



UPCOMING EVENTS



Course "ANOVA and linear regression with R"

How to analyse your data using linear regression and ANOVA. These techniques are widely used in practically all branches of science, including the social sciences.

Dates: 11th and 12th May (Thu/Fri), 09:00 - 13:00 on both days.

Venue: VBCF Seminar Room

Participation fee: EUR 250 + VAT (where applicable)

[Read more >>](#)

[Registration >>](#)

Next planned trainings: How to use Galaxy, PacBio data analysis tools

Training details will be published [HERE](#).



The [Electron Microscopy Facility](#) and [Nexperion - Solutions for Electron Microscopy](#) (Vienna, Austria) are pleased to announce a jointly organised international

Advanced Workshop on Cryo-Electron Tomography

Vienna, Austria

May 6/7, 2017: Optional Pre-Course

May 8–12, 2017: Workshop

for students, post-doctoral staff, scientists, and group leaders from academia and industry.

Fully booked, no registration possible.

[Read more >>](#)

Correlated Multimodal Imaging
Austrian Bioimaging Node Initiative

We are very pleased to announce the

10th Imaging in the Life Sciences Meeting 2017

at the Ludwig Boltzmann Institute for Experimental and Clinical Traumatology in Vienna. The meeting is a yearly reunion of the life science imaging community in Austria and is organized by the **Correlated Multimodal Imaging Node Austria** (CMI). It is set up as an interdisciplinary forum that brings together European life scientists and imaging experts.

Date: June 8th 2017

Location: Donaueschingenstraße 13, 1200 Vienna

Please register [HERE](#). Use the same link to submit your poster & abstract.

[Read more >>](#)



CF **Preclinical Phenotyping** will host an INTERREG RIAT-CZ workshop **Behaviour Screening of Rodents and How to apply the 3R Policy in this Research** together with the **International Clinical Research Center** (ICRC) in Brno, Czech Republic on May 23-24. Registration will be open soon.



CF **Protein Technologies** will host an INTERREG RIAT-CZ workshop **Modern Techniques in Molecular Biology and Genome Engineering** on July 18-20. Registration will be open soon.



VBCF PULSE

NEW SERVICES AND INSTRUMENTATION AVAILABLE!

Electron Microscopy



- **Update on direct electron detector.** For more details see the **FEATURED NEWS**.
- **New image processing computer** has been installed.
- **New data storage system** has been installed to cope with large data volumes from new Polara camera.



Metabolomics

The metabolomics facility acquired a **Q Exactive mass spectrometer**. This state-of-the-art instrument is a high resolution mass spectrometer which will be used for metabolite profiling experiments: the detection and quantification of metabolites

in a hypothesis free manner. The mass spectrometer is on-line coupled to a chromatography system, essential for the analysis. We have already used in the instrument in several preliminary experiments, e.g. with the Penninger group and it will serve as an advanced tool in the metabolomic characterization of cells and tissues.

Next Generation Sequencing



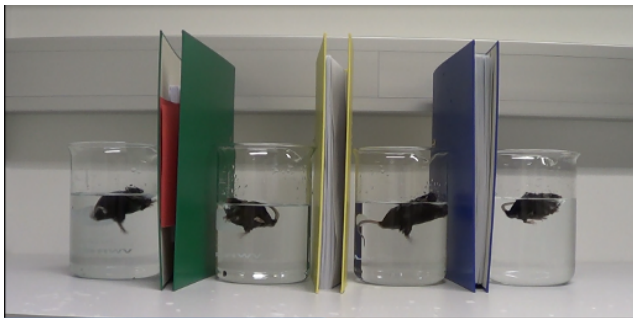
DNA sequencing services on **PacBio Sequel** has been announced. The first PacBio User meeting (6th March) and the first Single cell RNA-seq user meeting (11th April) were organized.

For more details see the **FEATURED NEWS**.



Preclinical Imaging

Facility is joining effort with Ludwig Boltzman institute toward **validation of tumor microvessel imaging**.



Preclinical Phenotyping

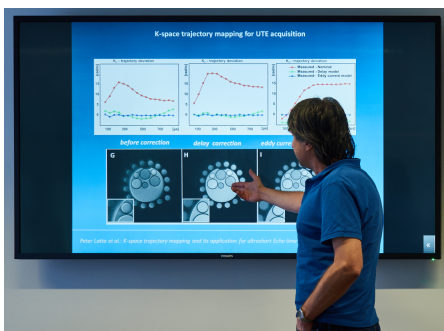
A protocol for the **forced swim test** (test for depression-like behaviour) and **new acoustic startle and pre-pulse inhibition** protocol have been validated.



Vienna Drosophila Resource Center

Another **100 newly created RNAi lines** were made publicly available. For more information see [HERE](#).

WHAT HAPPENED - brief info on past events



Preclinical Imaging

pcIMAG hosted an INTEREREG RIAT-CZ workshop titled **1st Austrian workshop on Ultrashort echo time (UTE) imaging** on March 2nd.



Protein Technologies

Demo of PEAQ ITC instrument from Malvern was organized on March 14-17 (for measuring protein-protein interactions). Five research groups were able to measure samples and the negotiations for purchase of the instrument are ongoing.



FEATURED NEWS



The 1st Austrian Plant Phenotyping Network

Plants are the basis of food and renewable bioenergy production.

Whereas much progress has been made in developing genetic high-throughput tools, the progress in the quantitative analyses of the plant structural and functional properties – **plant phenotyping** - is lagging behind. Therefore, the European Strategy Forum for Research Infrastructure (**ESFRI**) has identified **“Plant Phenotyping”** as a **priority for the European research area**. Establishing national networks for plant phenotyping is the 1st step in development and implementation a pan-European plant phenotyping infrastructure.

CF PlantS has initiated the **Austrian Plant Phenotyping Network (APPN)** aiming to unite the Austrian plant phenotyping community in order to facilitate research collaborations, development of plant phenotyping infrastructure and methodologies, staff training, staff exchange and networking activities. APPN also supports actively the preparatory phase of the ESFRI-EMPHASIS project. The first APPN meeting, organized in the framework of the RIAT-CZ Interreg project, was a great success!





Sequencing of extremely long reads enabled - start of the 3rd generation sequencing on the campus?

On January 23th, the VBCF NGS facility announced as one of the first European core facilities the availability of DNA sequencing services on a **PacBio Sequel system** to its user community. Following a bumpy launch mid of 2016 and a series of hardware and chemistry upgrades, PacBio's new instrument finally meets the originally communicated specifications and has reached the necessary maturation to be applied in context of a core facility. **The Sequel system acquired by the VBCF NGS is the first one to be deployed in Austria** and will therefore have a strong impact far beyond the Vienna Biocenter.

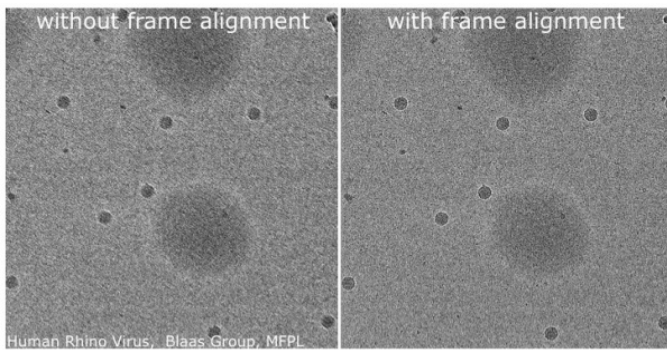
For more than eight years, the facility has been using Illumina's sequencing technology which is characterized by extremely high throughput at the cost of sequencing read length. The latter is a prerequisite for a number of applications that could so far not be covered by the facility's services. With the acquisition of PacBio's Sequel, the VBCF NGS is closing this gap resulting in a substantial broadening of its service portfolio.

Sequel DNA sequencing services can be used for a range of applications, the most common being **de novo genome sequencing, genome resequencing** covering problematic regions and **long amplicon sequencing**.



Service development is still fully ongoing, additional Sequel services will be soon announced. Current efforts focus on full transcript RNA/cDNA sequencing which will allow an unbiased analysis of the transcriptome including alternative

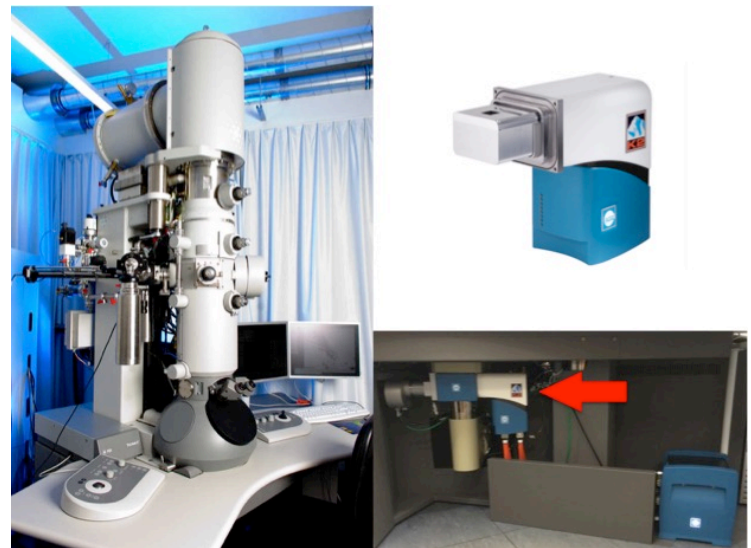
splicing. Furthermore, library multiplexing will in future allow for the parallel analysis of multiple samples.



Unique equipment for Electron Microscopy

Direct electron detectors are currently revolutionising the field of cryo-electron microscopy. This new type of camera detects electrons directly and records not one image with a long exposure time, but a series of short exposure images, called movie frames. The individual frames are then aligned to each other to compensate for small sample movements occurring during image recording and finally combined into one summary image. Using this technique combined with intense image processing near atomic resolution insights into biological samples can now be obtained.

Through a collaboration between IMBA, IMP, the group of Thomas Marlovits and the VBCF EM Facility the Polara cryo electron microscope on campus was equipped with such a direct electron detector (Gatan K2 summit) **giving the VBC community and all Austrian researchers access to this unique set-up in Austria.**



ANNOUNCEMENTS

WE HAVE NEW COLLEAGUES! AND WE SAY GOODBYE TO SOME OTHERS.....



Administration

- Our controller Anastasia Manina has left for maternity leave. Since March 2017 she has been replaced by our new colleague

Ibolya Kellner.

- The Grant Management office has been strengthened by **Anita Kazda** at the position Junior Grant Manager. Anita will be responsible primarily for the financial management of running grants.
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WE HIRE!



Plant Sciences

The Vienna Biocenter Core Facilities GmbH (VBCF) is offering an **FFG FemTech Internship at the VBCF Plant Sciences Facility (full time)**. We are looking for a motivated candidate to support the conduction and organization of **high-throughput plant phenotyping** experiments run at the PlantS Facility. The student will be introduced to the entire process of high-throughput phenotyping from seed to data analysis.

[Read more >>](#)



RECENT PUBLICATIONS



Fluorescence Excitation, Decay, and Energy Transfer in the Vicinity of Thin Dielectric/Metal/Dielectric Layers near Their Surface Plasmon Polariton Cutoff Frequency

K. Elsayad and K. Heinze. Chapter 6, Page 111 in "*Surface Plasmon Enhanced, Coupled and Controlled Fluorescence*" (1st Edition, Edited by C. Geddes).

[Read more >>](#)

ACKNOWLEDGEMENTS



PI (3, 4, 5) P 3 Engagement Restricts Akt Activity to Cellular Membranes

Michael Ebner, Iva Lučić, Thomas A. Leonard, Ivan Yudushkin

Molecular Cell 65(3):416-431 (2017). DOI: 10.1016/j.molcel.2016.12.028

[Abstract >>](#)

Localization of mTORC2 activity inside cells

Michael Ebner, Benjamin Sinkovics, Magdalena Szczygie, Daniela Wolfschoon Ribeiro, Ivan Yudushkin

J Cell Biol Jan 216(2):343-353 (2017). DOI: 10.1083/jcb.201610060

[Abstract >>](#)



Single-nucleus Hi-C reveals unique chromatin reorganization at oocyte-to-zygote transition.

Flyamer IM, Gassler J, Imakaev M, Brandão HB, Ulianov SV,

Abdennur N, Razin SV, Mirny LA, Tachibana-Konwalski K

Nature 2017 Mar 29

[Abstract >>](#)

Negative Regulators of an RNAi-Heterochromatin Positive Feedback Loop Safeguard Somatic Genome Integrity in Tetrahymena.

Suhren JH, Noto T, Kataoka K, Gao S, Liu Y, Mochizuki K

Cell Rep 2017 Mar 07; 18 (10)

[Abstract >>](#)

Absence of PD-L1 on tumor cells is associated with reduced MHC I expression and PD-L1 expression increases in recurrent serous ovarian cancer.

Aust S, Felix S, Auer K, Bachmayr-Heyda A, Kenner L, Dekan S, Meier SM, Gerner C, Grimm C, Pils D

Sci Rep 2017 Mar 07; 7

[Abstract >>](#)



HuR small molecule inhibitor elicits differential effects in adenomatosis polyposis and colorectal carcinogenesis

Lang M, Berry D, Passecker K, Mesteri I, Bhujra S, Ebner F, Sedlyarov V, Evstatiev R, Dammann K, Loy A, Kuzyk O, Kovarik P, Khare V, Beibel M, Roma G, Meisner-Kober N and Gasche C
Cancer Research epub 20 Feb 2017

[Abstract >>](#)



Use of VDRC resources has been acknowledged in nearly 100 publications so far in 2017, including the following:

JAK/STAT controls organ size and fate specification by regulating morphogen production and signalling. Recasens-Alvarez C, Ferreira A, Milán M.

Nat Commun. 2017 Jan 3;8:13815. doi: 10.1038/ncomms13815. PMID: 28045022

[Abstract >>](#)

Genetic screen in Drosophila muscle identifies autophagy-mediated T-tubule remodeling and a Rab2 role in autophagy. Fujita N, Huang W, Lin TH, Groulx JF, Jean S, Nguyen J, Kuchitsu Y, Koyama-Honda I, Mizushima N, Fukuda M, Kiger AA.

Elife. 2017 Jan 7;6. pii: e23367. doi: 10.7554/eLife.23367. PMID:28063257

[Abstract >>](#)

Regulation of phagocyte triglyceride by a STAT-ATG2 pathway controls mycobacterial infection. Péan CB, Schiebler M, Tan SW, Sharrock JA, Kierdorf K, Brown KP, Maserumule MC, Menezes S, Pilátová M, Bronda K, Guermonprez P, Stramer BM, Andres Floto R, Dionne MS.

Nat Commun. 2017 Mar 6;8:14642. doi: 10.1038/ncomms14642.

[Abstract >>](#)

VBCF LIFE



New twin babies!

We are happy to announce that on the 24th March 2017, **Armin** and **Amna** were born, the twin babies of our colleague Bisera Kahrimanovic (teacher in the VBC Child Care Center). Welcome!

VBCF runs!



3 VBCF teams participated in Mixed Relays of the **34th Vienna City Marathon** on the 23th April 2017. Our teams took the 569th, 1138th, and 1228th places out of 2400. Congratulations!

Further planned running activities:

X-cross Run: 10. 06. 2017

Wien Energie Business Run: 07. 09. 2017

Jedermann Zehnkampf: 23.-24. 09. 2017

Vienna Night Run: 26. 09. 2017

Cancer Research Run: 07. 10. 2017



Business Row

On the 10th June 2017, a team of four VBCF employees will participate in **Business-2-Row**. Good luck!



Treasure hunting

On the 30th April several VBCF kids hunted treasure in the forests of Hütteldorf. Team spirit and mutual collaboration were the basic prerequisites for finding the treasure -

a golden turtle (and an ice cream for everybody :-)).

Organized by Kareem Elsayad.

