



# The Future of Cancer Treatment

The International Virotherapy  
Centre in Latvia



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## Latvian scientists' pioneering research in virotherapy

It started with Dr. Aina Muceniece and research on virotherapy. The scientists at the Latvian Academy of Sciences Microbiology Institute had been working on a possible vaccine for polio. During the late 1950s they had isolated several viruses from the gastrointestinal tracts of healthy children. When the vaccine project had been successfully finalised, Dr. Muceniece began investigating other potential uses for the viruses. Already at that time there had been a few studies on the effect of oncolytic viruses in cancer. Initially, a heterotransplant model of human cancer tissue transplanted into the cheek pouch of hamsters was used. Screening revealed that quite a few of the viruses reduced the size of the transplant tumour tissue. In order to optimize the development of cancer virotherapy, the first Cancer Virotherapy Laboratory in the world

was established in 1965 in Riga, under the leadership of Dr. Aina Muceniece, who led the laboratory until 1989. She was appointed an honorary member of the Latvian Academy of Sciences in 1992 and became an Emeritus member of the Academy in 1996. Dr. Muceniece knew that there is no 100% cure for cancer, but her greatest wish was that anyone who would potentially need virotherapy would have access to it as early as possible. This was to become her legacy.

## Cancer and oncolytic virotherapy

There are three generally recognized methods of cancer treatment: surgery, radiation therapy, and chemotherapy. Oncolytic virotherapy is becoming a significant fourth cancer treatment. It uses a virus that destroys cancer cells. The oncolytic viruses used have the ability to destroy cancer cells.

Since an oncolytic virus can selectively destroy malignant cells, it does not harm healthy cells in the human body. In addition, oncolytic virotherapy activates the immune system and can, in certain circumstances, successfully treat tumours that are insensitive to radiotherapy and chemotherapy, such as melanoma. Oncolytic virotherapy can be used before and after surgery. Virotherapy has few side-effects. The most common side-effect is a slight fever (ca. 37.5 °C) over the course of a few days. The fact that virotherapy is ambulatory makes it comfortable to use, since administration of the virus is intramuscular and can be done by a nurse at home.

### The development and future prospects of oncolytic virotherapy

Considering the action of oncolytic viruses, it is clear that when a patient comes to the oncologist, the

### The first virotherapy centre of excellence: The Global Virotherapy Cancer Clinic

The first virotherapy centre of excellence in the world, the Global Virotherapy Cancer Clinic, opened in 2016. The centre welcomes patients to be treated with oncolytic virotherapy. The centre has gathered a team of the most experienced virotherapy specialists in Latvia that impersonalize several decades of experience of virotherapy treatment. The centre focuses on a holistic view of the patient and offers a peaceful, relaxing and psychologically nurturing environment. Patients who come to the centre receive not only state-of-the-art virotherapy cancer treatment, but are provided with a comprehensive healing environment that includes psychotherapy, art therapy, an opportunity to attend tsigun classes, and more. There is also a top class restaurant on the premises, that cares for the dietary requirements of

## The centre welcomes patients to be treated with oncolytic virotherapy

specialist's first choice of treatment should be the natural, biological cancer killer: the virus. Virotherapy does no harm to the healthy cells of the patient.

Today virotherapy has the potential for rapid development.

Latvia is the home of virotherapy and the first International Virotherapy Centre. The Centre is advancing research and fulfilling the legacy of Dr. Aina Muceniece by disseminating information about oncolytic virotherapy. Dr. Muceniece was the specialist who not only developed virotherapy, but saw it through the many complex steps needed for approval of the regulatory authorities in 2004. Oncolytic virotherapy is approved for melanoma, but virotherapy is also available to specialised oncologists to prescribe off-label at their responsibility for patients suffering from other types of ncer.

the patients. The Global Virotherapy Cancer Clinic is located just a few steps away (ca. 400 m) through a pine forest from an almost endless white sand beach on the Baltic sea.

Everyone who has experienced the disease, family and friends, as well as the professionals involved in the treatment know that cancer is not merely a physical condition. Peace, respect, the possibility to confide in others, and to receive honest, authoritative answers to questions are just as crucial to the healing process as physical well-being. This is what the Global Virotherapy Cancer Clinic offers. Loved ones, wishing to support the patient, are also welcome.

The professionals at the International Virotherapy Centre continue their work on advancing the medication, and collaborate with 20 other virotherapy clinics worldwide. No patient should be denied information about a possible treatment. **BO**

- Advantages of virotherapy:**
- Selectively destroys cancer cells
  - Safe and effective
  - Gentle and well-tolerated
  - Ambulatory use
  - Genetically not modified

The Global Virotherapy Cancer Clinic has already welcomed patients from 38 countries (most patients are from the UK, USA, South Africa, Australia, Canada, Poland, Sweden, and Denmark). A one-week all-inclusive stay at the clinic costs 7000 EUR.

