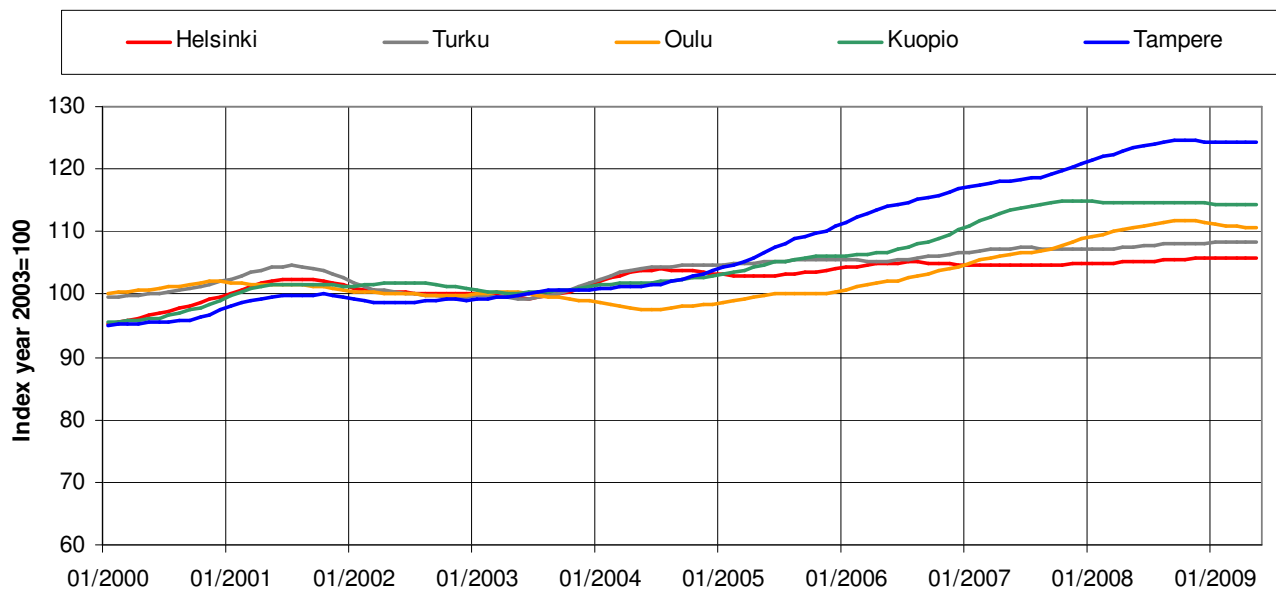


## Tampere is the Fastest Growing Life Science Center in Finland

*Tampere has a combination of multi-disciplinary, technological, bio-medical and medical expertise in education, research, healthcare and business sectors. In recent years, the health, wellness and biotechnology sector in the Tampere region has been the fastest growing in Finland and received the largest number of private investments in business development. The region's wellness and health technology cluster provides some 30,000 jobs.*

Tampere has the potential to expand existing business, accelerate the emergence of new companies and draw new international companies to the region through the further development of cooperation between select research, development and innovation centres and the healthcare system and producers of wellness services.



SOURCE: Statistics Finland

Tampere has four main competence areas in Life Science sector: Health Services, Drug Development, Medical Technology and Human Spare Parts.

## Health Services

As a developer of health services, Tampere is at the cutting edge in Finland. Pirkanmaa Hospital District is known as an active reformer of both basic and special health-care services. The region has several private special health-care services and new models of operation to support the independent living of groups with special needs. Tampere University is a strong and internationally recognised centre for multidisciplinary research into ageing.

### ACHIEVEMENTS

- Focus hospitals Heart Center Co. and Eye Clinic and Coxa, the biggest hospital for joint replacement in the Nordic region
- The Kotitori service

### NEW CONCEPTS

- The HealthCareFinland health tourism portal
- The first private patient hotel in Finland
- New uses of the Pirkonlinna hospital area
- A joint gerontology research centre of Tampere University and Jyväskylä University
- The ITSE concept for promoting independent coping

### DEVELOPMENT WORK

- A customer-oriented service system for high-quality care

## Drug Development

The Tampere region has a clearly defined profile. It is a growing centre for research, education, and business in health technology and biotechnology.

Tampere offers an excellent operation environment for medicine development. The teaching in the field of medicine at Tampere University is of high quality, and extensive expert services in product development, clinical research, and commercialisation, along with established national and international networks, are available to support the medicine development.

The top fields in medicine development in Tampere are vaccines and ophthalmic medicine.

### ACHIEVEMENTS

- The Tampere University Vaccine Research Center
- The first preservative-free glaucoma medicine in the world
- An antibiotic screw for the treatment of bone fractures
- A quick test for the diagnosis of celiac disease
- Developing of the HIV-vaccine

## NEW CONCEPTS

- Vactia – a joint centre for research and product development for vaccines and solutions for infectious and immunological diseases for research units and companies in the vaccine industry
- SILK – the Research and Development Center for Ophthalmic Innovations

## DEVELOPMENT WORK

- Vaccine treatment for HIV-positive people and AIDS patients
- Vaccine treatment for type 1 diabetes (juvenile diabetes)
- DNA vaccine technology and tuberculosis vaccine
- Clinical research of celiac preparations in co-operation with an American manufacturer



*Santen Oy, CEO Jyrki Liljeroos*

## Medical Technology

Tampere is home to a strong and internationally significant cluster of competence in medical technology. The expertise is grounded in the research and extensive collaboration of Tampere University, Tampere University of Technology, and VTT Technical Research Centre of Finland and directed to improvement of the competence and business operation of the field.

**Medical technology** is a field of technology that combines several branches of science and technology, using technical-scientific methods and solutions for the needs of medicine and health care. In Tampere,

development work for medical technology is exceptionally wide-ranging. Related special competence can be found in the following fields, among others: biomaterials, biosensors, biophysical measurement and imaging, data analysis and bioinformatics, cell signals, micromanipulation of active materials and fluidics, miniaturisation of electronics and 3D packaging, personal electronics and wireless systems, anthropocentric technology, e-health, and well-being technology.

Tampere has international-level top-notch competence in particular in measuring and imaging of human biological and physiological phenomena and processing of said data in support of diagnosis and determination of appropriate treatment.

### ACHIEVEMENTS

- Medical pressure clothing for the treatment of scars and swelling, and 3D support clothes for athletes and the handicapped
- Targeted cancer treatment applying laser technology
- Market-leading companies providing laboratory data systems and hospital technology

### NEW CONCEPTS

- Data-driven Medicine, a seminar in the bio field for researchers and companies on the theme of creation of innovation

### APPLICATIONS UNDER DEVELOPMENT

- Mobile solutions in health care
- Browser-based applications for health-care systems



*Bioretec Oy*

## Human Spare Parts

Treatments based on biomaterials and tissue technologies are a significant new branch of operation taking their place alongside medications and surgery. Tampere is at a world standard in research and product development for biomaterials and tissue technology, and the research has given birth to several companies in this region that operate in the global market.

Medical biotechnology is used to improve the diagnosis of diseases, to discover new kinds of treatments for difficult diseases, and to develop even more efficient medicines and vaccinations.



The innovation activities in medical biotechnology in Tampere are centralised in the BioMediTech institute, a joint unit of Tampere University of Technology and Tampere University. Its top-notch project Human Spare Parts develops methods of using the human body to build spare parts for damaged and deteriorating body parts.

## **ACHIEVEMENTS**

- The first biodegradable implants in the world, a biodegradable antibiotic screw and a joint cushion that promotes the growth of connective tissue
- Bone transplants with products grown from the stem cells of the person's own fatty tissue

## **NEW CONCEPTS**

- BioMediTech – a research and development institute combining the fruits of biomedicine and engineering sciences

## **OPERATIONS UNDER DEVELOPMENT**

- Stem-cell-based methods for the treatment of retinal diseases
- Electrotechnical biomaterial applications for retina implants
- Differentiating cardiomyocytes from stem cells – development of methods and growth environments



*Regea Cell and Tissue Center, BioMediTech, University of Tampere*