



Dresden.
Dresden

Smart health

in the smart city of Dresden





Dresden – Tomorrow's Home

Welcome to Dresden – home to the future of business and science. Developments in outstanding basic research and effective technology transfer have meant that, in addition to reputable research institutions such as the Max Planck, Leibniz and Fraunhofer Institutes, the last few decades have also seen Dresden become a base for a number of smart-health companies that are attracting international interest. The BioInnovationsZentrum brings business and science together under one roof. The short pathways give start-up owners fast access to the technology platforms and devices. The Economic Development Office helps businesses and research institutions develop and establish themselves in Dresden.

Prestigious **research institutions** are the cradle of numerous spin-offs here. At the **Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG)**, 500 researchers from over 50 countries study the way cells organise themselves into tissue, and how this can create a complex organism. The aim here is to understand how tissue and cell groups form out of the combination of individual molecules and cells. Meanwhile, scientists at the **Centre for Regenerative Therapies Dresden (CRTD)** track down the self-healing nature of the processes. Their goal is to explore regenerative processes, develop novel therapies, and replace diseased or destroyed tissue in humans. The focus at the **B CUBE – Centre for Molecular Bioengineering** is on applying natural phenomena to synthetic materials, also known as molecular bioengineering. Innovations are particularly being created here in the fields of materials development, medical diagnostics and functional-material synthesis.

Digital health

Groundbreaking research partners have enabled digitalisation and artificial intelligence to play an increasing role at Dresden's health facilities. The **Else Kröner Fresenius Centre (EKFZ) for Digital Health** develops novel treatment and surgical methods, as well as innovative technical concepts for diagnostics. For example, smart sensors in intensive care are helping with treatments, taking the pressure off nursing staff and physicians. This technical support means examinations are less risky and more accurate - benefiting patients. Together with the **Centre for Tactile Internet with Human-in-the-Loop (CeTI) at the TU Dresden**, the **National Centre for Tumour Diseases Dresden (NCT/UCC)** is working side-by-side with the Carl Gustav Carus University Hospital to develop a new stage in robot-based surgery.

The OncoBroker smart-health project

Even in the digital age, easy, secure data exchange in the medical and health industry is not yet a given, and can involve risks. This is also true when it comes to exchanging cancer patients' after-care information. Data is sent to the necessary doctors and hospitals too late – or not at all. And this can have serious consequences. As part of the OncoBroker joint smart-health project, the **Dresden Economic Development Office** is working with the **St. Joseph-Stift Dresden hospital**, the **Institut für Angewandte Informatik e. V.** and **T-Systems MMS** to develop an AI-based solution that enables the latest data to be sent to the right recipients any time on a secure platform. As such, information is exchanged reliably between the patient, doctor and hospital, information-transfer processes are simplified, and data protection optimised.

THE ONCOBROKER SMART-HEALTH PROJECT PARTNERS

T-Systems
Let's power higher performance


ST. JOSEPH-STIFT⁺
DRESDEN



InfAI
Institut für Angewandte Informatik





Cancer treatment

Dresden is a key driver of progress when it comes to cancer treatment. The establishment of the **National Centre for Tumour Diseases Dresden (NCT/UCC)** on the Carl Gustav Carus University Hospital campus has seen the emergence of a new hotspot for research and therapy. The centre conducts clinical studies to test the latest research findings as quickly as possible and then apply them to general care for cancer patients. The NCT/UCC's main focus areas include new surgery techniques and state-of-the-art cancer medication. Another very important institution is the **National Centre for Radiation Research in Oncology (OncoRay)**. It facilitates personalised, technologically optimised radiation therapy using a state-of-the-art proton-therapy system (cyclotron).

Diabetes treatment

The **Carl Gustav Carus University Hospital** has the entire range of clinically available methods and technologies covered when it comes to diabetes treatment. Germany's only clinical islet-cell transplantation programme for treating patients with type-1 diabetes or those who have undergone full or partial removal of the pancreas, has been in existence since 2008. The research is particularly conducted at the **Paul Langerhans Institute Dresden (PLID)** and is internationally acclaimed. The work performed by the scientists and physicians at the PLID is especially centred on protecting and restoring the insulin-producing beta cells in the pancreas in order to prevent and cure diabetes.



A strong economy

Research-based innovations are being implemented in Dresden's economy at an ever increasing rate, resulting in many successful spin-offs there. Biotechnology developed in Dresden is known for red (medical) **biotechnology**. The targeted interlinking of various disciplines, along with the results obtained in the fields of bioengineering, regenerative medicine, stem cells, and cell and gene therapy, has sparked international interest. Among Dresden's beacons are companies such as **Dewpoint Therapeutics GmbH**, which uses the latest findings in biomolecular condensates to discover and develop active ingredients in a bid to unlock new ways of treating diseases such as cancer or neurodegenerative disorders. Operating internationally, **AvenCell Europe GmbH** specialises in developing, manufacturing and selling next-generation immune therapies for hard-to-treat cancers using the universal CAR T-cell therapy. **Biotype GmbH**, an innovative company with over two decades of experience, develops and sells molecular-diagnostic solutions and offers customised order development and manufacturing for laboratories, pharmaceutical companies and diagnostics companies. As a spin-off of MPI-CBG, **Lipotype GmbH** is a leading provider for lipidomics. Its Lipotype Shotgun lipidomics technology rapidly analyses thousands of samples and quantifies over 3100 lipids in order to find biomarkers for serious diseases.

The **pharmaceuticals industry** has a tradition spanning over 120 years in Dresden. And the city continues to be shaped by innovative entrepreneurship to this day. **APOGEPHA Arzneimittel GmbH** specialises in developing and selling urological pharmaceuticals, while **GSK Biologicals** specialises in developing and manufacturing flu and hepatitis vaccines, ranking among the world's leading providers. **Menarini – von Heyden GmbH** is one of the largest production facilities of Italian pharma company MENARINI GROUP and produces solid dosage forms to treat diabetes, pain and cardiovascular diseases for over 100 markets worldwide. **ROTOP Pharmaka GmbH** dates back to the former Central Institute for Nuclear Research Rossendorf. In close collaboration with the HZDR, its focus is on developing, creating and selling pharmaceuticals for nuclear medicine.

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This measure is funded by taxes based on the budget approved by the Saxon State Parliament.

www.dresden.de/smartcity