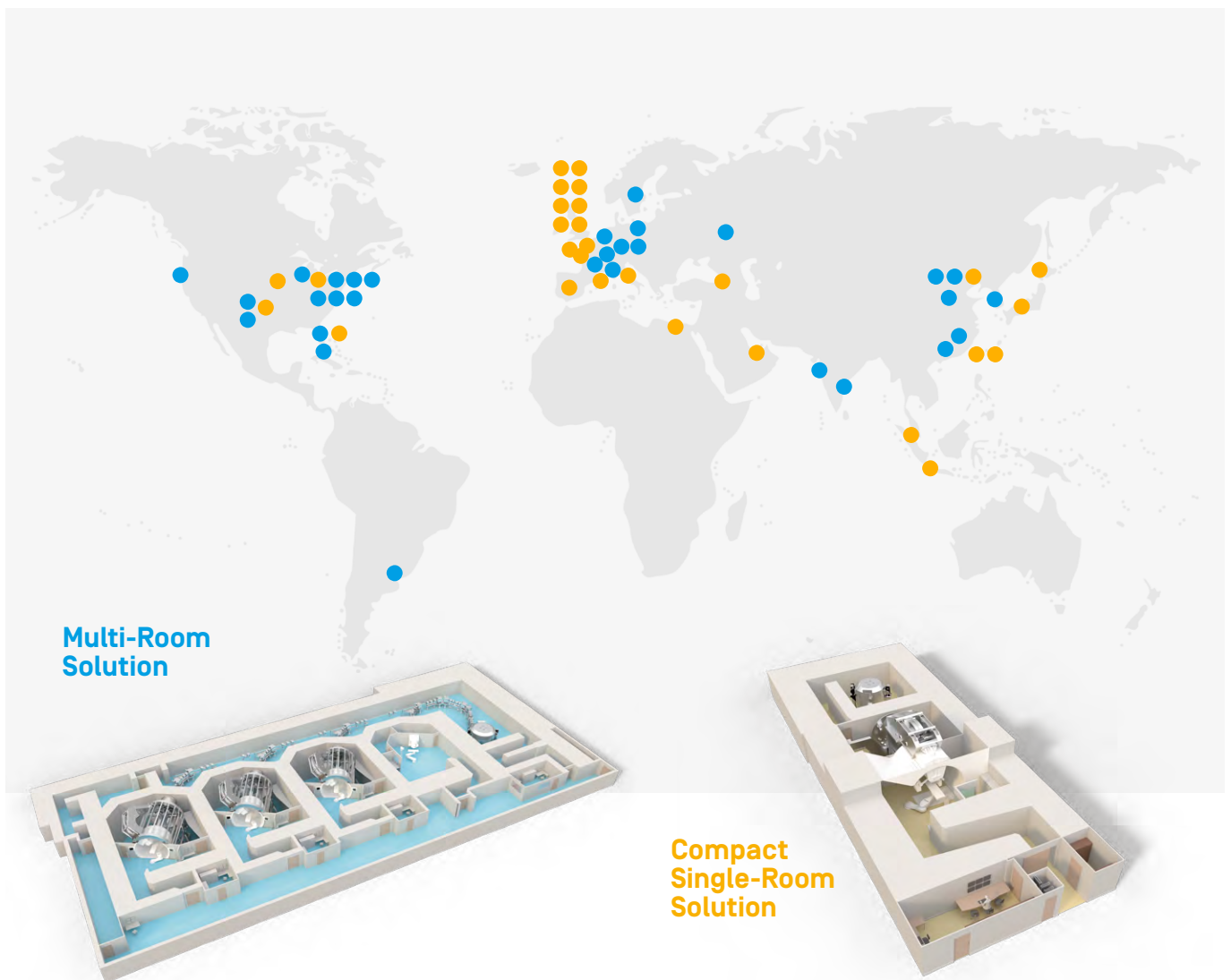
worldwide. IBA offers the highest uptime rates and can install a system in less than 12 months.

## IBA proton therapy centers at end 2019 – Largest network & experience

# 30

 Proteus<sup>®</sup>PLUS Centers

# 28

 Proteus<sup>®</sup>ONE Centers<sup>1</sup>

**Multi-Room  
Solution**

**Compact  
Single-Room  
Solution**

1. 3 centers not activated yet.

Proteus<sup>®</sup>ONE and Proteus<sup>®</sup>PLUS are brand names of Proteus 235

## The largest proton therapy users community in the world: 8<sup>th</sup> Annual Proteus® User Meeting in Miami, Florida



163

PARTICIPANTS

3

DAYS  
OF KNOWLEDGE  
SHARING

45+

INSTITUTIONS  
REPRESENTED

Each proton center has developed techniques, technologies, lessons and experiences that are unique. For each center to replicate each one of these experiences would take decades of work. A forum such as a User Meeting allows us to share ideas, best practices, innovations and in fact, to collaborate, both on research and clinical applications.

**Dr Minesh Mehta**, MCI

We always work better as a team than individually. The opportunity to bring people together is going to make us all more successful in the end.

**Dr James Metz**, UPENN

## Identifying the patients who stand to benefit from proton therapy

The advances in cancer treatment are numerous and increasingly related to personalized medicine, i.e. finding the best combination of therapies for patients by cancer type, genetics and other parameters, which are becoming increasingly better understood. Additionally, this also means a number of patients avoid undergoing certain treatments that have serious side effects which would not be effective for their specific case. IBA supports all efforts to develop approaches based on predictive models.

Professor H. Langendijk of the UMC Groningen (the Netherlands) developed a model-based method for selecting patients for proton therapy based on the risks of **side effects**. This model-based approach ensures that each patient will be referred to the best treatment based on the expected results and the reduced risk of side effects, thereby optimizing the overall benefit for the patient and society.

The Dutch authorities have based their reimbursement of the cost of proton therapy on this predictive approach. This modern reimbursement policy means new technology has been adopted faster while also helping to control costs. The accuracy of the model is also continually reassessed.

The model-based approach was reappraised twice in 2019, extending the coverage from head & neck to breast and lung cancers – these treatments will now be reimbursed by the National Health Insurance fund.

To correctly assess the extension to a new indication, the UMCG works together with MAASTRO Clinic, HollandPTC, other university medical centers, the NKI / Antonie van Leeuwenhoek and the Princess Máxima Center, to develop an infrastructure for research into the effectiveness and added value of proton therapy. The centers have a joint database that includes the clinical outcomes of all patients treated with proton therapy in the Netherlands.



# Pushing the boundaries of technology

Pushing the boundaries of technology and anticipating new developments in proton therapy is aligned with our spirit of innovation. The technological roadmap of IBA is focused on 3 areas: **Motion Management**, **Arc Therapy** and **FLASH Irradiation**. IBA constantly improve the proton therapy technology for the benefit of patients. We work diligently to advance proton therapy, in close collaboration with our customers and through R&D partnerships.

The latest technological developments are available to new centers. We also ensure that our existing centers can be upgraded to these new technologies, through our upgrades and service offering.

## Motion management

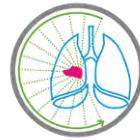


Motion management tools are needed to ensure accurate treatment delivery by managing the challenges caused by tumor motion. With motion management, a proton therapy clinic will be able to treat more patients with more confidence.

Due to the proximity to critical structures and surrounding healthy tissues, managing tumor motion with radiation therapy is critical. Breath hold, gating, or other motion-mitigation techniques or intrafractional tracking along with improved immobilization may be necessary when delivering proton therapy.

It is estimated that around 20% of patients who are indicated for radiation treatment can benefit from proton therapy<sup>1</sup>. In 25% of these eligible patients, tumor motion can occur during treatment delivery. This is the reason why IBA is dedicated to offering an integrated solution for motion management that meets the medical needs.

## Proton arc therapy



Proton arc therapy has the possibility to further improve the quality of the treatment. This technological evolution will offer patients numerous advantages:

- **Enhanced dose conformity at the tumor level and reduction of the total dose received by the patient**
- **Simplified treatment planning and delivery without performing the multiple field adjustments**
- **Less time in the treatment room and a maximized patient throughput thanks to an optimized workflow**

Thanks to our close collaboration with the Beaumont Proton Therapy Center (United States), we were able to deliver the first irradiation of a Proton Arc Therapy plan on a phantom.

|| **Spot-Scanning Proton Arc (SPArc) therapy has the potential to allow proton therapy practitioners to improve dose conformity at the tumor while further reducing dose to surrounding healthy tissue and increasing treatment effectiveness.** ||

**Craig Stevens**

MD, PhD, Chairman, Radiation Oncology, Beaumont Health.



1. Extrapolation with Globocan worldwide cancer incidence applied to the Dutch Model.



**At the Texas Center for Proton Therapy, we have developed a comprehensive program to treat lung tumors thanks to the availability of the latest technology developments in proton therapy:**

- **Cutting edge pencil beam scanning**
- **Best in class imaging solutions including Cone Beam CT**
- **Seamless integration of OIS, TPS and delivery machine.**

**Jared Sturgeon**

M.D., Ph.D., Radiation Oncology, Texas Center for Proton Therapy.

## FLASH irradiation



FLASH is a key research area that may dramatically improve the clinical relevance of proton therapy for patients around the world. IBA is uniquely positioned to drive the development of FLASH irradiation, the next major innovation expected in radiation therapy.

FLASH therapy has the potential to dramatically change the landscape of radiotherapy and patient cancer care, making it more effective and more accessible than conventional radiotherapy.

What is FLASH irradiation?

- **It is a fast and powerful treatment that delivers a high dose of radiation at an ultra-high dose rate**
- **It's a novel technique that could potentially shorten treatment time from 6-8 weeks to less than a week**
- **It has the potential to significantly reduce side effects for patients**

As the industry leader, IBA is collaborating with several leading proton therapy centers in their pioneering research work to better understand the mechanisms of FLASH irradiation. This early development work enables IBA today to deliver FLASH irradiation on both its current single and multi-room proton therapy platforms in a clinical environment in research mode as demonstrated in March 2019 at the University Medical Center of Groningen, The Netherlands, and in June 2019 at the Rutherford Cancer Center Thames Valley in Reading, England.

In addition, after publishing the first findings that demonstrate the effects of FLASH proton radiation therapy earlier this year, the University of Pennsylvania is conducting a clinical trial evaluating FLASH proton therapy in dogs with osteosarcoma<sup>2</sup>.

## Development of carbon therapy system

IBA announced in September 2019 the launch of the development of the world's first cyclotron-based carbon therapy system in Caen, France through its subsidiary Normandy Hadrontherapy (NHa), in collaboration with the Normandy Region and several other private and public players, including SAPHYN (SAnté et PHYsique Nucléaire). NHa will be dedicated to the development, industrialization and commercialization of hadron therapy equipment, with the first center to be installed in Caen.

Hadron therapy using carbon ions functions in the same way as proton therapy, but has the advantage of being particularly effective compared to other radiotherapy techniques for the treatment of radiation-resistant tumors. Several leading centers in the world are currently using carbon ions to treat cancer.

IBA will provide its unique technological expertise in particle accelerators and collaborate with several industrial and public partners to design, develop and install hadron therapy systems. In comparison to the existing synchrotron-based hadron therapy centers, the accelerator in this hadron therapy system will be an advanced 400 MeV (megaelectron-volts) multi-particle superconducting isochronous cyclotron that is able to accelerate carbon ions and other particles including protons. The new design is significantly smaller in size than existing centers.

2. <https://penntoday.upenn.edu/news/entire-course-radiation-treatment-under-one-second>  
<https://penntoday.upenn.edu/news/treatment-flash>

## Making treatments more accessible

To achieve our mission, we must work hard to ensure that the maximum number of patients who can benefit clinically from proton therapy have access to it. This includes reducing the cost of the technology and the maintenance, so that more centers are opened, thereby facilitating greater access for patients. The Proteus®ONE, a compact single room solution, introduced to the market in 2016, was a real game changer in making the technology more accessible thanks to a fully compact proton therapy solution with all the technological assets and features of a multi-room system.

Not only is it more affordable, it is also easier to install, operate and finance. Proteus®ONE incorporates the most advanced technology, namely image-guided proton therapy. This combines

precision of the dose, using Pencil Beam Scanning (PBS) technology, with the three-dimensional precision of Cone Beam Computed Tomography (CBCT). The result is medical practitioners are able to more accurately localize the volumetric space to be treated. Thanks to Proteus®ONE, proton therapy is becoming more accessible to an increasing number of patients worldwide. By the end of 2019, 11 Proteus One centers are fully operational.

|| **A year ago I would never have dreamed of this. I'm alive! This is partly thanks to the proton therapy that I received at UMC Groningen. The process was tough, but effective.** ||

**Fred Mobach, 60 year-old, from Zwolle [The Netherlands], suffered from a tumor located under his nose. He first received chemotherapy, followed by 6 weeks of proton therapy.**

Fred Mobach has a smile on his face.

*"With proton therapy it is possible to irradiate just the tumor, without affecting other tissues and organs. Fortunately, I was eligible for treatment because the tumor and cancer cells were close to my brain. The second challenge was that I am blind in one eye. So it was very important that my good eye [on the side of the tumor] was not damaged".*

In total Fred Mobach made the trip 35 times –by taxi – from Zwolle to Groningen, located one hour away.



*"I was well taken care of and I had every confidence in the doctors and radiotherapists. I saw it as my last chance, so I really surrendered to them. The proton center is quiet. There is a pleasant atmosphere and I was well supervised."*

*"From the second week on I got a wound on my face. Partly thanks to doctor's advice and 'a good treatment cream, I got through it. Because fair is fair... it was hard to do."*

Today, Fred is cancer free.

*"I feel reborn. I'm alive! I am grateful and happy that I am still here and my face is completely restored. I can walk with my dog around the soccer field again. I would like proton therapy to become better known. I'd like more people to know that proton therapy offers a solution for a specific group of people with cancer."*

## Developing our services

With the largest proton therapy installed base, IBA has built a strong and reliable service team to guarantee the availability of its proton therapy technology and consistently achieve system uptime. IBA provides support teams, parts, and processes to provide full system operation and maintenance services while guaranteeing the highest performance standards on our state-of-the-art technology.

In order to meet and maintain such high standards, IBA's maintenance and support is based on 3 pillars: 24/7 worldwide helpdesk support, experts and spare parts hubs in every region of the world, and the use of big data for predictive maintenance. This helps us reach and maintain our commitment to delivering total reliability of our systems, to ensure the continuity of patient treatments.

**|| We know that any changes to treatment schedules can have a big impact on patients and we are committed to making the process as smooth as possible. I am therefore very pleased with the excellent uptime achieved at the center. This has been good news for us, our patients and gives confidence to those administering world-class treatment. IBA's partnership and support has been fundamental to our success over the past 6 months. ||**

**Mark Pankuch**  
Northwestern Medicine Chicago Proton Therapy Center.

## Staying at the cutting edge of Proton Therapy: Northwestern Medicine Chicago Proton Therapy Center



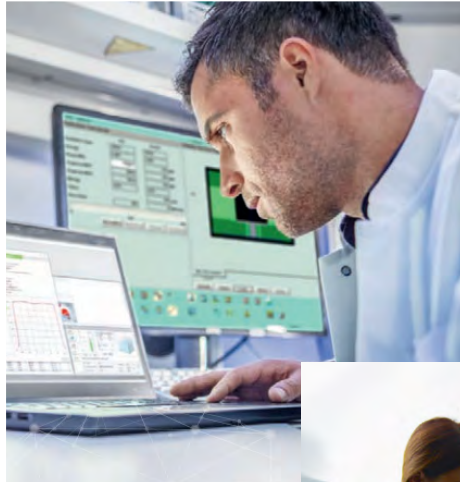
Besides the important daily work required to keep the center running smoothly, the IBA team has successfully upgraded the center several times since it opened in 2010, thereby ensuring that it remains at the cutting-edge of cancer care.

Over the last 6 months, the IBA team has installed a Pencil Beam Scanning (PBS) upgrade in one of its treatment rooms, whilst maintaining uptime at the center at more than 99%. PBS targets tumors with an ultra-fine proton beam and enables Intensity-Modulated Proton Therapy (IMPT), which allows clinicians to further minimize the dose to surrounding normal tissue.

With PBS, Northwestern Medicine Chicago Proton Center has extended the range and volume of indications that can be treated at the center.



# 4 | Dosimetry





Protect, enhance and save lives  
by enabling

# INDEPENDENT QUALITY ASSURANCE

Our priority is to ensure that patients receive a safe, accurate and reliable diagnosis and treatment.

In medical imaging and radiotherapy, radiation must be used with great caution and precision.

The prescribed dose [expressed in Gray [Gy]] must be rigorously respected, both in terms of intensity and location. The life of patients, their safety and the success of their treatment depend upon it.

In medical imaging, the objective is to reduce patient exposure to radiation, while maintaining good image quality.

In radiotherapy and proton therapy, the goal is to expose tumor masses to a high dose of cancer-cell destructive rays, with millimeter precision, while reducing the exposure to healthy tissue as much as possible.

In both cases, the accuracy of the equipment and the control of the dose are of paramount importance. To achieve this, dosimetry instruments are needed to calibrate and control the diagnostic and therapeutic equipment.

This is the responsibility of our Dosimetry business, which has developed a range of tools to calibrate radiation equipment and verify the dose of ionizing radiation that the patient absorbs during medical imaging and radiotherapy.

|| **myQA has given me full control of my data by connecting all QA applications on one platform and into one central database. With myQA, the quality assurance becomes schedulable - in every sense of the word. Another highlight for me is the web-based myQA Cockpit dashboard which allows us to quickly retrieve our machine QA status updates anywhere in the department. myQA is truly an all-in-one solution.** ||

**Luis Brualla González**  
Hospital General Universitario, ERESA, Valencia, Spain



**Safe radiotherapy: quality assurance of equipment for the treatment of patients**

It is vital that a series of quality control checks are made on the calibration of the equipment to ensure patient safety. These controls are designed to certify that the radiotherapy and proton therapy equipment will deliver the required dose in the exact location designated by the medical team. It also increases physician peace of mind about their patients' safety.

**Safe medical imaging: quality assurance for a better diagnosis**

The quality assurance solutions for medical and radiotherapy imaging contribute to improving the image quality. This ensures a more accurate diagnosis and therapy, while also better controlling the radiation dose released by the machine. Our dosimetry solutions offer a complete and instant analysis of the released dose to obtain the required imaging with just one exposure.





## Patient safety driven by advanced customer training and support

For IBA, service and support is about how we care for our customers and their performance.

With over 45 years of dosimetry experience, and with our training offerings, we help our customers to run their equipment efficiently and safely thereby ensuring patient safety in medical imaging and radiotherapy. Our qualified dosimetry service teams - uniquely distributed over 3 continents - ensure 24/7 instant access and quality support for our customers.



|| Patient safety means a lot for us as physicians and medical physicists. Today, we are applying more and more precision radiation therapy using highly advanced treatment systems, and with very high treatment doses to very accurately defined tumor volumes. If we are not sure about the things we are doing, it might be dangerous for our patients. With cutting-edge quality assurance and dosimetry solutions and processes, as well as with risk assessments, we have the means to know that we are going to treat each patient precisely and safely before we switch on the beam. ||

**Hale Başak Çağlar**  
Prof. Dr. Radiation Oncology  
Anadolu Hospital, Istanbul - Turkey



# 5 | Commitment





Protect, enhance and save lives  
by being

# A COMMITTED COMPANY

At the heart of its entrepreneurial ethos, IBA looks to consider its impact on stakeholders. For just as we are committed to our customers, patients, and shareholders, we realize that a commitment to our people, to society and to the planet is key to maintaining the quality of life of present and future generations. Nothing less than our societal and environmental legitimacy as a company is at stake.

## Committed to our employees

As Yves Jongen, IBA's founder, always reminds us, our people are IBA's most valuable asset. After all, would our mission statement to protect, enhance and save lives still make sense if it isn't put into practice for and by our employees?

We want, as a responsible employer, to provide these men and women with safe and efficient working conditions and a friendly environment conducive to their professional and personal development.



|| IBA is a way to use entrepreneurship for the good of society, as Philippe de Woot (pioneer in corporate social responsibility and former president of IBA) so often said. For me, IBA has many of these qualities: life-changing technologies and a desire to stay grounded, without ignoring the fact that we are a commercial company aware of its responsibility to be profitable for its shareholders. ||

Olivier Legrain  
CEO

> Protecting lives is an everyday commitment at IBA and it first applies to ourselves and the people we are working with and for.

## Diversity and equity

Diversity is fundamental to our culture. We value the uniqueness of individuals and the various perspectives and talents they bring to IBA. We learn from and respect the cultures in which we work, promote diversity within our workforce, and have an inclusive environment that helps each and every one of us to fully contribute to IBA's success.

IBA is committed to provide equal employment opportunities and to treat applicants and employees without discrimination. We do not discriminate based on race, color, age, sex, sexual orientation, national origin, religion, language, or disabilities. Our policy is that no one at IBA should ever be subject to any kind of discrimination.

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**26%** women

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**56** nationalities within IBA Group

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## Health and Safety

At IBA, respect for universal human rights is fundamental.

IBA is committed to conducting its business in compliance with all applicable workplace health and safety laws and regulations. IBA promotes prevention of involuntary labor and human trafficking, prevention of underage labor, freedom of association, ergonomics, great employee facilities and burnout prevention.

IBA is also committed to a positive, productive, and safe work environment that is free from violence, threats, harassment, intimidation, mental or physical coercion, and other disruptive behaviour. IBA does not permit any form of violence, whether physical, verbal, or mental. We consider all threats of violence as serious.

IBA is committed to implementing best practices in the field of Occupational Health and Safety to keep our promise of No Harm to our people.

To achieve this result, we:

- ensure IBA operations comply with applicable occupational health and safety regulations, and when appropriate, implement additional controls to meet company requirements;
- empower all employees to stop any activity which they judge hazardous and goes against our 'No Harm' principle.

Through all steps of development, implementation, and operation of IBA products and services, we ensure the highest standards of safety for our employees.



The Beam Factory, production area.

## Mobility

IBA encourages efficient, low-impact and healthy mobility. We propose attractive leasing conditions to our employees for low-impact mobility vehicles, such as electric bicycles and scooters. This is an efficient way to combine daily commuting and parking lot optimization, healthy exercise, fitness, and carbon footprint reduction. More than 170 bicycles were under

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**23%** staff in Belgium have leased a bicycle

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## New ways of working

The IBA headquarters, the Beam factory, has been designed to display our innovative and technological capabilities to our customers and our visitors, which reasserts our recognition of our people's talents. It provides a contemporary and positive work environment by encouraging different ways of working: collaborative bubbles, brainstorming zones, social spaces and meeting rooms with cutting-edge equipment.

Our home-working policy is now effective for the whole company. This offers our employees the flexibility to work at home when efficiency or circumstances dictate, while also optimizing office space and reducing cost. In addition, time wastage and the environmental footprint linked to commuting is reduced. Employees have welcomed this initiative, as it has increased their focus and efficiency, while allowing them to enjoy a better work-life balance.

Virtual collaboration has also improved through the launch of a collaborative platform, which helps our employees communicate, share information and work together in a seamless way.

lease in 2019, representing 23% uptake by IBA staff in Belgium. IBA has been awarded 4 stars at the Belgian "Active Bike" challenge in 2019, ranking among the most proactive Belgian companies in the matter.

IBA also promotes electric cars through attractive leasing conditions for its employees. We are constantly developing our infrastructures to welcome these vehicles at our facilities: dedicated parking lots, high-power charging stations.

**> The IBA headquarters, the Beam factory, has been designed to display our innovative and technological capabilities to our customers and our visitors, which reasserts our recognition of our people's talents.**



IBA headquarters, the Beam Factory.



## Nature & sport

At IBA, we recognize that a break out of the office can, at times, be beneficial. We partner with local associations to offer our employees refreshing team building or individual activities during lunchtime, around nature and biodiversity topics. Vegetable gardening, yoga, nature discovery are a few of the proposed possibilities.



**I enjoyed the outdoor activity as it was oriented towards nature, biology, environment and life. It was very different to my daily work activity inside a building focused on robotics and computers.**

An employee

**I enjoyed the break from the office – it was a breath of fresh air, quite literally – and the connection with nature! I also appreciated the deep knowledge of the speakers.**

An employee

## “Be healthy, be green”

“Be healthy, be green” weeks are organized each summertime around various themes, such as Repair Café, cancer patient testimonials, low-impact mobility, diet and nutrition,... Social clubs are promoted by IBA and organized by voluntary employees. Climbing, golf, biking, running, hockey, photography and indoor fitness are a few of the employee clubs organized at lunchtime or after hours.



**> Riding a bike is a great way to improve health, reduce travel costs, improve mobility, and optimize the number of parking spaces required. It is also a great opportunity to participate in reducing the company’s carbon footprint.**



# Committed to our society

We are convinced that the purpose of an economic player must be to promote social progress and collective well-being. The model we promote — both externally and internally — goes beyond regulatory compliance: it encourages an ethical vision of practices and behavior, respect for differences and a useful contribution to the communities around us.

## Education

While we invest heavily in training our employees, we are also committed to educating young people. Passing our knowledge on to younger generation is an action that we consider essential.

Over the long term, we support partnerships with NGOs and foundations that help improve the educational environment. In 2019, IBA renewed its collaboration with Foundation for Future Generations, and became a partner of the program as a whole.

IBA relies on this partnership to promote collaborations and exchanges of expertise, and above all, to encourage biomedical engineering research. For three years now, IBA has reinforced its partnership with UCLouvain by supporting the “Civil Biomedical Engineer” diploma program, enabling the EPL to expand its range of courses.

IBA employees regularly share their experience and knowledge with universities and colleges. We have an active policy of integrating young people into professional life, by hosting internships, end of study work, and student jobs. It’s our way of making a positive contribution to the future of the society at large, and attracting new talents to IBA.

**Our stakeholder approach pushes us to cover all aspects of our activities, including societal, environmental, and to involve as many people as possible so as to increase the positive impact we can have on society.**

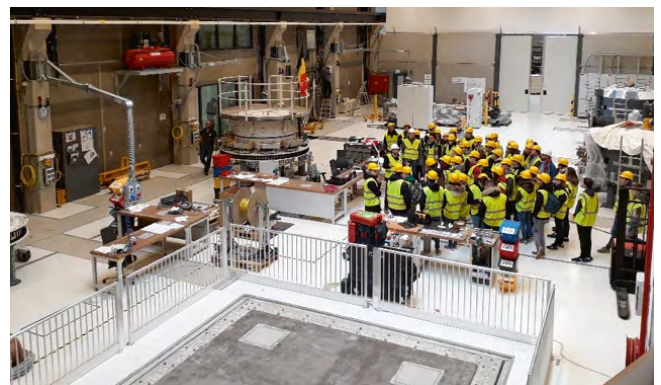
**Olivier Legrain**  
CEO



Olivier Legrain CEO IBA and Benoît Derenne, CEO Foundation for Future Generations

**The approach of IBA, with its 360° vision, corresponds to the DNA of the Hera Awards. IBA is a partner that encourages us to transform the model.**

**Benoît Derenne**  
CEO Foundation for Future Generations



Students visiting IBA facilities

## Engaging with our supply chain

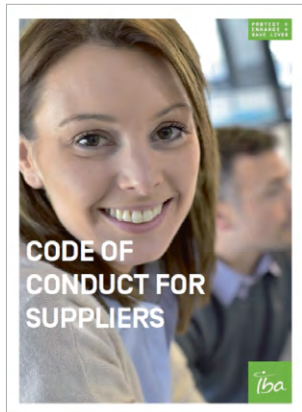
We believe that a strong and responsible supply chain benefits our community.

IBA has approximately 100 main suppliers worldwide to support its design and manufacturing of products. The majority of IBA suppliers are located in Europe. IBA suppliers have been selected for their ability to best comply with requirements as stipulated by ISO13485:2016. The selection and qualification process of a supplier considers the criticality of the supplied goods and services. IBA promotes technical collaboration and innovation with its partners in order to reduce risks, costs and improve the quality of its products and services. Strategic partnerships are developed whenever beneficial.

The nature of our activities and the origin of products entering our production chain are not considered to be risky in terms of respect for human rights. We however recognize that our knowledge of our entire value chain is not optimal. We have a good view of our first level of supply, including rigorous vendor selection and validation processes, however, with regard to suppliers and subcontractors beyond the first level, we must acknowledge our ignorance.

In this context, IBA released in 2019 its first 'Conflict Minerals' report, and Code of Conduct for Suppliers that outlines the minimum standards expected from its major suppliers. The Code of Conduct for Suppliers builds on, and is in alignment with, the IBA Code of Business Conduct, which all IBA employees must adhere to. Within their sphere of influence, IBA also expects suppliers to communicate the principles and to apply these minimum standards to their subcontractors and suppliers.

IBA's Code of Conduct for Suppliers follows and supports the United Nations Sustainable Development Goals (SDGs) by aligning the principles of this Code of Conduct with relevant SDGs. IBA is committed to achieving this journey together with its suppliers as equal partners.



## Supporting patient organizations

Around the world, IBA's men and women, all experts in their field, are passionate and enthusiastic about what they do. They collectively undertake to play an active role in putting our mission statement into practice, "Protect, Enhance and Save Lives".

They help each patient to have access to the most beneficial treatment for their cancer, and they bring the more efficient and more environmentally friendly industrial technologies to the service of our customers.

Beyond providing better solutions to its customers, IBA also supports the patients and their families, in partnership with those working in the field and by encouraging voluntary citizen actions by its employees: sponsorship, facilities sharing, donations from employees' initiatives such as the IBA Sailing Team, "Relay for Life", "FunRun", "Rock Against Cancer" or "Golf Against Cancer" events.

Associations such as "La vie-là", that supports and accompanies people with cancer in order to offer them a better quality of life, benefit from the on-going support of IBA and its employees since many years.

In the United States, IBA provides support for the Compass to Care Childhood Cancer Foundation, which helps children with cancer by covering the logistics costs of treatment away from home. In 2019, IBA supported the 15<sup>th</sup> Annual "Fight Cancer" event organized by the University of Florida Health Proton Therapy Institute for the benefit of their Clinical Research Program.



15th UFHPTI "Fight Cancer" event

# Committed to our planet

IBA is conscious of the current major environmental crisis. Amongst the many challenges to address, we are today specifically focusing on two: our GHG emissions and waste. Our aim is to broaden this focus regularly to include other environmental impacts, stricter targets and ultimately restorative actions.

## NET-ZERO 2030 BELGIAN ORGANIZATION CO<sub>2</sub>eq

### Climate

We have an impact on global Greenhouse Gas (GHG) emissions.

- A direct impact through our operations: our offices and manufacturing infrastructures, and our employees' travel.
- An indirect impact through our installed product base: production and transport, and, once installed at the customer's location, there is electricity consumption, servicing, and decommissioning.

**Inspired by the Net-Zero ambitions for Europe, we have set ourselves targets for bringing our Belgian operations net GHG emissions to zero by 2030.**

This will be achieved by taking actions on our infrastructures and mobility impacts to reduce them by at least 50% below 2018 levels by 2030, and offsetting for the remaining part.

In terms of infrastructure, we have a 100% green energy contract with our electricity suppliers. In 2019, we also completed our move to the new IBA Headquarters, which have been designed to save energy and be self-sufficient in energy production.

In 2019, the RadioPharma Solutions team decided to renew the experience of carbon offsetting its biennial user meeting; this year they financed the installation of cooking stoves in Ghana.

We work on our mobility policies to address both the efficiency and the carbon footprint of our employees' mobility, via incentives for low-impact, public and electric mobility, home working practices and a more efficient servicing organization.

To address its installed base impact, IBA also continuously improves the energy efficiency of its product portfolio.

The Proteus One proton therapy system offers a greatly improved

energy performance thanks to the use of superconductivity. This is part of an overall IBA strategy that aims to make technologies more accessible by improving the geographic distribution of centers, as well as the environmental impact related to patient travel and accommodation.

RadioPharma Solutions division has now completed the technological transition to the Cyclone Kiube, with significantly greater compactness and energy efficiency.

Industrial Solutions division is also continuing to transition with the arrival of the Rhodotron® new generation, whose energy performance has greatly improved. In addition, IBA is continuing its efforts as part of a research program to find a substitute for the Dynamitron insulating gas SF6, which still represents a significant part of the GHG emissions from our company's installed base.

We are gradually assessing our supply chain impact, with the introduction of a Supplier Code of Conduct addressing climate impact among other topics.

We monitor and publish yearly our GHG emissions related to our installed base and to our organization (Belgian area): offices and production means, and employee mobility (fleet of company vehicles and professional air travel /public transport).

In a desire for transparency and benchmarking of its practices, we disclose our environmental data every year through the carbon disclosure project [CDP](#). IBA received a C score in 2019.

## 200 MWH produced by the Beam Factory solar panels in 2019





## Waste

As a company, we have an impact on waste production.

- A direct impact through our operations: offices and manufacturing processes.
- An indirect impact through our installed product base: production and transport processes, and, once installed at the customer location, servicing and decommissioning.

**We have set ourselves targets for reducing our unsorted waste intensity by a factor of 3 below 2018 levels by 2025 for our Belgian operations.**

This will be achieved by making changes at all levels to our logistics, manufacturing and office impacts.

We take into consideration the principles of circularity – avoid, reduce, reuse, recycle. A circular process to return defective or supernumerary parts deployed to our customers is now in place, for repair, resale or recycling.

IBA has also developed “low activation” concrete, which significantly reduces the amount of waste to be reprocessed, and therefore the costs and the environmental impact, during the future dismantling of the casemates hosting its accelerators. This concrete was also used during the construction of the new headquarters.

A voluntary audit relating to environmental regulatory aspects was carried out for the activities and installations of the Belgian sites in 2019. An action plan will be drawn up with a view to improving the management relating to the non-conformities that have been identified.

IBA has initiated a process towards its suppliers in order to assess the compliance of its products with REACH and RoHS legislation. IBA is also affiliated with Recupel and declares the equipment placed on the market subject to the obligations of WEEE legislation.

To monitor the outcome of our actions, we monitor and publish our waste emissions each year, related to our Belgian operations.

## Biodiversity

As an industrial organization, we want to take on our responsibilities in order to reduce our negative impact and contribute to reverse the trend on biodiversity. We have developed our headquarters’ gardens, green roofs, and water pools with this idea in mind. A number of voluntary employees are involved in regular workshops to maintain and develop biodiversity around the facilities.

IBA partners with local city associations that promote the awareness of biodiversity issues, such as ‘Plant Your Business Tree’, the goal of which is to create urban forests using the Miyawaki method in Belgium, as well as plantations in Madagascar.



Insect hotel on headquarter’s green roofs



Biodiversity workshop at IBA gardens



‘Plant Your Business Tree’ operation



# Materiality and reporting

To clarify its priority topics, IBA has built a materiality matrix based on a dialogue with its stakeholders and the reference framework recommended by the Global Reporting Initiative (GRI). It is in this broad area that we are concentrating our thoughts. The hierarchy of our priorities is obtained by crossing the concerns of the company with the positions of its stakeholders.

This matrix takes into account data from the ongoing dialogue that IBA has established with all its stakeholders,

through formal and informal exchanges and publications on environmental issues.

IBA intends to continuously refine its matrix as needed to keep it aligned with the company and stakeholder situation.

For more data about our yearly results, refer to the GRI Index of our annual report

## GRI 102-46 Materiality matrix





**Contact IBA**

Thomas Ralet  
Head of Corporate Communication  
Tel.: +32 10 47 58 90  
E-mail: [investorrelations@iba-group.com](mailto:investorrelations@iba-group.com)

**Ion Beam Applications, SA**

Chemin du Cyclotron, 3  
1348 Louvain-la-Neuve, Belgium  
Tel.: +32 10 47 58 11 - Fax: +32 10 47 58 10  
RPM Nivelles - TVA: BE 428.750.985  
E-mail: [info-worldwide@iba-group.com](mailto:info-worldwide@iba-group.com)  
Website: [www.iba-worldwide.com](http://www.iba-worldwide.com)

E.R.: IBA SA, chemin du Cyclotron, 3  
1348 Louvain-la-Neuve, Belgique.

Design & Production: [www.thecrewcommunication.com](http://www.thecrewcommunication.com)

**PROTECT +  
ENHANCE +  
SAVE LIVES**