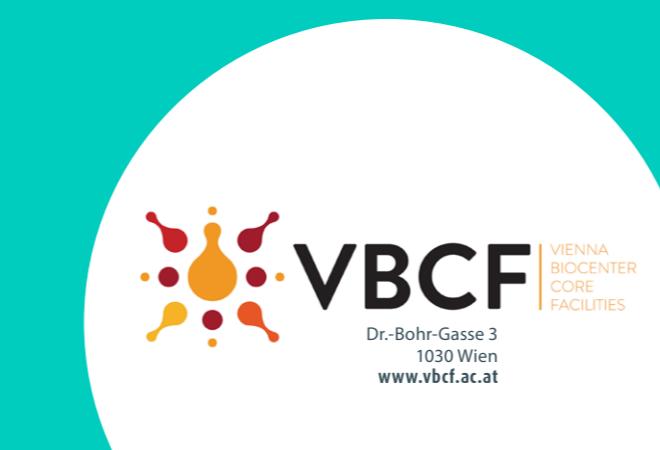


// I WANT TO THANK
THE VBCF TEAM FOR THE
GREAT COMMITMENT
AND THE NEVER FADING
ENTHUSIASM TO REACH
FOR THE BEST SOLUTIONS.
YOU ARE AMAZING PEOPLE
AND I FEEL PRIVILEGED
TO WORK WITH YOU. //



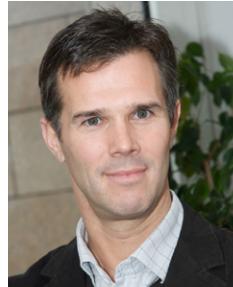
ANDREAS TIRAN
MANAGING DIRECTOR VBCF



five
years



A SHORT HISTORY OF THE VBCF GENESIS



The idea for Vision 2020, a joint scientific Core Facility at the Vienna Biocenter (VBC) goes all the way back to 2006. Based on the disappointing decision that ISTA would be located at Klosterneuburg instead of St Marx, a few visionary members of the VBC began a conversation with then vice mayor Rieder, and thus the Vienna city government, to convince them of the fundamental need for an infrastructure funding program for the VBC.

This was, however, only the beginning of a long and grueling odyssey through the landscape of Austria's Research Funding programs. Strategy papers, presentations, and financing concepts were developed and, most importantly, we engaged in countless conversations to promote this idea. In essence, our mantra was that the international competitiveness of the VBC could only be guaranteed if sufficient funds were available to cover the ever shorter investment cycles for expensive technical research equipment and fund the necessary specialists on-site. Neither the budgets of the individual research organizations nor the biotech companies would be able to tackle this challenge. This "Tour de Force" of lobbying led to an invitation by the city of Vienna and the Ministry of Science to prepare a structured application in March 2008. LISAVienna was commissioned to administratively manage the process of the international evaluation of the application.

The application consisted of funding for 10 scientific facilities as well as a kindergarten, which had already been established by a few members of the VBC. The resulting agreement on a joint funding application was an interesting experiment in group dynamics at the VBC. It had to be signed by 14 different insti-

tutions with a binding list of priorities as we did not know how much funding would be approved. In effect, we had to count our chickens before they hatched (or, as the German saying goes, "Das Fell des Bären musste verteilt werden, bevor er erlegt war").

For the operational management of these facilities, the Campus Support Facility GmbH was devised as a private entity owned by VBC members. Also, the currently established financing model was developed for the application.

Excitingly, the jury meeting took place on a rainy day in July 2008, with 5 international experts, representatives from the ministries, the City of Vienna, and funding organizations, and lots of VBC members squeezed into the Orange Seminar room at the Gregor Mendel Institute. The unanimous positive recommendation eventually led to a commitment for funding of € 51.7m by the then Minister of Science Johannes Hahn and the City Councilor for Finance Renate Brauner on the 27th of October 2008. We were extremely proud to receive a commitment of this magnitude over a ten-year funding period, a unique time-frame for scientific funding.

After this, "the little" that remained were negotiations of the funding contracts, resolution of complex competition law issues, and founding of the actual business. All this took over a year to complete. We (Harald Isemann and Markus Kiess) took over provisional management of the new CSF GmbH in the summer of 2010, until we handed it over to Andreas Tiran in January 2011, at which point the CSF could really begin their fruitful work at the VBC.

Two handwritten signatures in blue ink. The signature on the left is Harald Isemann's, and the signature on the right is Markus Kiess's.

HARALD ISEMANN AND MARKUS KIESS
ADMINISTRATIVE DIRECTOR IMP / BUSINESS DIRECTOR GMI



...The decision to invest in research infrastructure to strengthen the Vienna Biocenter as one of the leading European research locations was visionary, the decision to establish it as an independent institute was the right way to do it. VBCF is in the fortunate position of being able to combine features that are of high relevance for any provider of research infrastructure: a lean administration, short decision paths, and most importantly longer term funding and planning periods, paired with upmost flexibility to quickly react to new emerging technologies. This already enabled VBCF to successfully fulfill its mission within the first five years of the initial core facility becoming operational.

We thank the Federal Ministry for Science, Research and Economy and the City of Vienna for their support without which VBCF would not exist. We thank our shareholders and customers for the good cooperation and their help to constantly develop and shape VBCF and its services to the best benefit of the researchers. Me personally, I want to thank the VBCF team for the great commitment and the never fading enthusiasm to reach for the best solutions. You are amazing people and I feel privileged to work with you.

Much has been achieved but much more remains to be done. I am looking forward to the next five years that will bring VBCF to its full potential.

A handwritten signature in black ink, appearing to read "Dr. Andreas Tiran".

ANDREAS TIRAN
MANAGING DIRECTOR VBCF



THE TECHNOLOGICAL PROGRESS IN LIFE SCIENCES DURING THE LAST DECADE HAS BEEN BREATH TAKING. SCIENCE IS DRIVEN BY GOOD IDEAS AND BRIGHT PEOPLE, BUT ACCESS TO LATEST TECHNOLOGY HAS BECOME AN INDISPENSABLE PREREQUISITE FOR SUCCESS. ONLY RESEARCHERS WITH ACCESS TO STATE-OF-THE-ART TECHNOLOGY ARE ABLE TO COMPETE AT THE FOREFRONT OF SCIENCE. VBCF WAS FOUNDED TO OFFER SERVICES AND TECHNOLOGIES THAT MAKE A DIFFERENCE, THAT ENABLE RESEARCHERS TO ADDRESS QUESTIONS THAT WOULD NOT BE ACCESSIBLE WITHOUT IT...

// CONTENT

// ADVMICRO		6
// BIOCOMP		8
// EM		10
// HP		12
// METABOL		14
// NGS		16
// PCIMAG		18
// PCPHENO		20
// PLANTS		22
// PROTECH		24
// VDRC		26
// CCC		28
// SIM		30
// ADMIN		32
// FACTS & FIGURES		34

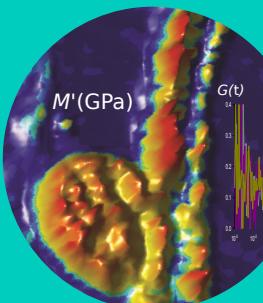
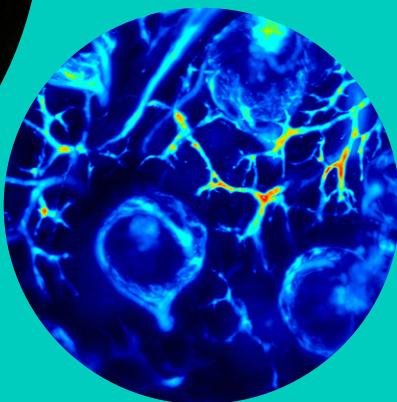


"Kareem and his team are not only extremely knowledgeable but also easily approachable, flexible and extremely helpful. As a result, we successfully established FLIM-FRET and 3D-SIM microscopy in our model system in a record amount of time. It is a pleasure to work with them."

Dea Slade, MFPL

"Without the equipment of the Advanced Microscopy Facility, the discussions with the highly qualified staff, their creative developments and their constant support, I would not have been able to consider this technology. Now it is an important, productive and essential approach in our research that gains a lot of attention also outside of the VBC."

Ortrun Mittelsten Scheid, GMI



// INTERESTED IN HOW AND IF 2 MOLECULES
INTERACT? WITH ONE MICROSCOPE WE
COULD TELL YOU HOW CLOSE THEY ARE (WITH
SUB-NANOMETER PRECISION), HOW THEY ARE
ORIENTATED RELATIVE TO EACH OTHER, HOW
ROTATIONALLY MOBILE THEY ARE, WHETHER
THEY ARE BOUND OR UNBOUND, THEIR
EXACT CONCENTRATIONS, THEIR DIFFUSION
PROCESSES AND RATES (IN THEMSELVES AND
RELATIVE TO EACH OTHER), THEIR SIZE, HOW
THEY "TUMBLE", AND THE VISCOSITY AT EACH
POINT - DYNAMICALLY IN LIVE CELLS. //



// ADVMICRO

ADVANCED MICROSCOPY



HISTORY The Advanced Microscopy facility was started in mid-2013, with the goal of providing cutting edge and custom optical microscopy technologies for life science researchers.

The main goal is to give researchers access to technologies that are not commercially available, but which could prove beneficial for tackling their research questions. In addition, the facility provides assistance in optimization and customization of optical microscopes.

Since 2014 the development of new microscopes for the facility followed the Instrument Credit Point (ICP) policy. The basic premise of this is that prior to the development of an instrument, interested researchers or institutes pledge a certain fraction of the development cost of the instrument in return for guaranteed usage of the microscope for 2 years subsequent to completion.

The facility has steadily grown and currently includes a staff of 4 R&D Scientists who build, maintain and operate current instruments. We work closely with many research groups at the Vienna Biocenter and beyond, as well as both the MFPL BioOptics Facility and the IMP/IMBA/GMI BioOptics facility, both in the form of collaborative projects and grants as well as for consulting.

SERVICES The Advanced Microscopy facility currently offers technologies spanning from super-resolution optical microscopy, time-resolved fluorescence imaging, light-sheet microscopy to microspectroscopy. While microscopes are typically developed and optimized in close collaboration with a few Vienna Biocenter researchers to address specific research interests, they are generally designed to allow for maximum versatility in terms of applications, and remain available to all researchers at the VBC and beyond for the course of their operation. Microscopes are either operated by dedicated facility staff or by trained users.

In addition to providing services to local researchers, the facility has also received projects beyond the Vienna Biocenter, having been commissioned to build a duplicate of their microspec-

troscopy set-up for the University of Heidelberg, and a rugged light-sheet microscope to be used for field work on a remote island near Belize.

Though most microscopes are developed with the goal of remaining part of the facility, the realization of less elaborate specialized microscopes to be housed at a research lab and custom modifications to microscopes in a researchers own lab have also been undertaken.

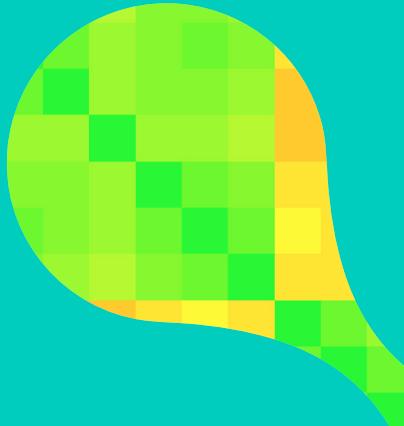
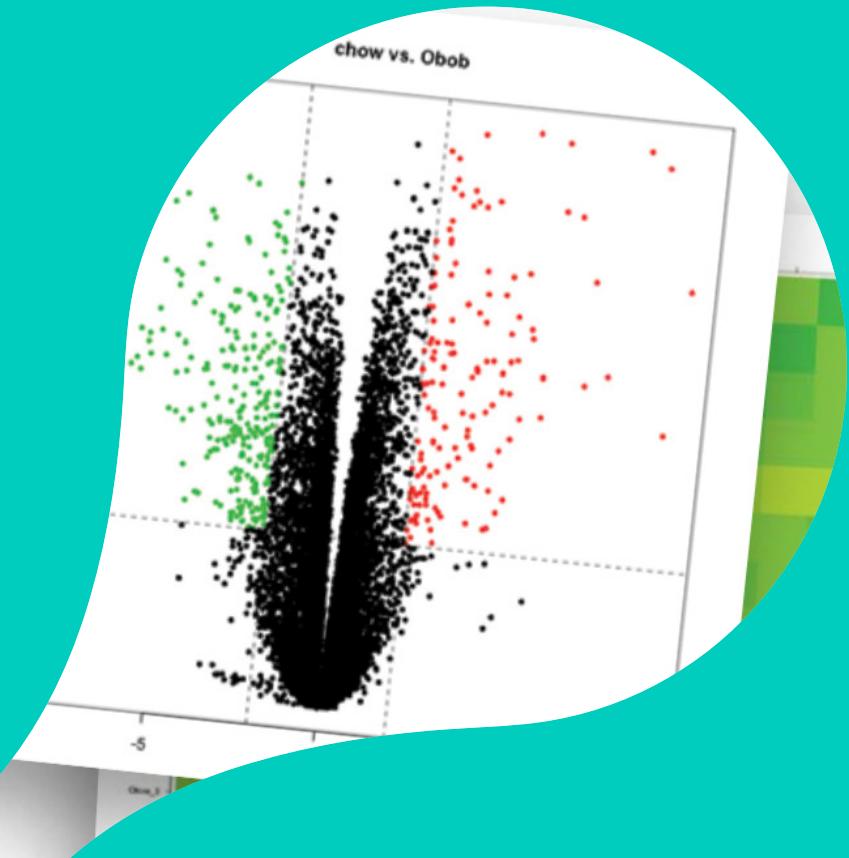
KEY ACCOMPLISHMENTS The Advanced Microscopy facility has been a key collaborator in several grants (to a value of over one million Euros) supporting the building of new microscopes and custom modifications and extensions of existing instruments at, and for, the facility. The instruments of the facility and assistance of its staff remain essential for numerous projects at all of the research institutes at the Vienna Biocenter.

FUTURE VISION One goal of the Advanced Microscopy facility is to continue to fund the development of new microscopes increasingly through external national and European grants, with a significant portion of the assembly of new instruments being performed also by externally funded supervised or co-supervised postdocs and/or students (and the core staff being responsible for overseeing the development, optimization, maintenance and operation of microscopes at the facility). In this way the expansion of the facility is accordingly gated by the demand for new instruments, available funding and resources, and the size and portfolio of instruments is naturally regulated by the research demands at the VBC or in Austria. A second goal is to offer a financing model through which researchers or institutes can purchase an "open access" pass, permitting them to use all facility microscopes at a fixed annual fee. This would prove advantageous by expanding the horizons of many projects, enabling closer collaborations with researchers, and allowing for more "blue sky" research and novel applications of existing technologies.



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// BIOCOMP TURNS YOUR DATA INTO BIOLOGICAL INSIGHTS! //

"I approached BioComp with a very complex pain research dataset with many sequencing samples. They have analysed and interpreted my data quickly at a very high quality. I work at Imperial College and I would have never thought I would have to contact a core facility in Vienna to get my results!"
István Nagy, Imperial College London, UK

"My protein interaction screen involves a complicated experimental setup. BioComp helped me immensely by writing a sample tracking system that is linked seamlessly to a data analysis module. They even threw a visualisation tool into the mix. In other words, BioComp delivered a full data management and analysis solution for me!"
Youssef Belkadir, GMI

8



//BIOCOMP

BIOINFORMATICS & SCIENTIFIC COMPUTING



HISTORY The facility started its operation in November 2011 as the “Scientific Computing Core” (SCC), with the mission of building up and maintaining a set of standardized biocomputing tools for the research groups at the Vienna Biocenter (VBC). Additionally, the SCC had the mandate to support all other CSF (former VBCF) units with scientific computing infrastructure and a laboratory information management system (LIMS) framework.

In June 2013, a complete restructuring of the facility was undertaken. Tasks related to administrative IT infrastructure were transferred to the newly established Strategic Information Management (SIM) facility. At the same time, the SCC facility introduced new bioinformatics analysis workflows and strengthened its programming, training and biostatistical consulting services.

In order to reflect the updated service portfolio, the facility was renamed to “Bioinformatics & Scientific Computing” (BioComp). BioComp focuses on supporting all researchers by providing bioinformatics and scientific computing services that are otherwise only available to a limited number of groups at the Vienna Biocenter. Our team has grown in the last two years, and now includes six highly experienced individuals and a broad set of skills that can be used to efficiently support scientists in a wide range of biocomputing related projects.

SERVICES Research groups within Vienna Biocenter (VBC) have different bioinformatics and scientific computing needs. Groups without internal bioinformatics support need full data analysis service from experimental design to downstream data analysis. Research groups with sufficient bioinformatics support require more specific scientific programming tasks. Training courses and statistical consultation are important for practically all VBC research groups. The BioComp service port-

folio addresses this broad spectrum of user requirements in a flexible manner. Our user fee-based services include next generation sequencing (NGS) data analysis, scientific programming and training courses on bioinformatics, biostatistics and computing skills. We also offer free consultation to VBC research groups on data analysis, statistics and programming topics. BioComp also provides data analysis and programming support to other core facilities and is therefore often referred to as “core of the cores” at VBCF.

KEY ACCOMPLISHMENTS Although BioComp is a fairly recently established facility, it provides services for hundreds of users and has over 50 projects every year with very high customer satisfaction. Our research contributions already resulted in a number of high impact scientific publications (e.g. Schneider et al., Cell 2015). Since the introduction of our NGS data analysis service in 2014, we have implemented cutting-edge analysis pipelines for all major NGS applications. Research groups at the VBC are heavily relying on our customized scientific programming. Our uniquely wide training portfolio helps VBC researchers to improve their biostatistics, bioinformatics and computing knowledge.

FUTURE VISION Molecular biology in the 21st century increasingly relies on high-throughput technologies that generate enormous datasets and thus cannot exist without strong computational support. Large datasets have to be managed and analyzed, requiring bioinformatics and programming professionals as well as sophisticated computational tools. The mission of BioComp is to continue developing solutions for emerging technologies and providing integrated data analysis pipelines to its users. Delivering data analysis tools running on high-performance computing (HPC) platforms is also a key goal of the facility.



biocomp

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// NEW DIRECT ELECTRON DETECTORS ARE CURRENTLY REVOLUTIONIZING CRYO ELECTRON MICROSCOPY AND ALLOWING NEAR ATOMIC INSIGHTS INTO THE ULTRASTRUCTURE OF BIOLOGICAL SAMPLES. //

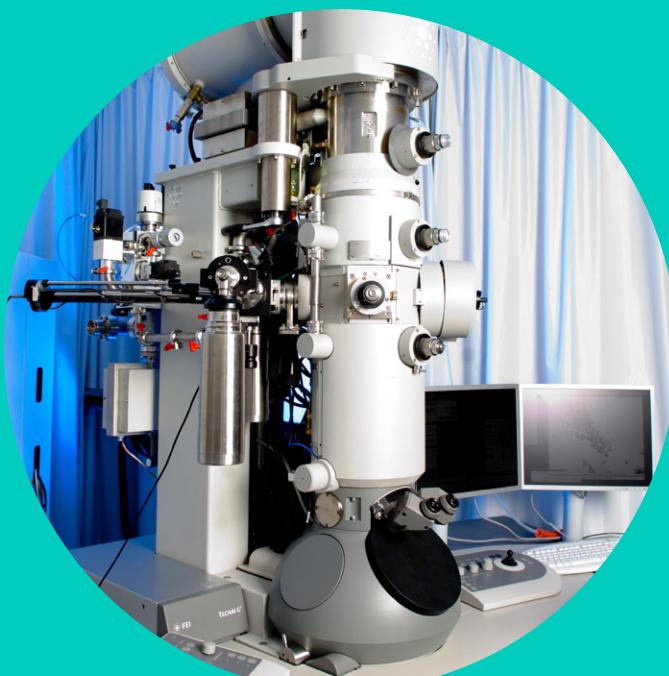
"As cell biologists we are heavily reliant on high-end microscopy in our research. The VBCF EM facility has been a great source of equipment and expertise to help us along the way."

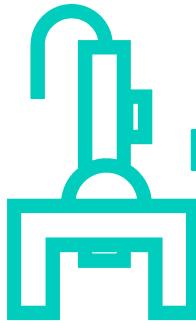
Alexander Dammermann, MFPL

"To test the structural integrity of our favorite protein complexes, we monitor the overall shape of the macromolecular assemblies by negative-stained EM. The VBCF EM facility did a fantastic job in providing the required infrastructure and expertise."

Tim Clausen, IMP

10

A small icon of a microscope, positioned at the bottom of the large number 10.



HISTORY Electron Microscopy (EM) has a long-standing tradition at the Vienna Biocenter: the first electron microscope arrived on campus in the 1990s and in the early 2000s two separate EM facilities were operated by MFPL and IMBA/IMP/GMI. In 2012 these two facilities were merged – including all of their personnel and equipment – and the CSF EM facility was born. Since then, following the concept of core facilities, the user base was expanded from only VBC users to external researchers from Vienna, Austria and beyond. In addition, the range of offered technologies, expertise and services were all increased. In 2013 the newest transmission electron microscope was acquired by the facility (FEI Tecnai T20) to strengthen 3D ultrastructural investigations of biological samples. Today the VBCF EM team consists of five people with a wide range of EM backgrounds and expertise in order to provide a comprehensive EM service that is unique in Austria.

APPLICATION & SERVICES The EM facility can be used in two different ways: as an infrastructure hub or as a service provider. Customers choose whether they prefer being trained in EM to work independently (infrastructure usage) or if instead EM facility staff will perform all steps for them, from sample preparation and visualization by EM to image analysis and processing (service usage).

The EM facility uses scanning and transmission EM to study biological samples ranging from molecules (RNA, DNA, proteins, lipids) and isolated complexes to viruses, cells and tissues. A wide range of sample preparation and imaging methods from conventional techniques to cutting edge cryo electron microscopy and tomography is used to enable researchers to obtain the ultrastructural insights that they are seeking.

SUCCESS STORIES

SCIENTIFIC IMPACT Since its start in 2012 the VBCF EM facility has co-authored or contributed to more than 30 publications. Selected examples:

SAS-6 coiled-coil structure and interaction with SAS-5 suggest a regulatory mechanism in C. elegans centriole assembly
Qiao et al., EMBO J., 2012

Uncoating of common cold virus is preceded by RNA switching as determined by X-ray and cryo-EM analyses of the subviral

A-particle

Pickl-Herk et al., PNAS 2013

An Iron-Rich Organelle in the Cuticular Plate of Avian Hair Cells
Lauwers et al., Current Biology 2013

Characterization of a DNA exit gate in the human cohesin ring
Huis in 't Veld et al., Science 2014

Membrane deformation and scission by the HSV-1 nuclear egress complex
Bigalke et al., Nature Communications 2014

No evidence for intracellular magnetite in putative vertebrate magnetoreceptors identified by magnetic screening
Edelman et al., PNAS 2015

SERVICE HIGHLIGHTS Since its start in 2012 the VBCF EM facility has helped hundreds of researchers from academia and industry at the Vienna Biocenter and elsewhere in Europe to investigate the ultrastructure of biological samples. The EM Facility has also trained dozens of infrastructure users in various EM techniques, is educating students via lectures and workshops on EM and is regularly organizing international courses on cutting-edge EM.

FUTURE VISION The arrival of a new type of camera (the direct electron detector) is currently causing a revolution in cryo electron microscopy and enabling crucial insights into the ultrastructure of biological samples at near atomic resolution (up to ~3 Å). Since April 2015 the flagship electron microscope of the facility – the Polara – is equipped with such a cutting-edge camera, making it unique in Austria. Currently this detector is provided via a research group on campus; the highest priority is to ensure long-term and future-proof access to this new technology.

In addition, the EM facility is investing in CLEM (Correlative Light and Electron Microscopy) and strengthening its collaboration with other VBCF facilities so that researcher can combine ultrastructural insights with phenotype, histology or other microscope data to answer important questions about structure and function.

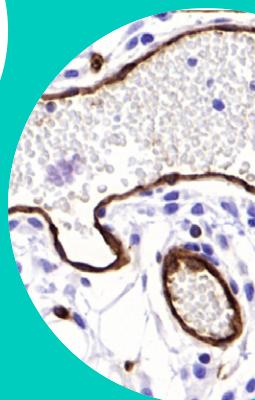


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// HISTOLOGY AND PATHOLOGY
CONTINUE TO BEAR CRITICAL
RELEVANCE IN BRIDGING
MORPHOLOGIC FINDINGS WITH
MOLECULAR MECHANISMS AND
IN CONNECTING ARCHIVED
INFORMATION WITH CUTTING
EDGE METHODS PARTICULARLY
IN THE AREAS OF DISEASE
RESEARCH AND TRANSLATIONAL
APPLICATIONS. //



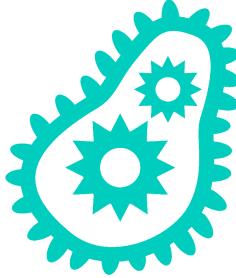
"I would like to thank the VBCF Pathologist for excellent pathology help in the infection projects of two doctoral students in our lab. We hope that both projects will be concluded soon and the pathologist will be a co-author on these manuscripts."

Pavel Kovarik, MFPL

"I just recently moved to the Vienna Biocenter and it has been a pleasure to work with the Histopathology lab at the VBCF. We are working together on a wide range of projects using mouse tissue, but also precious human samples with different downstream applications (histology, immunofluorescence, RNA/DNA isolation for sequencing). The histologists and pathologist are very helpful in planning, optimizing and executing the experiments to achieve the best possible results and I am looking forward to many exciting projects together."

Anna Obenauf, IMP





HISTORY The Histopathology facility was built upon the IMP/IMBA Histology Core, in 2013, with the goal of offering high quality histology services and pathology expertise. In its first year, diverging from the previous approach of free support, the facility strived to establish itself as a credible for-fee service provider. In its second year, it focused on establishing one of its main strengths: automated immunohistochemistry. The panel of optimized antibodies that humbly began with fewer than five, subsequently crossed five dozen and continues to increase. Additionally, after weathering multiple personnel changes during its early years, with the arrival of a new pathologist in 2015, the facility poised itself to offer quality comparative pathology services.

APPLICATION AND SERVICES The facility offers an array of histotechnology methods in tandem with histology and pathology services tailored to the specific needs of each project, ranging from experimental design, tissue sampling, processing, classical and special histochemistry, immunohistochemistry, comparative pathology analyses and documentation. In addition to providing direct services and results, the facility also serves as a bridge for cooperative inter-facility ventures. This could be exemplified by coordinated sampling and processing for correlative histomorphologic and ultrastructural analyses. A critical component of the facility's supportive role comprises training researchers in histological techniques and proper equipment usage along with provision of trouble-shooting assistance when required. Another facet of the facility's supportive role is the furnishing of information and reference materials on histology and pathology along with images and panels for publications, presentations and posters. Importantly, the strength of the facility's service lies not exclusively in the realm of its extant expertise and techniques, but also in its willingness to try newer approaches and methods to accommodate evolving research needs on campus.

SUCCESS STORIES Since becoming a component of the Vienna Biocenter Core Facilities (previously Campus Science Support Facilities) the Histopathology Facility successfully established itself as a professional service provider. Quarterly processing capacity expanded from the initial rate of 2000

units to around 10000 units per quarter while operational costs were reduced to 40 percent of what they were in 2012. Over the past three years, the facility provided support, service and training to groups from all the institutes at the Vienna Bio-center and garnered appreciation for its professional, yet genial, service along with the quality and reliability of its output.

Through collaborative services provided, the facility earned acknowledgments on a number of publications and co-authorship on one (listed below). Currently two publications with co-authorship are under revision and a number of others are being finalized for submission.

CO-AUTHORSHIP

Jagunal homolog 1 is a critical regulator of neutrophil function in fungal host defense.

Wirnsberger et al. Nat Genet. 2014

ACKNOWLEDGMENTS

Genetically corrected iPSCs as cell therapy for recessive dystrophic epidermolysis bullosa

Wenzel et al. Sci Transl Med. 2014

The E3 ligase Cbl-b and TAM receptors regulate cancer metastasis via natural killer cells.

Paolino et al. Nature. 2014

A dual role for autophagy in a murine model of lung cancer.

Rao et al. Nat Commun. 2014

FUTURE VISION In 2016, the Histopathology facility will aim to significantly expand its repertoire of histochemical stains and immunohistochemical markers. Furthermore, the facility will strive to tailor its services to enhance its participation in cooperative intramural, inter-facility projects and multi-modal morphologic pipelines. It will continue to optimize processing methods to address downstream challenges in digital pathology and automated image analyses. Additionally, the facility will explore the scope of offering automated immunofluorescence and *in situ* hybridization as new services and of pursuing extramural collaborations in histotechnology and comparative pathology.

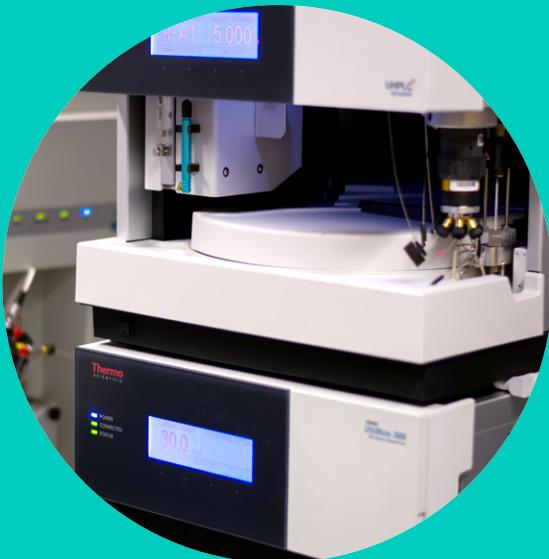


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// ESSENTIAL FOR ADDRESSING MANY BIOLOGICAL QUESTIONS, THE ANALYSIS OF SMALL BIO-MOLECULES HAS BECOME ONE OF THE FASTEST GROWING AREAS IN LIFE SCIENCE. THE METABOLOMICS CORE FACILITY APPLIES MASS SPECTROMETRY-BASED TECHNOLOGIES TO USER-DEFINED ANALYTICAL PROBLEMS, DELIVERING QUANTITATIVE DATA ON METABOLITES ISOLATED FROM DIVERSE BIOLOGICAL SAMPLES. //

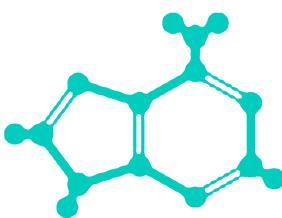


“Already during its founding phase the Metabolomics facility has greatly supported us with a series of customized assays for studying metabolic pathways in cancer cells. In our future work, the facility will be an essential partner for translating genetic discoveries into a better understanding of basic cellular processes and disease mechanisms.”

processes and diseases

14





Organisms contain thousands of distinct organic compounds with very diverse physicochemical properties. Their concentrations are highly constricted by tightly controlling the plethora of biochemical reactions, utilized for their synthesis and breakdown. Linked by specific enzymes, the complete network is modular and robust, quickly adapting to various physiological conditions. The beauty of metabolomic approaches in life sciences is that the exact status of a cell, tissue or organism at any given time point is reflected by the metabolome, thus it is a direct indicator of physiological and eventually pathological conditions. The recently established Metabolomics Core Facility provides access to state-of-the-art mass spectrometry-based technology for the quantitative analysis of metabolites isolated from biological matrices.

HISTORICAL DEVELOPMENT The post-genomic era can be characterized by a paradigm shift from studying individual genes and gene products to technology-driven approaches studying larger biological systems. Metabolomics has been the most recent development in this field, aiming for the time-resolved characterization and quantitative description of the complete ensemble of small molecules – the metabolome. The technology started to close the critical gap between the ability to quantify a few selected molecules and the quantitation of around a thousand metabolites in a single experiment; however, a comprehensive characterization of the metabolome is still not possible.

In 2014, stakeholders within the IMP recognized the need for establishing the respective research infrastructure at the campus. Cancer-related studies at Boehringer Ingelheim (BI) and the IMP were the key motivation for carrying out a feasibility study, performed by Thomas Köcher, at that time a staff scientist at the IMP. After successful completion of both projects, several other studies further highlighted the need for a metabolomics resource. A successful grant application to the Vienna Business Agency paved the way for setting up the respective

unit at the VBCF, starting in March 2016. The involved consortium, consisting of the IMP, IMBA and BI will contribute scientifically and financially to the success of the facility, which is gratefully sponsored by the Vienna Business Agency by around 1.5 million Euros.

DESCRIPTION OF SERVICES Similar to proteomics, metabolomics experiments follow two separate strategies. In so called targeted approaches, predefined molecules are characterized and quantified by tailor-made methods; whereas in untargeted approaches detection and quantitation is based on automatic routines. Both methods rely on an initial on-line separation of the molecules by chromatography. Based on an assessment of the most urgent needs of the campus, the facility will start by offering targeted analysis. The facility will develop appropriate methods on-demand for customers' defined compounds, followed by performing the respective quantitative sample measurements.

KEY ACCOMPLISHMENTS Since the start of the pilot phase, around 6 different projects were successfully finished, spanning a wide range of different metabolites. In total, assays for around 50 molecules have been established, measuring more than 500 biological samples in replicates. In addition, above-mentioned funding by the Vienna Business Agency was obtained.

FUTURE VISION Starting in mid-2016, the facility will offer a variant of targeted metabolomics by employing panels of important metabolites, covering main biochemical pathways. These panels can be used for exploratory studies.

In 2017 the facility will acquire a high resolution mass spectrometer and offer untargeted metabolomics services. The aim in untargeted approaches is to identify and quantify high numbers of metabolites in a given sample in a hypothesis-free manner.



Core Facility Head Thomas KOECHER

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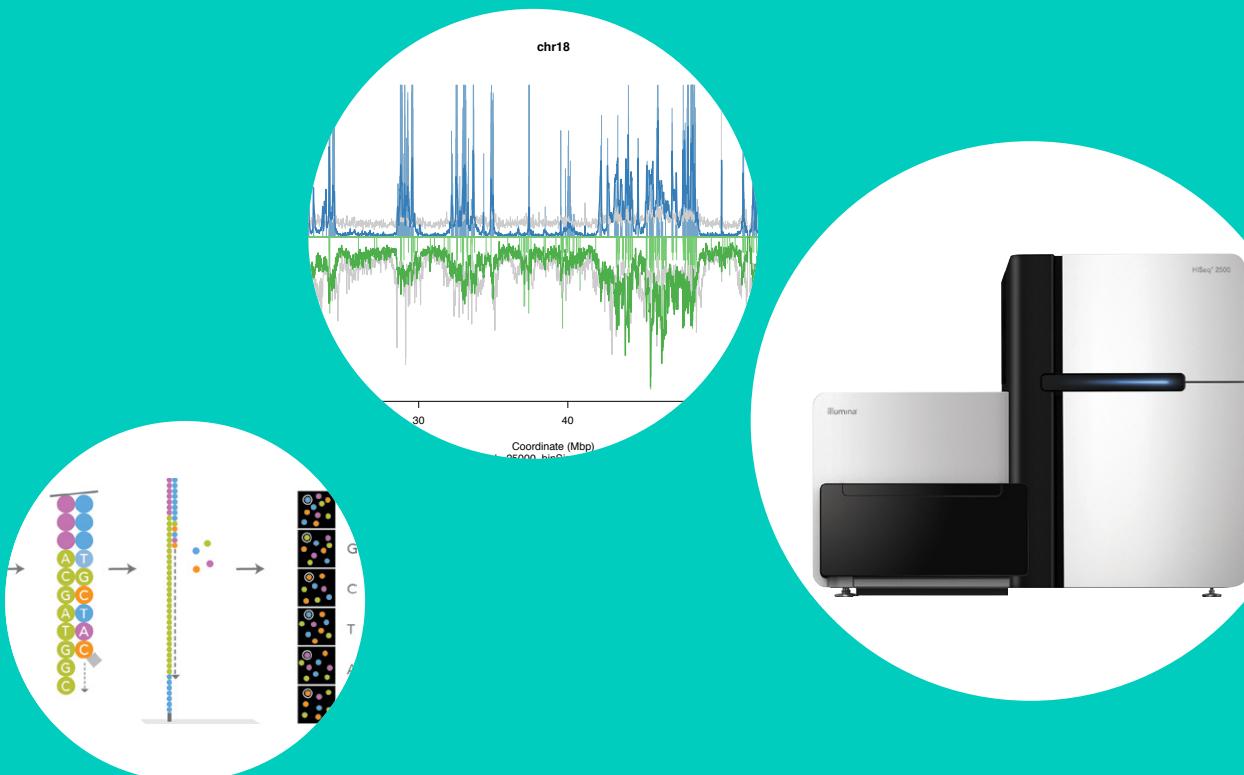
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// OVER THE LAST 10 YEARS, NEXT GENERATION SEQUENCING HAS REVOLUTIONIZED GENOMICS BY PROVIDING A FLEXIBLE AND POWERFUL EXPERIMENTAL TOOLBOX. THE VBCF NGS IS THE VBC'S SUCCESSFUL PORTAL TO THIS KEY TECHNOLOGY. //



"The VBCF Next-Generation-Sequencing Facility has been absolutely instrumental to our research. In addition to providing high-quality, fast turnover and cost-effective services in standard NGS applications, the facility has also become a close and invaluable partner advising and supporting us in the design and implementation of new NGS protocols. My only wish to them is: Keep doing what you're doing!"

Johannes Zuber, IMP

"Many companies and facilities offer NGS services these days, but the chance to speak personally with the competent VBCF NGS staff on campus even prior to experiments, to get informed about all technical progress, to have access to state-of-the-art equipment and to have help in case of problems make this support invaluable for our work. And this on top of high quality, competitive speed and costs!"

Ortrun Mittelsten Scheid, GMI



HISTORY The advent of Next Generation Sequencing (NGS) at the Vienna Biocenter dates back to January 2008, when the first instrument was acquired and installed. From the start, the organization of the unit followed a core facility approach thanks to its multi-institutional set-up. As a scalable, broadly applicable and fast developing technology, NGS was the perfect candidate to expand its services to the entire campus and beyond, within the Campus Science Support Facilities (CSF) founded in 2011. The already functioning and highly productive state of the facility at the date of transition allowed for a seamless continuation of services under the new banner. Since then, the facility has substantially expanded its user base, reaching out to the entire academic community in Vienna, to European research institutes, and to Austrian companies.

APPLICATION & SERVICES Soon after the commercial launch of the earliest NGS platforms in 2005, researchers realized the full potential of this technology, which lead to a continuous development of new protocols that enable researchers to target every type of DNA or RNA, as well as their interactions with other molecules.

NGS technology, as also reflected by the services provided by the VBCF NGS unit, has been widely embraced in most areas of biological research, due to its broad applicability and versatility. Sequencing has been performed on Illumina systems (Genome Analyzer, HiSeq 2000, HiSeq 2500) offering the market's highest standards in throughput, flexibility and data quality. Customized advice for experimental design and data pre-analysis complement the library preparation and sequencing services. The facility also encourages and supports the development of new protocols and methods rendering it a central hub for discussion and implementation of novel approaches in Vienna.

SUCCESS STORIES

SCIENTIFIC IMPACT The VBCF NGS facility has contributed to more than 90 publications since 2011. Selected examples:

The distal V(H) gene cluster of the IgH locus contains distinct regulatory elements with Pax5 transcription factor-dependent activity in pro-B cells.

Ebert A., et al., *Immunity* 2011

Flexible long-range loops in the VH gene region of the IgH locus facilitate the generation of a diverse antibody repertoire.

Medvedovic et al., *Immunity* 2012

CLP1 links tRNA metabolism to progressive motor-neuron loss.

Hanada T., et al., *Nature* 2013

Sororin actively maintains sister chromatid cohesion.

Ladurner R., et al., *EMBO J.* 2016

SERVICE HIGHLIGHTS From the outset, demand has seen a steady increase, in 2015 for example, over 4500 samples were processed. The user base has also broadened to include 358 scientists from 39 institutes who have been requesting services from the facility since 2011. Most recently in 2015, a service agreement was signed with Boehringer Ingelheim, further underlining the high quality of the service provided by the unit.

FUTURE VISION The NGS field remains dynamic and continues to evolve at a rapid pace.

The facility's primary goal throughout the second funding period is to keep up with the speed of development, and to maintain all service aspects, from library preparation protocols to sequencing instruments, at the cutting edge of its field. The VBCF NGS unit will play a crucial role in the coordination of investments across the Vienna area via the Vienna Sequencing Platform, cofounded by the VBCF NGS unit in 2014. In addition, the unit will strengthen its role as a scientific partner and engage increasingly in research and development, thus further consolidating its established role as the main NGS provider in basic research in Austria.



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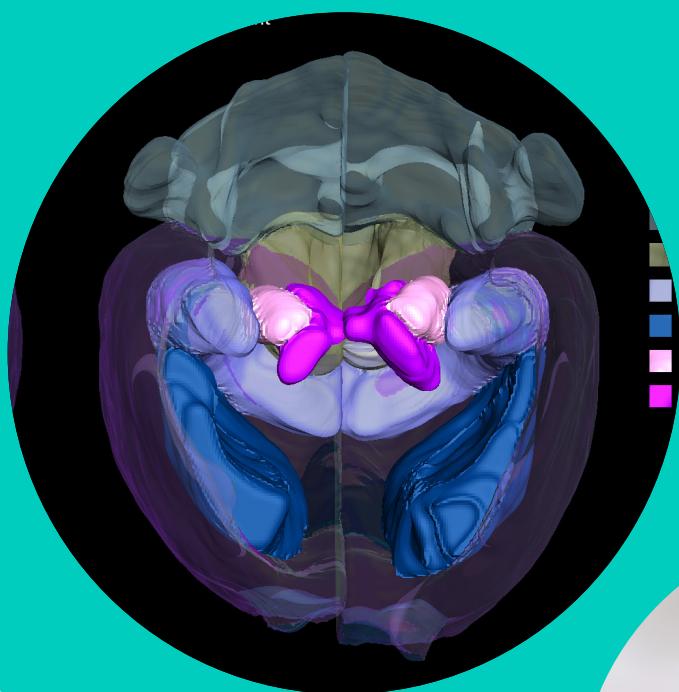
// STYLISH, MORE RESOLVED, FASTER. WE INTRODUCE 15.2 T STATE OF THE ART MRI SCANNER. //

"The preclinical imaging facility and their new MRI has proven to be a valuable tool, allowing us to carefully quantitate the size of various brain regions in our new mouse mutants. They have also been actively involved in the development of new techniques to identify magnetic particles in the tissues of pigeons, turtles and termites. We hope that such a tool will lead us to the elusive magnetoreceptor."

David Keays, IMP

"The preclinical imaging facility has been instrumental for my research involving various gene mutations that affect early stages of nervous system development: both in the periphery as well as the brain. Recently, the team has even been able to acquire *in vivo* and *in utero* images of mutant mice. This is especially exciting because it is opening the possibility for studying gene mutations that are embryonic lethal and provide insights into developmental defects at very early stages."

Vanja Nagy, IMBA





HISTORY The preclinical imaging facility (pcIMAG) became operational in the summer of 2013 following installation of the state-of-the art 15.2 T magnetic resonance imaging (MRI) system (Bruker, Germany). At the time, this was only the second installation in the world, and the first in Europe. The envisioned concept of the facility was to extend frontiers of in-vivo imaging and provide services for the researchers from IMBA, IMP, MFPL and GMI. The majority of initial efforts were focused on overcoming known technical difficulties associated with high magnetic field. The hard work paid off quickly and the first publication came out only 6 months later. MRI images taken at the facility were featured on the cover of the Cell journal (Cell.2014;157(3):636-50). The majority of 2014 and 2015 was spent on expanding service portfolios and establishing imaging protocols and modifications for ultra-high magnetic field strength. By the end of 2015, the facility had extended services to other academic institutions in Vienna and established strong collaboration with other imaging facilities within Austria.

APPLICATION AND SERVICES The facility is perfectly suited for preclinical studies including drug trials. The main strength of non-invasive imaging technologies is the possibility to monitor physiological as well as pathological processes in the same organism, repetitively. The portfolio of imaging protocols and services is constantly expanding in accord with the needs of users. Current services include high resolution an-

atomical imaging, quantitative measurements of diffusion, perfusion and blood flow, as well as cardiac imaging. At the end of 2015, the facility established protocols for functional MRI, and first brain activation maps have been generated in normal as well as lesioned animals. Due to the restricted dimensions of the instrument, the only limitation at the moment is the size of model organism that can be imaged.

KEY ACCOMPLISHMENTS One of the major accomplishments is the aforementioned featured cover of Cell in 2014. In 2015, with the vision to push the limits of MR imaging, and with the generous help of Josef Penninger, pcIMAG co-organized a small conference "Towards single cell MRI" attended by world leaders on MRI microscopy. This has drawn the awareness of the MRI community to pcIMAG and as result many fruitful collaborations have been established. On the technical side, major accomplishments include: setup of the functional MRI, known to be particularly challenging at high field, and first in utero MRI with potential to become a novel non-invasive diagnostic tool. So far, the pcIMAG facility has been acknowledged in 3 publications.

FUTURE VISION The major focus in the future will be to establish new imaging protocols with the goal of expanding and further improving existing services. Additional efforts will be dedicated to improving functional MRI and to establishing dual technologies such as optogenetics-fMRI.



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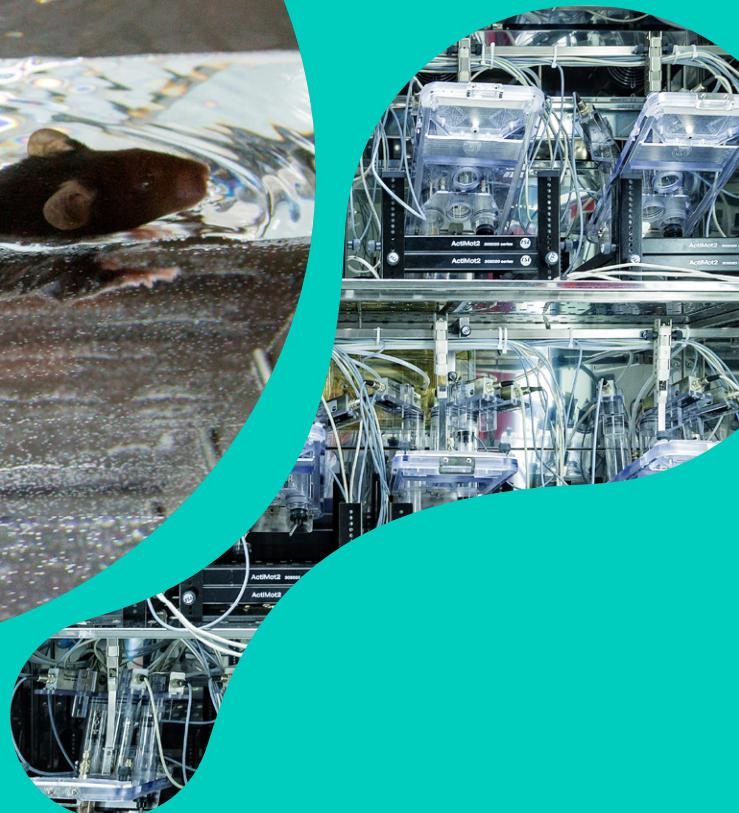
// THE PRECLINICAL PHENOTYPING FACILITY (PCPHENO) OFFERS A WIDE RANGE OF BEHAVIOUR AND METABOLISM MEASUREMENT SYSTEMS FOR IN VIVO TESTING OF MICE. //

"The Mouse Phenotyping Unit was a tremendous help for us in establishing, conducting and interpreting state-of-the art experiments for brain research. Their support and advice in performing behavioral experiments and brain microdialysis helped us to become much more efficient in our research. Moreover, we greatly benefited from scientific exchange in our joint group meetings. Ultimately, these interactions will lead to several joint publications between our groups."

Wulf Haubensak, IMP

"I heavily rely on this service for all my work and will include it in several publications that I have up and coming. I think the staff at the moment are very motivated, dependable and capable – investing in this talented group of people would be beneficial to the institute at large and I know it would be quite attractive for other institutes."

Vanja Nagy, IMBA



20



// PCPHENO

PRECLINICAL



PHENOTYPING

FACILITY

HISTORY The preclinical phenotyping facility (pcPHENO) came into existence in late 2012 with the aim of centralizing phenotyping equipment and services for the local mouse user community and beyond. Lab space had to be re-structured and an experimental facility was established with 6 rooms, where different experiments can be performed at the same time. The facility was quickly equipped with state-of-the-art instruments and test protocols started to be established while the first users' projects already started during early 2013, leading to a first publication in late 2014. The pcPHENO facility has always been a small team, mirroring the restricted size of the user base, and operating a wide variety of test systems, mirroring the varying needs of that user base.

APPLICATIONS AND SERVICES pcPHENO offers behavior screening services for mice, covering a wide range of neurological and muscle/skeletal functions as well as the interplay with other organ systems. Our equipment is suitable to study anxiety-like/depression-behaviour, learning and memory functions, exploration, attention, coordination, gait, muscle strength, pain sensitivity, addiction, sleep disturbances and other changes in circadian rhythm, vision and olfactory capacity, aggression and social interaction. Our TSE Phenomaster System allows the measurement of metabolic parameters throughout the day-and night-cycle under a wide variety of conditions, including changes in housing temperature, dietary conditions, and physical exercise. New protocols, specific for the users needs, are constantly under development and allow the study of *in vivo* effects of

genetic or pharmacological manipulations, which is critical for the understanding of normal physiological functions and disease mechanisms.

KEY ACCOMPLISHMENTS pcPHENO's involvement in scientific projects has increased, from contributions to 20 projects and 400 tested mice in 2013, to 35 projects and 700 tested mice in 2015.

Several manuscripts including contributions from pcPHENO are currently under preparation and are expected to result in publications later this year.

FIRST PUBLICATION

Neuromuscular synapse integrity requires linkage of acetylcholine receptors to postsynaptic intermediate filament networks via rapsyn-plectin 1f complexes.

Mihailovska E, et al., Mol Biol Cell. 2014

FUTURE VISION pcPHENO's restructured team will increase efforts to ensure continuous high-quality data production and scientific advice, by standardizing testing procedures, comparing them with collaboration partners and offering pipelines for therapeutic areas. At the same time, we will expand our testing portfolio according to users' requirements and new developments in the field.

Furthermore, we aim to broaden the user base by networking efforts and serve as a communication platform between the users, collaboration partners and other VBCF facilities.



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// SUMMER CONDITIONS IN DECEMBER, FROST IN SUMMERTIME, DAILY AND HOURLY CHANGING ENVIRONMENTS INCLUDING SPECTRAL SIMULATION OF SUNRISE AND SUNSET AND ALL THAT COUPLED WITH A HIGH-THROUGHPUT PLANT PHENOTYPING SYSTEM. THE PLANT SCIENCES FACILITY OPERATES 22 HIGH QUALITY AND HIGHLY SPECIALIZED PLANT GROWTH CHAMBERS. THE FOCUS OF THE SERVICES PROVIDED IS ON ENVIRONMENTAL SIMULATION AND HIGHTHROUGHPUT PLANT PHENOTYPING. //



"The Djamei group studies plant fungal biotrophic interactions at the GMI. The recently established model pathosystem with the grass

Brachypodium distachyon and the pathogen *Ustilago bromivora* shows disease symptoms only upon onset of flowering in the very late stages of plant development. With the help of the phenotyping service provided by the VBCF Plant Sciences Facility several predictive parameters were identified which allow now a prediction if a plant is indeed infected or not. This non-invasive approach is highly valuable as it allows a pre-sorting of infected versus non-infected plants at early symptomless stages of the interaction."

Armin Djamei, GMI

"The Nordborg group investigates the genetic architecture of several traits in the model plant *Arabidopsis thaliana*. We are already a leading group in the genotyping end: we take full advantage of Next Generation Sequencing data to discover genetic variation in natural lines and to build the genetic maps of artificial mapping populations. With the help of the VBCF Plant Sciences Facility and LemnaTec we have extended our phenotyping capabilities to several growth related traits in a highly automated and non-invasive manner."

Fernando Rabanal, GMI

22
leaf icon





HISTORICAL DEVELOPMENT The seeds for the VBCF Plant Sciences Facility were sown in 2012 by the generous offer of Magnus Nordborg to incorporate all 16 GMI plant growth chambers in the newly established facility. At the same time, the planning of 6 additional plant growth chambers with complementary technical specifications started. These chambers were designed to replace the outdated chambers located at the rooftop of the MFPL building. In June 2013 the construction works finished and only one week later both locations were successfully merged to the formerly called CSF Plant Growth and Phenotyping Facility and introduced to the wide user community. Back then, the Facility concept had a strong operational focus which was changed towards a more scientific and service oriented concept in the beginning of 2014. During this time also the name changed to Plant Sciences Facility (PlantS).

From that time on PlantS developed a strong dedication to environmental simulation and high-throughput plant phenotyping.

DESCRIPTION OF SERVICES One of the main goals of PlantS is to support the excellent “green” research at the VBC by providing high quality plant growth space. All growth chambers provide highly accurate environmental conditions with only minor deviations from the set points. Temperature, humidity, light and water supply are computer controlled, fully automated and corresponding parameters are continuously graphed and documented.

Several of our chambers are capable of providing exceptional environmental conditions i.e. low temperature (frost), high temperature, different light intensities, different light spectra (LED: UV375, blue405, blue450, white and red660,730) and different gas conditions (e.g. CO₂) allowing precise environmental simulation across different climate zones and the simulation of various environmental stress conditions like high temperatures, drought, partial waterlogging or frost.

The third pillar of our service portfolio is plant phenotyping. For the objective, reproducible and high-throughput assessment of plant phenotypic traits we operate an automated, sensor-to-plant screening system linked to LemnaTec image analysis software. The phenotyping system is fully integrated into one of the chambers allowing highly precise control of environmental conditions throughout the experiment.

Besides high-throughput screening of *Arabidopsis* we also provide custom phenotyping services: i.e. low-throughput (side-view) phenotyping of large plants, screening of seedlings, root phenotyping, phenotyping of seeds and custom image analysis service.

KEY ACCOMPLISHMENTS Two events had a very strong positive impact on the development of PlantS: the successful switch towards a scientific orientated facility in 2014 and the implementation of LemnaTec image analysis software that strengthened and extended the scientific service portfolio. Since then, numerous high-throughput and custom plant phenotyping projects have been successfully conducted.

FUTURE VISION The top priority of PlantS continues to be complete customer satisfaction while further strengthening our technological lead in order to provide our customers' research with a competitive advantage.

Non-invasive plant phenotyping is a strongly emerging technology-driven science. PlantS aims to strengthen the phenotyping focus and extend the phenotyping repertoire by acquiring custom phenotyping solutions that will serve the best research groups at the Vienna Biocenter and the whole Vienna region. Although a lot of information is extractable from RGB images, additional high-tech sensors will help us to make the invisible visible; making the VBCF a forerunner in the field of plant phenotyping in Austria and an attractive partner for national and international collaborations.



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// RECOMBINANT PROTEINS ARE ESSENTIAL REAGENTS FOR CELL BIOLOGY, BIOCHEMISTRY, AND MEDICINE. PROTECH PROVIDES HIGH QUALITY DNA, RNA, AND PROTEIN REAGENTS AS WELL AS TRAINING AND EXPERTISE FOR EACH STEP OF PROTEIN PRODUCTION AND RELATED TECHNOLOGIES – FROM MOLECULAR CLONING TO BIOPHYSICAL CHARACTERIZATION TO GENOME ENGINEERING. //

"Our lab has been using the services provided by the ProTech facility, including cloning and baculovirus-based protein expression and purification. It has been excellent for us, especially because both technical and scientific advice from the staff members is always very helpful, and communication with them is superb. The quality of the samples prepared by the ProTech staff is always high, and the technical advancement on a specific protein purification would not have been possible without them."

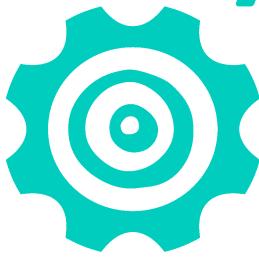
Fumiyo Ikeda, IMBA

"We are more than happy customers! ProTech provides excellent services. Most important, Peggy and her co-workers are superb scientists prepared to tackle all the tricky experimental problems we bring along!"

Peter Schlögelhofer, MFPL



24



HISTORICAL DEVELOPMENT The Protein Technologies Facility began offering service in 2012 under the name Structural Biology Facility. The original concept included services in the areas of eukaryotic protein production and protein crystallization. In spring of 2012, a more detailed user analysis at the Vienna Biocenter revealed a greater need for other services surrounding recombinant protein production, rather than protein crystallization. This led to a change in strategy, and in 2013 the name of the facility was changed to ProTech to reflect its broader service portfolio. Over the next few years, the facility expanded its range of services to cover all aspects of the protein production pipeline, including biophysical characterization. In 2014, with momentum from the "CRISPR craze", with its roots in Vienna, ProTech began offering services in genome engineering.

Within the first 4 years of service, ProTech has developed from a facility with 2 staff members to a team of 9 scientists with expertise ranging from molecular biology to biophysics.

DESCRIPTION OF SERVICES The use of recombinant proteins continues to be essential in cell biology, biochemistry, and medicine. Production of high quality proteins in high yields requires specialized skills and equipment. ProTech is proud to offer services and expertise in every step of the protein production process. We go beyond the standard services offered by many facilities, and additionally offer generation of multi-gene expression constructs, expression of membrane proteins, full purification service or purification training, and expertise in most common biophysical characterization methods. Our experience in molecular biology has allowed us to easily incorporate genome engineering services and generation of DNA, RNA, and protein reagents for CRISPR/Cas9 projects.

KEY ACCOMPLISHMENTS From 2012 to 2016 our user base has expanded to include 30-40 groups and approximately 100 individual users. The facility is also active in research and development, including:

- Improvements in the baculovirus expression vector system (BEVS) (as partner in the Laura Bassi Centre for Optimized Structural Studies, Director Prof. Dr. Kristina Djinovic-Carugo, MFPL)
- Optimization and Application of Genome Engineering using the CRISPR/Cas9 System (Eucodis Bioscience, Bridge FFG)
- Development of new vector systems for *E. coli* expression (Prof. Dr. Renee Schroeder, MFPL)
- A few showcase projects where ProTech has provided high added value include:
- Expression of ~25 eukaryotic protein variants for biochemical studies (Sona Valuchova and Karel Riha, GMI/CEITEC)
- Cloning and expression of 600 receptor ectodomains from *A. thaliana* in S2 cells (Elwira Smakowska and Youssef Belkadir, GMI)
- Expression and purification of myosin chaperones (Doris Hellerschmid and Tim Clausen, IMP)

FUTURE VISION Like all areas of biotechnology, the field of recombinant protein science is changing rapidly. Novel technologies such as genome sequencing and CRISPR/Cas9 have opened up new possibilities for improvements in protein production. Our active participation in several European networks (Protein Production and Purification Platform Europe, Molecular Biophysics in Europe) allow us to stay up-to-date with the latest advances in the field. Our vision is to maintain an efficient pipeline while constantly striving for improvements in protein production and characterization technologies to bring the maximum benefit to our users.



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// THE VDRC HAS GROWN FROM A COTTAGE INDUSTRY TO A PROFESSIONALLY ORGANIZED BIORESOURCE CENTER. OUR UNIQUE RESOURCES ARE USED BY NEARLY EVERY DROSOPHILA RESEARCH GROUP WORLDWIDE. //



"The unique resources of the VDRC are invaluable, not only for my research, but for the whole Drosophila community. Additionally, their stock keeping service means we can focus on research knowing that our stocks are in safe hands."

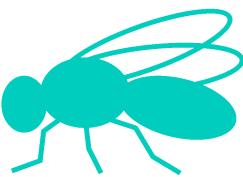
Juergen Knoblich, IMBA

"The VDRC was instrumental for our work on the Drosophila VT enhancers (Kvon et al., 2014) and their commitment to distribute these lines as well as thousands of others to the community is amazing!"

Alexander Stark, IMP

26





HISTORY The Vienna Drosophila Resource Center is an Austrian bio-resource of international significance, the largest Drosophila stock center in Europe and has the most comprehensive Drosophila RNAi collection worldwide. It started out as Barry Dickson's group creating transgenic RNAi stocks for their own research projects but in 2007 the VDRC began shipping to researchers worldwide, for which it developed a bar-coding, data tracking and online ordering system. In 2009 a second large RNAi library was added, facilitating genome-wide scale screens. VDRC formerly became part of VBCF in 2011 and since then has continued to expand its resource portfolio and optimize its operational procedures. In 2012 a number of key fly research groups left the campus and we had to take big measures to ensure our long term sustainability. Nevertheless, our worldwide user base remains strong, with more than 2400 registered users, and in 2014 we proudly shipped our millionth fly stock!

APPLICATION & SERVICES With 70% of its genes having a homologue in humans, Drosophila continues to be a highly relevant model organism. Currently the VDRC maintains and distributes nearly 40,000 different fly stocks, most of which are kept in duplicate copies. We primarily offer RNAi lines, enabling researchers to knock down gene expression and analyze gene function in a systematic way. We additionally offer enhancer-Gal4 driver lines which can be used to define where and when the knock down occurs and have recently acquired lines ('fTRG' library) with a broad application spectrum: imaging in live and fixed tissues, subcellular localization studies, biochemical purifications and interaction proteomics. We have expanded our service portfolio to offer a private stock keeping service, used by VBC groups and external customers, and, by taking over operation of the Fly Food Kitchen, we ensure the continued supply of high quality fly food.

SUCCESS STORIES

SCIENTIFIC IMPACT The resources available at the VDRC have had a tremendous impact on the international Drosophila research community, as evidenced by more than 1600

publications (an average of 310 per year) citing use of VDRC resources since 2011. Selected examples:

Genome-wide analysis of self-renewal in Drosophila neural stem cells by transgenic RNAi.
Neumüller RA, et al., Cell Stem Cell 2011

Large-scale screen for modifiers of ataxin-3-derived poly-glutamine-induced toxicity in Drosophila.
Vossfeldt H, et al., PLoS One 2012

The genetic makeup of the Drosophila piRNA pathway.
Handler D, et al., J.Mol Cell 2013

Genome-scale functional characterization of Drosophila developmental enhancers in vivo.
Kvon EZ, et al., Nature 2014

Identification of genes that promote or inhibit olfactory memory formation in Drosophila.
Walkinshaw E, et al., Genetics 2015

SERVICE HIGHLIGHTS The demand for VDRC resources from the worldwide Drosophila research community has been consistently high. Since 2011 we have shipped an average of 22,164 stocks per year to VBC groups and 87,727 to non-VBC customers. By duplicating lines and streamlining the maintenance procedures, we have successfully reduced the delivery time from up to 6 weeks to under 2 weeks, with an average of 6 days – much appreciated by our customers!

FUTURE VISION VDRC aims to continue promoting scientific discoveries in Drosophila, primarily by maintaining transgenic stocks and DNA resources and by distributing them to Drosophila researchers both locally and worldwide. We are continually on the lookout for useful additions to the Drosophila research toolkit and plan to further develop and expand VDRC resources according to the emerging new technologies and community needs. We are already creating new RNAi lines to ensure we have the highest quality RNAi library.





// ... AND THE WINNER IN THE CATEGORY
“FUNNIEST CORE FACILITY”
GOES TO: THE CHILD CARE CENTER! //



“The professional quality and the deep caring of the staff is just mindblowing. They always place the child as first priority, everything comes afterwards. We feel lucky and honoured to have such a great kindergarden for our child. Million thanks and kudos for all the staff, it is a wonderful thing they have created!”
anonymous comment from user survey 2015



In a company that provides state of the art scientific services and cutting edge technology, a Child Care Center may seem to be just an additional offer, merely a nice asset to have!

In reality, the Child Care Center seems to be the most important one, even the most essential one for the Vienna Biocenter, as the following hard facts prove:

- It is not one of our Scientific Facilities that has the most users at the Vienna Biocenter! It's the Child Care Center that is highly used by all four research institutes and 30% of the VBC companies.
- The Child Care Center was so urgently needed that it became operational even earlier than the VBCF foundation! It opened its doors already in 2009 with generous support from institutions and companies at the VBC, who initially took over costs and bureaucratic effort to set up the Day Care.
- It is not our Scientific Facilities that can record the highest user satisfaction. Undoubtedly our happiest users are the little ones in the Child Care Center!
- So let us try to get to the bottom of the key success factors, that make the Child Care Center so unique:
- it's the passionate head, Dagmar Mirek, and her two teams of 25 amazing and caring ladies, who create a loving surrounding for all VBC children

- it's more than 200 encouraging parents who support the Child Care Center wherever they can
- it's the institutions and companies at the Vienna Biocenter that appreciate the Child Care Center as a big asset to support their (mostly female) employees and provide an important basis for arranging a scientific career with a family.

One of the most impressive events concerning the Child Care Center in the last years was a meeting with the parents' representatives in 2012 to discuss the extension of the existing Day Care. Quite early, VBCF faced serious problems, as suitable space at the VBC was rare and the enormous costs for an extension were not covered by Vision 2020. Showing the parents' representatives a budget deficit of EUR 100.000, they left the room with the assurance that they will come up with the money within one week. They kept their word, and their energy and effort is just one of the many examples that show how important and appreciated the Child Care is!

It started in 2009 with 4 children, two teachers and one group. By 2016 it's counting an amazing number of over 100 children in 7 groups and VBCF is looking forward to all the children that are still to come in the next years to enrich our Child Care!



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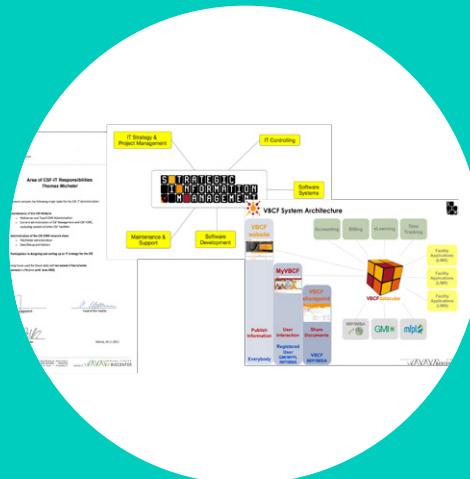
// THE WAY FROM A PERSONAL AGREEMENT TO A FACILITY. //

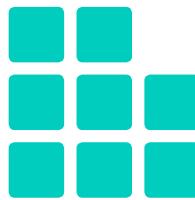
"The VDRC simply would not be able to function without the experts at SIM. They are fundamental behind the scenes for the smooth running of our daily tasks such as developing and maintaining the ordering database for customers, tracking the daily stock maintenance procedures, and, critically, are immediately on hand to get everything up and running when things crash."

Lisa Meadows, VBCF

"Very soon after start of operation we realised that VBCF has IT requirements that go far beyond a common first line support. Thomas and his small team within SIM do a great job providing core facilities and administration with sophisticated scientific and management applications. Unthinkable to cope with all our task without this fantastic support."

Andreas Tiran, VBCF





The first building block of SIM was set in spring 2011, when a small group of employees of the newly founded CSF were sitting around the table of Andreas Tiran, in a small IMBA office, and he asked for a volunteer to setup a new website. As software developer of VDRC, I thought that this can be my contribution to establishing this new organization and I applied for this task! Two years later Andreas asked me to set up a new facility for IT related tasks and projects – Strategic Information Management (SIM) was born!

On a blank piece of paper, we started to draw boxes with labels to identify all IT related domains of VBCF which should become the fields of responsibility of SIM.

The design and development of a common IT architecture is one of the main challenges of this facility. For the realization of this big vision we used the top-down approach to establish a corporate distributed IT system. We reached the first milestone in 2014 when the new VBCF website with common

facility-wide structure was published. In 2015 we worked on the next layer down, called MyVBCF, which is a user information system for the facilities of VBCF. A key position in this new service oriented software architecture is occupied by the VBCFdatacube. SIM has developed this application to connect subsystems and collect important organization-wide data. This data warehouse application is a central repository of integrated data from several sources, like facilities, billing systems, e-commerce solutions, accounting system etc. It stores current and historical data and can be used in future for creating analytical reports of historical data or future trends.

SIM is not only specialized in software engineering – every day we serve as an interface between the management, accounting, facilities, IT departments at the Vienna Biocenter and cooperation partners. In the role of internal consultants, we provide advice on all IT related questions and enable the VBCF facilities to manage their daily work in a very efficient and effective way.



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// SERVICE IS OUR PROFESSION! //



"We can focus on supporting our users because the VBCF administration provides the ideal support for us!"
Peggy Stolt-Bergner, VBCF

"The VBCF Administration is a true reference point in the landscape of research and innovation in Vienna and beyond. Andreas Tiran and his highly effective team successfully manage to turn transformative ideas into class leading reality. And they are fun to work with."
Jutta Loeffler, City of Vienna - Office of the Executive City Councilor for Finance, Economy and International Affairs, Member of VBCF Supervisory Board



Thinking about the early days of VBCF administration somehow brings up the picture of pioneers, seeking new futures further west. There was nothing but three people in one office with rented furniture and computers, facing an incredible amount of work.

Besides supporting our Core Facilities setting up their services, we were juggling and struggling with countless completely different topics: we implemented structures to make VBCF work, we developed a sound business plan for the whole company, and Facility concepts that needed approval from our customers, owners and funding bodies. We implemented an accounting and controlling system and started an international hiring process to find the excellent colleagues, who we in the end could hire. On top of all this we were, as one of the major challenges, searching for suitable locations for our labs and offices, that optimally support the provisions of our services.

Besides these concrete tasks we had to take care of the concerns of our employees, especially those that were taken over from our owners and felt insecure about their future within brand new VBCF. Also, our customers were irritated by the change in paradigm meaning that Facility services were no longer for free, so they needed to be convinced that we are worth our price.

But despite all those challenges, this start up phase was a time full of energy, drive and excitement. On the one hand it was a pleasure to feel the fresh wind our new employees brought, and on the other hand to see that the existing people made VBCF an institution and not just a number of individual Facilities.

As all Cores were finally fully operational within the first half of 2013, and VBCF was leaving the pioneering phase of a newly established, growing institution, we thought work would become routine. But as all our Facilities are completely different and our heads constantly come up with new ideas and projects, the workload considerably increased, meaning that the administration grew meanwhile to five people.

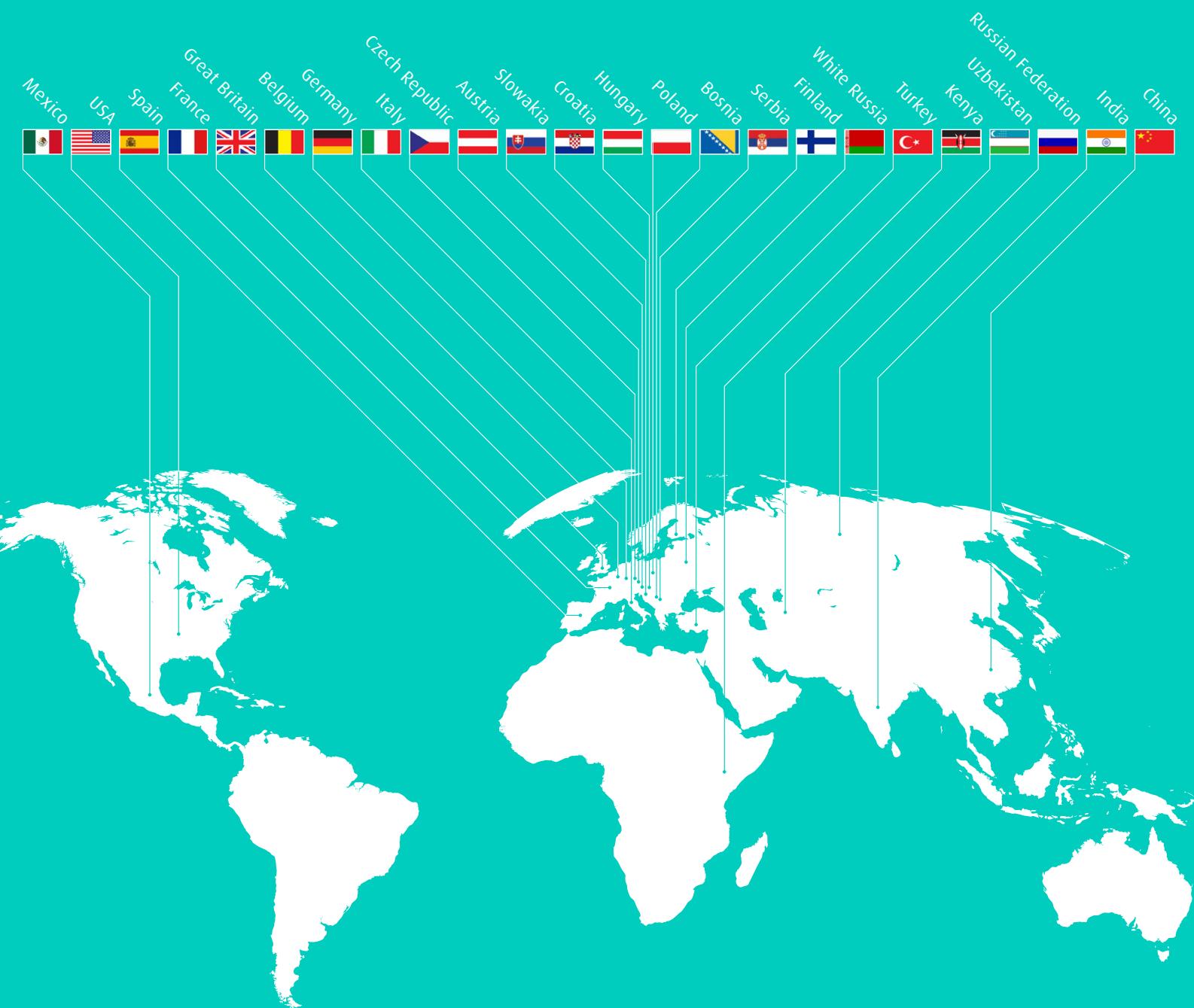
What we know after five years of facing countless challenges in the VBCF administration, is that we can be sure of two things: on the one hand every single day will bring another mission. On the other hand, our visionary Director will, together with our ambitious heads, not only guarantee that we serve the scientific needs at the Vienna Biocenter, but will also ensure that we bring the players at the Biocenter closer together and give our best to make VBCF an international success!

We're looking forward not only to a 3rd funding period, we're looking forward being the integrative player at the Vienna Biocenter!



Managing Director Andreas TIRAN
+43 1 7962324 7010
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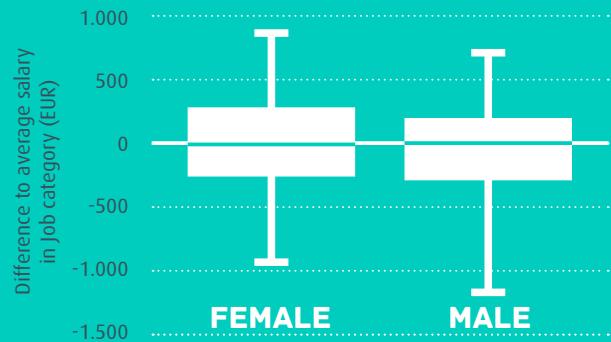
34

NATIONALITY

VBCF has hired experts from all over the world to advance science and technology at the Vienna Biocenter.

// FACTS & FIGURES

GENDER DIFFERENCE IN SALARY



Female and male employees earn comparable salaries at VBCF.

MATERNITY AND PATERNITY LEAVES



Fathers at VBCF engage in child care as shown by the high number of paternity leaves.

HEADCOUNT



Gender distribution is well balanced across all job categories.

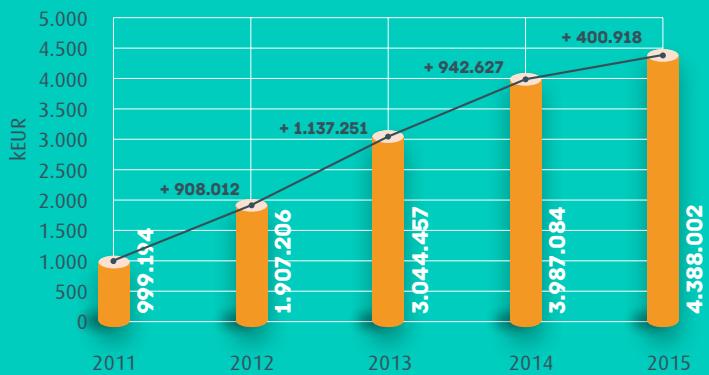
GENDER DISTRIBUTION



60% **40%**

FEMALE MALE

60% of VBCF employees are women



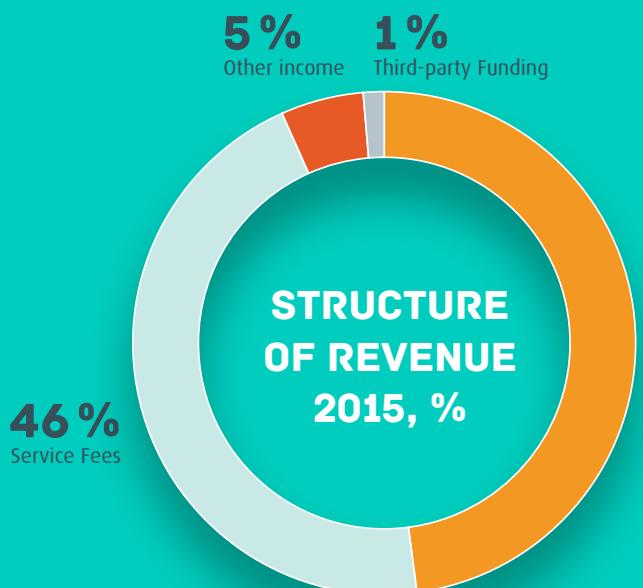
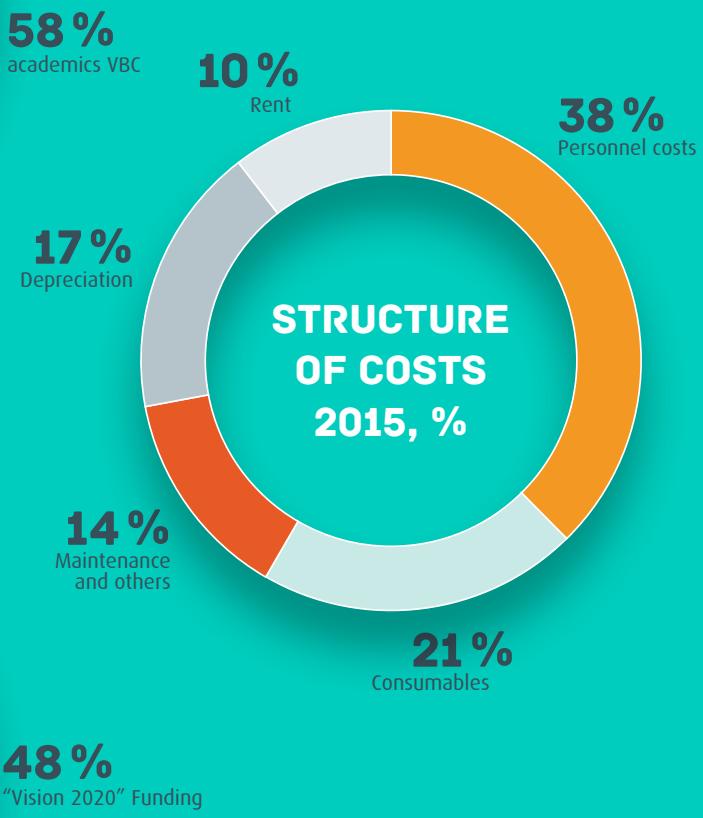
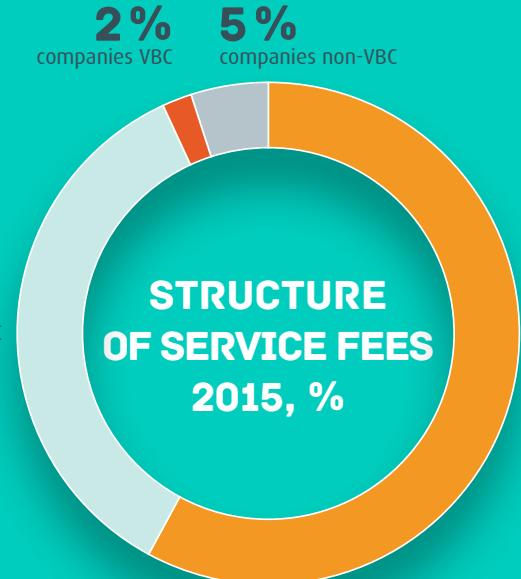
SERVICE FEES



INVESTMENTS

VBCF







IMPRESSIONUM

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and Core Facility Heads
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SOCIAL ACTIVITIES

"To handle a serious business like science we have to relax from time to time"





NGS

- 1 Andreas Sommer Core Facility Head
2 Laura-Maria Bayer
3 Carmen Czepe
4 Heinz Ekker
5 Bartłomiej Gębarski
6 Renate Landwehr
7 Ido Tamir
8 Alexander Vogt



ADMINISTRATION

- 1 Andreas Tiran Managing Director
2 Lada Fialova
3 Anastasia Manina
4 Barbara Miksch
5 Blerta Nujici

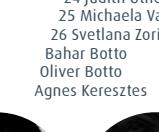


5 YAERS
VBCF



VDRC

- 1 Lisa Meadows Core Facility Head
2 Yulia Barinova
3 Tamara Burger
4 Lucien Chesnay
5 Michaela Eckmann
6 Randolph Egleston
7 Lydia Gaillard
8 Natalia Hallay
9 Rainer Keck
10 Reinhard Klug
11 Sonja Lang
12 Sofia Lehrner
13 Hanna Mayrhofer
14 Barbara Müllner
15 Irene Penzenauer
16 Joanna Peret
17 Janusz Petri
18 Elena Popowich
19 Barbara Ruplitsch
20 Jadwiga Rybarczyk
21 Franziska Stransky
22 Alisher Tashpulatov
23 Sandor Ürmösi-Incze
24 Judith Utner
25 Michaela Vaskova
26 Svetlana Zorinjants
Bahan Botto
Oliver Botto
Agnes Keresztes



// PRELOG



© Hans Klinghofer

The Vienna Biocenter Core Facilities (VBCF) is a successful showcase in the Life Sciences for the synergistic use of shared research infrastructures by universities and non-university institutions as well as companies.

"The VBCF can be considered a gold standard world-wide compared to equivalent facilities in other countries" – is one of the summary conclusions of a recent performance evaluation. This statement is very pleasing considering the fact that in the very short period of time since the foundation the VBCF management and staff succeeded in establishing and delivering most relevant technologies and services at cutting edge standards for researchers at the Vienna Biocenter and beyond and also in following the latest technological as well as scientific trends and implementing them in the VBCF's portfolio.

Let me congratulate the Vienna Biocenter Core Facilities on its outstanding achievements and convey my best wishes for a continued successful pursuit of all its endeavours.

REINHOLD MITTERLEHNER

VICE-CHANCELLOR;
FEDERAL MINISTER OF SCIENCE, RESEARCH & ECONOMY

DR. MICHAEL HÄUPL

MAYOR AND GOVERNOR OF VIENNA

