Image-guided surgery: VERY GOOD RESULTS

In 2015 the Antoni van Leeuwenhoek expanded their operating facilities. There are now twelve operating theatres. One of them is very special. In this so-called Operating Theatre of the Future we can perform image-guided surgery. Professor Theo Ruers: ‘Sometimes it is very difficult to find the tumor when operating, for instance when a pelvic tumor is very deeplying, as it cannot be seen with the naked eye and it cannot be felt. We have developed 3D navigation technology, similar to a car Global Positioning System, to determine the exact location of a tumor. In this way we can treat patients who cannot be operated on in the traditional way. The results are very good.’

We will further develop and implement this navigation technology in the years to come. Ruers: ‘It is our ambition in the future to navigate to the tumor, define it, remove it and check whether all malignant cells have been removed, in one operation.’
In addition to chemotherapy and an operation, radiotherapy is an important part of treating cancer. Researcher Jan Jakob Sonke obtained a grant of no less than 2.5 million euros in 2015 for research into customised radiotherapeutic treatments, i.e. personalized radiotherapy. “The patient receives customised radiotherapy and the radiation dose is adjusted to the anatomical change in the patient and the changes in the tumor. A promising development.”

2015 was in many ways a good year for the radiotherapy department. Another seven research grants were accepted for a total of more than 1.8 million euros.

Meanwhile, the Antoni van Leeuwenhoek has at its disposal nine radiotherapy machines, two of them located in our auxiliary branch in Hoofddorp. In 2016 we will add another machine – the MR accelerator – bringing the total to ten. With the aid of this accelerator it will become possible to finetune radiotherapy even more.

"In personalized radiotherapy the radiation dose is adjusted to the anatomical change in the patient and the changes in the tumor.”
Immunotherapy is a treatment which ensures that the patient's immune system is better able to destroy cancer cells. Immunotherapy is very much in the spotlight: newspapers and current affairs programmes regularly report on promising developments in this relatively new method of cancer treatment, and this was also the case in 2015. The Antoni van Leeuwenhoek is closely involved in many large (international) research projects and is at the forefront of research into and treatment using immunotherapy. Professor John Haanen makes a strong case for this promising treatment: ‘There is rapid progress, but at the moment immunotherapy is only regularly used to treat a couple of cancer types. This has to change...’
One of the highlights of the research carried out by the Antoni van Leeuwenhoek is personalized medicine, i.e. goal-oriented customised treatment for the individual patient. Thanks to scientific research we know that every cancer is different, and that every tumor has its own DNA abnormality. This is why a treatment does not achieve the same effect with every patient. By looking at the underlying genetic flaws, the most favourable therapy is prescribed. Personalized medicine is now used in the Antoni van Leeuwenhoek with some forms of breast cancer, prostate cancer, head and neck cancer, lung cancer and melanoma. It is the Antoni van Leeuwenhoek’s ambition to be able to provide all patients with customised treatment in the future. Personalized medicine is the lifework of molecular carcinogenesis professor René Bernards. He attended the popular television show De Wereld Draait Door several times in 2015 to talk about the developments in this field: ‘We are achieving concrete results more and more quickly. We are not there yet, but the finishing line is in sight.’
Awards and special grants

This year again many researchers at the Antoni van Leeuwenhoek received an award or a grant. Their commitment and expertise is recognised nationally and internationally, and we are very proud of this. A selection.

**EAU INNOVATORS IN UROLOGY AWARD**
The EAU Innovators in Urology Award 2015 goes to Simon Horenblas.

**GALENUS RESEARCH AWARD 2015**
The Galenus Research Award 2015 goes to hospital pharmaceutical chemist Alwin Huitema for his contribution to personalized medicine.

**AMMODO AWARD**
Researcher Thijn Brummelkamp received an Ammodo Award from the Koninklijke Nederlandse Akademie van Wetenschappen (KNAW).

**ALPE D’HUZES / KWF KANKERBESTRIJDING**
The Antoni van Leeuwenhoek, the Hubrecht Institute and UMC Utrecht received a 1.9m-euro grant from Alpe d’HuZes / KWF Kankerbestrijding (Dutch Cancer Society) for a tailor-made treatment of lung cancer patients.

**5.9M EUROS**
Researcher Marjanka Schmidt was granted 5.9m euros for her project Breast CAncer STratification (B-CAST).

**NWO VENI GRANT**
Yoshitaka Hiruma received a VENI grant from the Netherlands Organisation for Scientific Research (NWO) for additional research into the role of the Mps1 protein during cell division.

**OUTSTANDING RESEARCH AWARD**
Researcher Daniel Peeper received the ‘Outstanding Research Award’ from the Society for Melanoma Research (SMR) in San Francisco.
The Antoni van Leeuwenhoek Foundation raises funds to finance research at the Antoni van Leeuwenhoek/Netherlands Cancer Institute. This is done in close cooperation with the KWF Kankerbestrijding.

9000 DONORS OF WHICH 6000 STRUCTURAL

DONATIONS IN 2014 €1,431,247

DONATIONS IN 2015 €1,858,630
Comprehensive Cancer Centre

The Antoni van Leeuwenhoek wants to make a substantial contribution to solving the problem of cancer in the 21st century. It is our ambition to be included in the top ten of Comprehensive Cancer Centres around the world. Here patients demonstrably receive the best care and service, practice-changing research is being conducted and high-quality training is on offer.

**OUR CORE TASKS:**
- PATIENT CARE
- RESEARCH
- TRAINING AND DISSEMINATION OF KNOWLEDGE

The Antoni van Leeuwenhoek co-operates both nationally and internationally with (university) hospitals, universities, research institutes and patient organisations.

**(INTERNATIONAL CO-OPERATION IN PRACTICE:**
- exchange of knowledge
- joint research
- consultancies & second opinions

**EXAMPLES:**
- Cancer Core Europe
- Center for Personalized Cancer Treatment (CPCT)
- University of Twente
- Leiden University
- University Medical Center Utrecht
- Hubrecht Institute

**RESEARCH INSTITUTE**
**(THE NETHERLANDS CANCER INSTITUTE)**

**SPECIALISED CLINIC**
**(ANTONI VAN LEEUWENHOEK HOSPITAL)**

**ANTONI VAN LEEUWENHOEK COMPREHENSIVE CANCER CENTRE**
Patient care

Patients receive the best treatment currently available at the Antoni van Leeuwenhoek. Our patient satisfaction survey shows that the average rating patients give our hospital is **8.6**.

**CENTRES OF EXCELLENCE**

In 2015 nine Antoni van Leeuwenhoek centres of excellence have been appointed by the Ministry for Health, Welfare and Sport as national centres of excellence. Patients with rare diseases can turn to the centres for help with the diagnosis, and multi-specialty and -disciplinary care and treatment.

**PATIENT PARTICIPATION**

The ambition of the Antoni van Leeuwenhoek is that patients are involved and would like them to be in the driver’s seat when it comes to their own treatment. The AVL is convinced that patient participation in research, treatment and policy will lead to increased quality and safety of (experienced) care. Patient participation consists of:

- AVL patients’ panel
- (Departmental) patient satisfaction surveys
- Organised discussions
- Dialogue groups
- Individual interviews

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**39,000**

*PATIENTS TREATED*

28,500 of whom were current patients and 10,500 new patients. Compared to 2014 this is a 5.7% increase in new patients.

**205**

*BEDS*

of which 50 beds in the outpatients clinic and 12 beds in intensive care

**7797**

*PATIENTS ADMITTED*

**108,181**

*VISITS TO THE OUTPATIENTS CLINIC*

**11**

*RADIOThERAPY MACHINES*

4496 patients underwent radiation therapy in 2015

**16**

*QUALITY MARKS AND CREDITS*

given by patient organisations, professional associations and insurance companies
Our scientific research is broad, ranging from fundamental biological questions to translational and clinical research, epidemiology and psychosocial research. This broad spectrum allows us to further develop new laboratory inventions and findings leading to improved methods of treatment for patients.

41
PROFESSORS

24
RESEARCHERS TOOK A DOCTORAL DEGREE

627
PUBLICATIONS IN SCIENTIFIC JOURNALS

333
CLINICAL TRIALS

2238
PATIENTS PARTICIPATED IN EXPERIMENTAL TREATMENT IN 2015
The third core task of the Antoni van Leeuwenhoek is increasing and sharing knowledge about oncology. We offer oncological training and share our knowledge with cooperating hospitals in the form of consultancy services. In 2015 the AVL Academy was set up to further professionalise our third core activity of education. The AVL Academy is an oncological training facility which will house all our educational activities. Its aim is to train our professionals and keep them abreast of the latest developments. We are very proud of what we have achieved in 2015.

**CARE AND RESEARCH TRAINING**
The fight against cancer can only be successful if the Antoni van Leeuwenhoek’s staff is decisive and dedicated. We owe our success to 2627 motivated and passionate colleagues and 150 volunteers.

**Number of Staff**

- Medical specialists: 182
- Nurses: 383
- Cancer research staff: 560
- Staff working in outpatient care, radiology, radiotherapy and ancillary departments: 1502

**Composition of Staff**

- Male: 802
- Female: 1825

**Intake of New Staff**

- Intake of new staff: 638
- Number of applicants: 7358

**Age Structure**

- Under 30: 606
- Age between 30 and 50: 1262
- 50 or older: 759

**Nationalities**

The Antoni van Leeuwenhoek employs staff of 54 different nationalities.

**Best Employer Awards 2015**

The Antoni van Leeuwenhoek was in 15th place in the ‘Best Employer Awards 2015’. This survey was conducted by Effectory and Intermediair. 347 companies in total took part. We are the highest listed hospital.
The Antoni van Leeuwenhoek’s financial position is stable. We closed the year with a positive result. Our co-operation with KWF Kankerbestrijding ensures that we have sufficient financial resources. This is crucial to our ongoing high-quality research into the development and treatment of cancer.

**TOTAL TURNOVER 2015**
304M EUROS

**INCOME HOSPITAL**
165.9M EUROS

**HEALTH INSURANCE**
24.4M EUROS

**GOVERNMENT (MINISTRY OF HEALTH, WELFARE AND SPORT)**

**INCOME RESEARCH**
17.2M EUROS
GOVERNMENT (MINISTRY OF HEALTH, WELFARE AND SPORT)

16.1M EUROS
SPECIFIC GRANTS KWF

36.7M EUROS
SPECIFIC PROJECT GRANTS

1.8M EUROS
DONATIONS/BEOQUESTS/PATENTS

9M EUROS
SPECIFIC PROJECT GRANTS KWF