

## PROJECT IDEAS AND COLLABORATION OFFER FOR HORIZON 2020 CALLS 2018 – 2020

### Work Programmes:

- Health, demographic change and wellbeing
- Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
- Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing
- European research infrastructures (including eInfrastructures)
- Innovative Medicines Initiative
- Science with and for Society
- Internal Security Fund Police

<b>Organisation:</b>	Vienna Biocenter Core Facilities, GmbH
<b>Location:</b>	Vienna Biocenter, Vienna, Austria
<b>Website:</b>	<a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a>
<b>Institutional status:</b>	Non-profit medium-sized enterprise (SME)
<b>Area of activities:</b>	Provider of scientific services in the field of life sciences for both academia and industry

## VBCF – a brief introduction

**Vienna Biocenter Core Facilities, GmbH (VBCF)** was founded in 2010 under the name Campus Science Support Facilities as a publicly funded non-profit research-performing medium-sized company, situated at the Vienna Biocenter (<http://www.viennabiocenter.org/>), one of the most outstanding and prominent life sciences hubs in the region of Central Europe.

VBCF is designated as an **SME** in European project applications.

We offer access to state-of-the-art research infrastructures and scientific services for both academic and private customers in the field of Life Sciences. We are a fully international company and our services are being used by inland customers, European, and overseas ones.

The company encompasses eleven core facilities having focus on various aspects of R&D in life sciences, either as routine investigations or finding new, original solutions.

- **Advanced Microscopy:** <http://www.vbcf.ac.at/facilities/advanced-microscopy/>
- **Bioinformatics and Scientific Computing:** <http://www.vbcf.ac.at/facilities/bioinformatics-and-scientific-computing/>
- **Electron Microscopy:** <http://www.vbcf.ac.at/facilities/electron-microscopy/>
- **HistoPathology:** <http://www.vbcf.ac.at/facilities/histopathology/>
- **Metabolomics:** <http://www.vbcf.ac.at/facilities/metabolomics/>
- **Next Generation Sequencing:** <http://www.vbcf.ac.at/facilities/next-generation-sequencing/>
- **Plant Sciences:** <http://www.vbcf.ac.at/facilities/plant-sciences/>
- **Preclinical Imaging:** <http://www.vbcf.ac.at/facilities/preclinical-imaging/>
- **Preclinical Phenotyping:** <http://www.vbcf.ac.at/facilities/preclinical-phenotyping/>
- **Protein Technologies:** <http://www.vbcf.ac.at/facilities/protein-technologies/>
- **Vienna Drosophila Resource Center:** <http://www.vbcf.ac.at/facilities/vienna-drosophila-resource-center/>

We participate in various national and international research & innovation projects. Our project ideas and/or collaboration offer for the Horizon2020 calls 2018 – 2020 are presented on the following pages.

Core Facility	Call	Call ID & title	Page
AdvMicro	<b>Advanced Microscopy</b>	<b>General collaboration offer:</b> Suitable for topics requiring <b>Advanced Optical Microscopy or Spectroscopy.</b>	<a href="#">11</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-01-2019:</b> Understanding causative mechanisms in co- and multimorbidities	<a href="#">14</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-02-2019:</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	<a href="#">14</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-09-2018:</b> Innovation platforms for advanced therapies of the future	<a href="#">14</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-14-2019:</b> Stratified host-directed approaches to improve prevention, treatment and/or cure of infectious diseases	<a href="#">14</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-15-2018:</b> New anti-infective agents for prevention and/or treatment of neglected infectious diseases (NID)	<a href="#">15</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-16-2018:</b> Global Alliance for Chronic Diseases (GACD) - Scaling-up of evidence-based health interventions at population level for the prevention and management of hypertension and/or diabetes	<a href="#">15</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-18-2018:</b> Translational collaborative cancer research between Europe and the Community of Latin American and Caribbean States (CELAC)	<a href="#">15</a>

Core Facility	Call	Call ID & title	Page
AdvMicro	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-19-2019:</b> Implementation research for maternal and child health	<a href="#">15</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-21-2018:</b> Research on HIV, tuberculosis (TB) and/or hepatitis C (HCV) in patients with mono-, co-infections and/or comorbidities in the context of fostering collaboration with the Russian Federation	<a href="#">15</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-23-2018:</b> Novel patient-centred approaches for survivorship, palliation and/or end-of-life care	<a href="#">16</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-25-2019:</b> Demonstration pilots for implementation of personalised medicine in healthcare	<a href="#">16</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-28-2019:</b> The Human Exposome Project: a toolbox for assessing and addressing the impact of environment on health	<a href="#">16</a>
	Foundations for tomorrow's industry	<b>DT-NMBP-01-2018:</b> Open Innovation Test Beds for Lightweight, nano-enabled multifunctional composite materials and components (IA)	<a href="#">13</a>
	Foundations for tomorrow's industry	<b>DT-NMBP-02-2018:</b> Open Innovation Test Beds for Safety Testing of Medical Technologies for Health (IA)	<a href="#">13</a>
	Foundations for tomorrow's industry	<b>DT-NMBP-03-2019:</b> Open Innovation Test Beds for nano-enabled surfaces and membranes (IA)	<a href="#">13</a>
	Rural Renaissance	<b>LC-RUR-11-2019-2020:</b> Sustainable wood value chains	<a href="#">14</a>
	Rural Renaissance	<b>RUR-04-2018-2019:</b> Analytical tools and models to support policies related to agriculture and food	<a href="#">14</a>
	Sustainable Food Security	<b>SFS-05-2018-2019-2020:</b> New and emerging risks to plant health	<a href="#">16</a>
	Sustainable Food Security	<b>SFS-23-2019:</b> Integrated water management in small agricultural catchments	<a href="#">16</a>
	Sustainable Food Security	<b>SFS-29-2018:</b> Innovations in plant variety testing	<a href="#">17</a>

Core Facility	Call	Call ID & title	Page
AdvMicro	Sustainable Food Security	<b>SFS-37-2019:</b> Integrated approaches to food safety controls across the food chain	<a href="#">17</a>
	Transforming European Industry	<b>BIOTEC-03-2018:</b> Synthetic biology to expand diversity of nature's chemical production	<a href="#">13</a>
	Transforming European Industry	<b>CE-BIOTEC-04-2018:</b> New biotechnologies for environmental remediation (RIA)	<a href="#">13</a>
	Transforming European Industry	<b>CE-BIOTEC-05-2019:</b> Microorganism communities for plastics bio-degradation (RIA)	<a href="#">13</a>
<b>EM</b>	<b>Electron Microscopy</b>	<b>General collaboration offer:</b> Suitable for any topic which requires <b>high resolution visualisation of the ultrastructure of biological samples.</b>	<a href="#">18</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-01-2019:</b> Understanding causative mechanisms in co- and multimorbidities	<a href="#">19</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-02-2019:</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	<a href="#">19</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-04-2018:</b> Rare Disease European Joint Programme Cofund	<a href="#">19</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-07-2019:</b> Regenerative medicine: from new insights to new applications	<a href="#">19</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-21-2018:</b> Research on HIV, tuberculosis (TB) and/or hepatitis C (HCV) in patients with mono-, co-infections and/or comorbidities in the context of fostering collaboration with the Russian Federation	<a href="#">19</a>
	Sustainable Food Security	<b>SFS-01-2018-2019-2020:</b> Biodiversity in action: across farmland and the value chain	<a href="#">20</a>
	Sustainable Food Security	<b>SFS-05-2018-2019-2020:</b> New and emerging risks to plant health	<a href="#">20</a>
	Sustainable Food Security	<b>SFS-07-2018:</b> Making European beekeeping healthy and sustainable	<a href="#">20</a>
	Sustainable Food Security	<b>SFS-12-2019:</b> A vaccine against African swine fever	<a href="#">20</a>
	Transforming European Industry	<b>BIOTEC-02-2019:</b> Boosting the efficiency of photosynthesis (RIA)	<a href="#">19</a>

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EM	Transforming European Industry	<b>CE-BIOTEC-04-2018:</b> New biotechnologies for environmental remediation (RIA)	<a href="#">19</a>
	Transforming European Industry	<b>CE-BIOTEC-05-2019:</b> Microorganism communities for plastics bio-degradation (RIA)	<a href="#">19</a>
<b>Metabolomics</b>	<b>Metabolomics</b>	<b>General collaboration offer:</b> Suitable for any topic which requires the <b>quantitative characterization of biomolecules</b> other than proteins.	<a href="#">21</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-01-2019:</b> Understanding causative mechanisms in co- and multimorbidities	<a href="#">22</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-02-2019:</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	<a href="#">22</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-03-2018:</b> Exploiting research outcomes and application potential of the human microbiome for personalised prediction, prevention and treatment of disease	<a href="#">22</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-04-2018:</b> Rare Disease European Joint Programme Cofund	<a href="#">22</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-07-2019:</b> Regenerative medicine: from new insights to new applications	<a href="#">22</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-14-2019:</b> Stratified host-directed approaches to improve prevention, treatment and/or cure of infectious diseases	<a href="#">22</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-21-2018:</b> Research on HIV, tuberculosis (TB) and/or hepatitis C (HCV) in patients with mono-, co-infections and/or comorbidities in the context of fostering collaboration with the Russian Federation	<a href="#">23</a>

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Metabolomics	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-25-2019:</b> Demonstration pilots for implementation of personalised medicine in healthcare	<a href="#">23</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-27-2018:</b> New testing and screening methods to identify endocrine disrupting chemicals	<a href="#">23</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-28-2019:</b> The Human Exposome Project: a toolbox for assessing and addressing the impact of environment on health	<a href="#">23</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-HCO-01-2018-2019-2020:</b> Actions in support of the International Consortium for Personalised Medicine	<a href="#">23</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-HCO-05-2018:</b> Strengthening regulatory sciences and supporting regulatory scientific advice	<a href="#">23</a>
<b>NGS</b>	<b>Next Generation Sequencing</b>	<b>General collaboration offer:</b> Suitable for any topic which requires <b>next generation sequencing analyses.</b>	<a href="#">24</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-02-2019 :</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	<a href="#">25</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-07-2019:</b> Regenerative medicine: from new insights to new applications	<a href="#">25</a>
	Integrating and opening research infrastructures of European interest	<b>INFRAIA-01-2018-2019:</b> Integrating Activities for Advanced Communities	<a href="#">25</a>

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NGS	Sustainable Food Security	<b>LC-SFS-03-2018:</b> Microbiome applications for sustainable food systems	<a href="#">25</a>
PlantS	<b>Plant Sciences</b>	<b>General collaboration offer:</b> Suitable for any topic requiring <b>environmental simulation/abiotic plant stress and/or high-throughput phenotyping and HT image- and data analysis.</b>	<a href="#">26</a>
	Sustainable Food Security	<b>LC-SFS-15-2018:</b> Future proofing our plants	<a href="#">27</a>
	Sustainable Food Security	<b>LC-SFS-19-2018-2019:</b> Climate-smart and resilient farming	<a href="#">27</a>
	Sustainable Food Security	<b>SFS-29-2018:</b> Innovations in plant variety testing	<a href="#">27</a>
	Sustainable Food Security	<b>SFS-30-2018-2019-2020:</b> Agri-Aqua Labs (B, C)	<a href="#">28</a>
	Transforming European Industry	<b>BIOTEC-02-2019:</b> Boosting the efficiency of photosynthesis (RIA)	<a href="#">27</a>
	Transforming European Industry	<b>BIOTEC-03-2018:</b> Synthetic biology to expand diversity of nature's chemical production	<a href="#">27</a>
pcIMAG	<b>Preclinical Imaging</b>	<b>General collaboration offer:</b> Suitable for any topic which requires <b>non-invasive imaging technologies.</b>	<a href="#">29</a>
	Accelerating and catalysing processes of institutional change	<b>SwafS-08-2019:</b> Research innovation needs & skills training in PhD programmes	<a href="#">30</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-04-2018:</b> Rare Disease European Joint Programme Cofund	<a href="#">30</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-07-2019:</b> Regenerative medicine: from new insights to new applications	<a href="#">30</a>
	Infectious diseases and improving global health	<b>SC1-HCO-10-2018:</b> Coordinating European brain research and developing global initiatives	<a href="#">30</a>



Core Facility	Call	Call ID & title	Page
pcIMAG	Innovative Medicines Initiative	<b>IMI2-2017-13-04:</b> Mitochondrial Dysfunction in Neurodegeneration	<a href="#">30</a>
	Internal Security Fund Police	<b>ISFP-2017-AG-TERFIN:</b> Counter-Terrorism financing	<a href="#">30</a>
pcPHENO	<b>Preclinical Phenotyping</b>	<b>General collaboration offer:</b> Suitable for any topic which requires <b>in vivo testing of behavior, metabolism, ECG or blood pressure of mice under different genetic or pharmacological treatment conditions.</b>	<a href="#">31</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-01-2019:</b> Understanding causative mechanisms in co- and multimorbidities	<a href="#">32</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-02-2019:</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	<a href="#">32</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-09-2018:</b> Innovation platforms for advanced therapies of the future	<a href="#">32</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-15-2018:</b> New anti-infective agents for prevention and/or treatment of neglected infectious diseases (NID)	<a href="#">32</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-27-2018:</b> New testing and screening methods to identify endocrine disrupting chemicals	<a href="#">33</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-HCO-10-2018:</b> Coordinating European brain research and developing global initiatives	<a href="#">33</a>
	Sustainable Food Security	<b>LC-SFS-03-2018:</b> Microbiome applications for sustainable food systems	<a href="#">32</a>
	Sustainable Food Security	<b>SFS-04-2019-2020-B(2020):</b> Integrated health approaches and alternatives to pesticide use	<a href="#">33</a>

Core Facility	Call	Call ID & title	Page
ProTech	Protein Technologies	<b>General collaboration offer:</b> Suitable for any topic which requires <b>generation and/or analysis of recombinant proteins</b> or <b>generation of CRISPR/Cas9 reagents and or mutants.</b>	<a href="#">34</a>
VDRC	Vienna Drosophila Resource Center	<b>General collaboration offer:</b> Suitable for any topic which requires <b>high throughput screens in Drosophila</b> as a model organism for understanding human physiology and diseases.	<a href="#">36</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-04-2018:</b> Rare Disease European Joint Programme Cofund	<a href="#">37</a>
	Better Health and care, economic growth and sustainable health systems	<b>SC1-BHC-09-2018:</b> Innovation platforms for advanced therapies of the future	<a href="#">37</a>

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<b>Kareem Elsayad</b> , Head of the core facility <b>Advanced Microscopy</b> : <a href="http://www.vbcf.ac.at/advmicro">www.vbcf.ac.at/advmicro</a> Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a> Contact details: <a href="mailto:kareem.elsayad@vbcf.ac.at">kareem.elsayad@vbcf.ac.at</a> , +43-1-664 808 47 7110
<b>Basic idea</b>	The <b>VBCF - Advanced Microscopy Facility</b> offers a range of custom built and commercial high-end advanced optical microscopy solutions, suitable for many research directions in the field of life sciences.
<b>Call</b>	Suitable for topics requiring <b>Advanced Optical Microscopy or Spectroscopy</b>
<b>Status</b>	Medium-sized enterprise ( <b>SME</b> )
<p><b>Background and motivation</b></p> <p>The VBCF Advanced Microscopy Facility focuses on developing, optimizing and offering access to cutting edge optical microscopy for all life science applications.</p> <p>Focus points at the moment are</p> <ol style="list-style-type: none"> <li>1) <b>Microspectroscopy</b> (Brillouin and Raman)*</li> <li>2) <b>Fluorescence Spectroscopy</b> (FCS/FCCS/FLCS/FLCCS)**</li> <li>3) <b>Time-resolved and Polarization resolved Fluorescence Microscopy</b> (e.g. Fluorescence lifetime imaging, Fluorescence Anisotropy imaging)**</li> <li>4) <b>Light Sheet Microscopy</b> (custom design and Lattice Light Sheet)***</li> <li>5) <b>Superresolution Microscopy</b> (3d Structured Illumination and TIRF-Localization microscopy)</li> <li>6) <b>Total Internal Reflection Fluorescence Microscopy (TIRF)</b> (custom built Axicon based TIRF [4])</li> <li>7) <b>Surface enhanced Fluorescence/Spectroscopy</b> ****</li> </ol> <p>* Our strength here lies in Brillouin Light Scattering Microscopy which allows for label-free all-optical mapping of the high frequency mechanical properties of live biological samples. We are able to perform these measurements in parallel with fluorescence or Raman spectroscopy to correlate the abundance of biochemical constituents and the mechanical properties with near diffraction limited optical resolution [1].</p> <p>** We can also perform more specialized measurements such as photon anti-bunching measurements, and controlled UV irradiation with a 355nm pulsed laser for e.g. DNA damage studies [2].</p> <p>*** Our custom light sheet microscope is optimized for studying <b>plant root growth</b> over extended time periods with high spatial resolution over large volumes. Special features include the ability to administer drugs/chemicals at set time points, programable temperature control (for e.g. imaging at non-ambient conditions or applying heat shock), and a programable day-night cycle. Our versatile setup can and has also been used for other samples such as <b>C. elegans</b> and <b>whole brain imaging</b> [3].</p> <p>We also have established a Lattice Light Sheet microscope based on the design developed at Janelia Farm, which is capable of fast high-resolution multi-color imaging of subcellular structures.</p>	

\*\*\*\* Together with collaborators at nanofabrication facilities we are able to perform different types of surface enhanced fluorescence imaging and spectroscopy (e.g. [5]) for either axial superresolution imaging or enhanced label-free spectroscopy.

We are open to **adapting existing setups** that coincide with our strengths and that we can identify as becoming an important tool for life science researchers.

### Main objectives

- New application of microscopy/spectroscopy techniques
- Adaptions/modifications of microscopes for additional functionalities
- Correlative studies, involving available techniques with other functional imaging modalities

### Selected publications

- (1) Elsayad K, Werner S, Gallemí M, Kong J, Sánchez Guajardo ER, Zhang L, Jaillais Y, Greb T, Belkhadir Y (2016) **Mapping the subcellular mechanical properties of live cells in tissues with fluorescence emission–Brillouin imaging** *Sci Signal* 9(435):rs5
- (2) Kaufmann T, Grishkovskaya I, Polyansky AA, Kostrhon S, Kukulj E, Olek KM, Herbert S, Beltzung E, Mechtler K, Peterbauer T, Gotzmann J, Zhang L, Hartl M, Zagrovic B, Elsayad K, DjinoVIC-Carugo K, Slade D (2017) **A novel non-canonical PIP-box mediates PARG interaction with PCNA** *Nucleic Acid Research* 45(16):9741
- (3) Breuss M, Morandell J, Nimpf S, Gstrein T, Lauwers M, Hochstoeger T, Braun A, Chan K, Sánchez Guajardo ER, Zhang L, Suplata M, Heinze KG, Elsayad K, Keays DA (2015) **The expression of *tubb2b* undergoes a developmental transition in murine cortical neurons** *J. Comp. Neurology* 523:2161
- (4) Schreiber B, Elsayad K, Heinze KG. (2017) **Axicon-based Bessel beams for flat-field illumination in total internal reflection fluorescence microscopy** *Opt Lett* 42(19):3880
- (5) Elsayad K, Heinze KG (2017) **Fluorescence Excitation, Decay, and Energy Transfer in the Vicinity of Thin Dielectric/Metal/Dielectric Layers near Their Surface Plasmon Polariton Cutoff Frequency**. Chapter 6 in "Surface Plasmon Enhanced, Coupled and Controlled Fluorescence" (Ed. C Geddes), John Wiley & Sons, Inc [ISBN 978-1-118-02793-6]

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Advanced Microscopy</b>
<b>BIOTEC-03-2018</b> Synthetic biology to expand diversity of nature's chemical production	23-Jan-2018 (1 <sup>st</sup> stage) 28-Jun-2018 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical changes. Time resolved fluorescence measurements (fluorescence lifetime, FCS/FCCS) for measuring structural, diffusion properties and concentrations of molecules or complexes.
<b>CE-BIOTEC-04-2018</b> New biotechnologies for environmental remediation (RIA)	25-Apr-2018	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical changes. Time resolved fluorescence measurements (fluorescence lifetime, FCS/FCCS) for measuring structural, diffusion properties and concentrations of molecules or complexes.
<b>CE-BIOTEC-05-2019</b> Microorganism communities for plastics bio-degradation (RIA)	24-Apr-2019	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical changes. Time resolved fluorescence measurements (fluorescence lifetime, FCS/FCCS) for measuring structural, diffusion properties and concentrations of molecules or complexes.
<b>DT-NMBP-01-2018</b> Open Innovation Test Beds for Lightweight, nano-enabled multifunctional composite materials and components (IA)	23-Jan-2018 (1 <sup>st</sup> stage) 28-Jun-2018 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural (Raman scattering) or mechanical (Brillouin scattering) properties and changes therein. Access to nearby nanofabrication facilities for realizing structures for surface enhanced spectroscopy.
<b>DT-NMBP-02-2018</b> Open Innovation Test Beds for Safety Testing of Medical Technologies for Health (IA)	23-Jan-2018 (1 <sup>st</sup> stage) 28-Jun-2018 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural (Raman scattering) or mechanical (Brillouin scattering) properties and changes therein. Access to nearby nanofabrication facilities for realizing structures for surface enhanced spectroscopy.
<b>DT-NMBP-03-2019</b> Open Innovation Test Beds for nano-enabled surfaces and membranes (IA)	22-Jan-2019 (1 <sup>st</sup> stage) 3-Sep-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural (Raman scattering) or mechanical (Brillouin scattering) properties and changes therein. Access to nearby nanofabrication facilities for realizing structures for surface enhanced spectroscopy.

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Advanced Microscopy</b>
<b>LC-RUR-11-2019-2020</b> Sustainable wood value chains	23-Jan-2019	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical properties of wood.
<b>RUR-04-2018-2019</b> Analytical tools and models to support policies related to agriculture and food	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage)  23-Jan-2019 (1 <sup>st</sup> stage) 4-Sep-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical changes in agricultural products and food.
<b>SC1-BHC-01-2019</b> Understanding causative mechanisms in co- and multimorbidities	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-02-2019</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-09-2018</b> Innovation platforms for advanced therapies of the future	18-Apr-2018	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-14-2019</b> Stratified host-directed approaches to improve prevention, treatment and/or cure of infectious diseases	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Advanced Microscopy</b>
<b>SC1-BHC-15-2018</b> New anti-infective agents for prevention and/or treatment of neglected infectious diseases (NID)	6-Feb-2018 (1 <sup>st</sup> stage) 4-Sep-2018 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-16-2018</b> Global Alliance for Chronic Diseases (GACD) - Scaling-up of evidence-based health interventions at population level for the prevention and management of hypertension and/or diabetes	18-Apr-2018	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-18-2018</b> Translational collaborative cancer research between Europe and the Community of Latin American and Caribbean States (CELAC)	18-Apr-2018	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-19-2019</b> Implementation research for maternal and child health	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-21-2018</b> Research on HIV, tuberculosis (TB) and/or hepatitis C (HCV) in patients with mono-, co-infections and/or comorbidities in the context of fostering collaboration with the Russian Federation	18-Apr-2018	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Advanced Microscopy</b>
<b>SC1-BHC-23-2018</b> Novel patient-centered approaches for survivorship, palliation and/or end-of-life care	18-Apr-2018	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-25-2019</b> Demonstration pilots for implementation of personalized medicine in healthcare	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SC1-BHC-28-2019</b> The Human Exposome Project: a toolbox for assessing and addressing the impact of environment on health	16-Apr-2019	High resolution optical microspectroscopy techniques for potential diagnosis of conditions based on chemical, structural or mechanical changes in cells/tissue/liquid biopsies etc. High resolution time-resolved (lifetime) microscopy measurements for characterizing samples.
<b>SFS-05-2018-2019-2020</b> New and emerging risks to plant health	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage)  23-Jan-2019 (1 <sup>st</sup> stage) 4-Sep-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical changes on sub-cellular level. High resolution large field of view light sheet microscopy with root tracking, automated temperature control/perturbations, automated day night cycle and perfusion device for delivering chemical perturbations for studying the effect of different environments/perturbations on dynamics and structure. Fluorescence Correlation Spectroscopy for studying diffusion and concentrations of different labeled constituents. 3D Structured Illumination Microscopy for super-resolution (100nm resolution) imaging of samples.
<b>SFS-23-2019</b> Integrated water management in small agricultural catchments	23-Jan-2019 (1 <sup>st</sup> stage) 4-Sep-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical changes of molecules and molecular complexes in water



Call ID & title	Deadline	Potential contribution of the Core Facility <b>Advanced Microscopy</b>
<b>SFS-29-2018</b> Innovations in plant variety testing	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical changes on sub-cellular level. High resolution large field of view light sheet microscopy with root tracking, automated temperature control/perturbations, automated day night cycle and perfusion device for delivering chemical perturbations for studying the effect of different environments/perturbations on dynamics and structure. Fluorescence Correlation Spectroscopy for studying diffusion and concentrations of different labeled constituents. 3D Structured Illumination Microscopy for super-resolution (100nm resolution) imaging of samples.
<b>SFS-37-2019</b> Integrated approaches to food safety controls across the food chain	23-Jan-2019 (1 <sup>st</sup> stage) 4-Sep-2019 (2 <sup>nd</sup> stage)	High resolution optical microspectroscopy techniques for measuring chemical, structural or mechanical changes in food.

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<b>Thomas Heuser</b> , Head of core facility <b>Electron Microscopy</b> : <a href="http://www.vbcf.ac.at/facilities/electron-microscopy/">http://www.vbcf.ac.at/facilities/electron-microscopy/</a> Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a> Contact details: <a href="mailto:thomas.heuser@vbcf.ac.at">thomas.heuser@vbcf.ac.at</a> , +43-1-796-2324-7120
<b>Basic idea</b>	The Electron Microscopy (EM) Facility offers <b>visualization of biological samples at the ultrastructural level</b> . Depending on scientific question a variety of sample preparation and EM techniques - from conventional to cutting edge - are used to gain <b>2D and 3D</b> insights into the observed sample (isolated protein complexes, DNA, RNA, viruses, cells, tissues, small organisms).
<b>Call</b>	Suitable for any topic which requires high resolution visualisation of the ultrastructure of biological samples
<b>Status</b>	Medium-sized enterprise (SME)
<b>Background and motivation</b>	
<b>Electron Microscopy is the gold standard for morphological studies at ultrastructural level.</b> It allows to obtain the high resolution 2D or 3D structure of life sciences samples ranging from isolated molecules to entire tissues and organs. Such information is crucial to link structure to function for the understanding of essential biological processes. Additionally EM can also be used to precisely localize proteins of interest via immuno gold labelling.	
<b>Main objectives</b>	
<ul style="list-style-type: none"> <li>Using electron microscopy to <b>study the 2D or 3D ultrastructure of various life science samples</b> to link structure to function</li> <li><b>Sample preparation techniques</b> and EM methods <b>ranging from classical approaches</b> (negative staining, rotary shadowing, freeze fracturing, chemical fixation, high pressure freezing/freeze substitution) <b>to cutting edge cryo-EM/tomography</b></li> <li>localization of target proteins by <b>immuno gold labelling</b></li> </ul>	
<b>Equipment</b>	
<ul style="list-style-type: none"> <li><b>FEI Tecnai F30 Polara</b>: Cryo-electron microscope with Gatan K2 summit direct electron detector for near atomic resolution imaging close to native state via cryo-EM and cryo-electron tomography</li> <li><b>FEI Tecnai T20</b>: electron microscope 2D and 3D visualisation of biological samples at room temperature</li> <li><b>FEI Morgagni</b>: electron microscope for fast and easy sample visualisation</li> <li><b>Auxiliary equipment</b> for various sample preparation techniques</li> </ul>	
<b>Selected publications</b>	
<ul style="list-style-type: none"> <li>Nimpf et al., (2017). <b>Subcellular analysis of pigeon hair cells implicates vesicular trafficking in cuticulosome formation and maintenance.</b> <i>eLife</i> doi:10.7554/eLife.29959</li> <li>Tripisciano et al., (2017). <b>Different Potential of Extracellular Vesicles to Support Thrombin Generation: Contributions of Phosphatidylserine, Tissue Factor, and Cellular Origin.</b> <i>Scientific Reports</i> 7(1):6522</li> <li>Edelman et al., (2015). <b>No evidence for intracellular magnetite in putative vertebrate magnetoreceptors identified by magnetic screening,</b> <i>PNAS</i> 112(1):262-7</li> <li>Bigalke et al., (2014). <b>Membrane deformation and scission by the HSV-1 nuclear egress complex,</b> <i>Nat Commun</i> 5:4131</li> </ul>	

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Electron Microscopy</b>
<b>BIOTEC-02-2019:</b> Boosting the efficiency of photosynthesis (RIA)	22-Jan-2019 (1 <sup>st</sup> stage) 3-Sep-2019 (2 <sup>nd</sup> stage)	EM can deliver high resolution insights into the 3D structure of chloroplast by (cryo-)electron tomography and e.g. investigate whether changes in photosynthesis rate correlate with structural changes.
<b>CE-BIOTEC-04-2018:</b> New biotechnologies for environmental remediation (RIA)	25-Apr-2018	Visualisation of microorganisms capable of environmental remediation by various EM techniques (e.g. negative staining, cryo-EM, scanning EM) .
<b>CE-BIOTEC-05-2019:</b> Microorganism communities for plastics bio-degradation (RIA)	24-Apr-2019	Plastic degrading microorganisms can be visualized by scanning EM or transmission EM (negative staining, cryo-EM, ...) e.g. for validation or morphological characterisation.
<b>SC1-BHC-01-2019:</b> Understanding causative mechanisms in co- and multimorbidities	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	Patient cells (or parts thereof) can be visualized by EM to check for any ultrastructural changes compared to healthy cells.
<b>SC1-BHC-02-2019:</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	Pathophysiology of complex disorders can be visualized, characterized and compared to other patients with similar symptoms by EM (e.g. high pressure freezing / freeze substitution of cells).
<b>SC1-BHC-04-2018:</b> Rare Disease European Joint Programme Cofund	18-Apr-2018	EM can be an important diagnostic tool to characterize rare diseases by their ultrastructure.
<b>SC1-BHC-07-2019:</b> Regenerative medicine: from new insights to new applications	16-Apr-2019	EM can be used as a reference tool to check, analyze and document the regeneration process of cells/tissues by characterizing their ultrastructure.
<b>SC1-BHC-21-2018:</b> Research on HIV, tuberculosis (TB) and/or hepatitis C (HCV) in patients with mono-, co-infections and/or comorbidities in the context of fostering collaboration with the Russian Federation	18-Apr-2018	EM can visualize HIV, TB and HCV and could be used as quality control to check effectiveness of new biomarkers for diagnosis.

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Electron Microscopy</b>
<b>SFS-01-2018-2019-2020:</b> Biodiversity in action: across farmland and the value chain	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage)  23-Jan-2019 (1 <sup>st</sup> stage) 4-Sep-2019 (2 <sup>nd</sup> stage)	Visualization and ultrastructural characterization of soil microorganisms at the plant (root) interface by either scanning electron microscopy (SEM) or transmission electron microscopy (TEM).
<b>SFS-05-2018-2019-2020:</b> New and emerging risks to plant health	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage)  23-Jan-2019 (1 <sup>st</sup> stage) 4-Sep-2019 (2 <sup>nd</sup> stage)	EM ultrastructure visualization of plant cells and comparison of healthy plants and diseased plants affected by new and emerging pests/diseases. EM could be a reference to check/validate method development for detecting new pests.
<b>SFS-07-2018:</b> Making European beekeeping healthy and sustainable	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage)	Morphological and histological studies to determine health of bees can be assisted by EM to investigate ultrastructural differences between healthy and diseased bees (e.g. chemical fixation or high pressure freezing/freeze substitution could be used to investigated tissues of interest from healthy and diseased bees).
<b>SFS-12-2019:</b> A vaccine against African swine fever	23-Jan-2019	Cryo-EM can be used to visualize AFS viruses (or parts thereof) and high pressure freezing/freeze substitution can be used to investigate the ultrastructure of infected tissues in boar and pig to e.g. visualize virus replication in host cells.

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<b>Thomas Köcher</b> , Head of core facility <b>Metabolomics</b> : <a href="http://www.vbcf.ac.at/facilities/metabolomics/">http://www.vbcf.ac.at/facilities/metabolomics/</a> Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a> Contact details: <a href="mailto:thomas.koecher@vbcf.ac.at">thomas.koecher@vbcf.ac.at</a> , + 43-1-79044-4281
<b>Basic idea</b>	The Metabolomics Core Facility offers the metabolomic characterization of biological samples employing advanced chromatographic and mass spectrometric techniques. Specifically, we offer the <b>targeted quantitative analysis of metabolites and other small molecules</b> such as drugs from extracts of biological samples. We also offer <b>nontargeted analysis for the hypothesis-free characterization</b> of samples, eventually unravelling relevant metabolites and biochemical pathways. We also analyse other small molecules, e.g. RNA or DNA modifications.
<b>Call</b>	Suitable for any topic which requires the quantitative characterization of biomolecules other than proteins.
<b>Status</b>	Medium-sized enterprise ( <b>SME</b> )
<p><b>Background and motivation</b></p> <p>Metabolomics is the most recent development in the post-genomics era aiming at the systematic and quantitative study of small molecules (metabolites) in biological systems. The respective analysis of biological samples requires expensive instrumentation and high level of expertise. The unit provides biological research groups access to this critical future technology. We can deliver both <b>target-oriented analysis</b> of samples regarding a limited number of pre-defined metabolites and <b>non-targeted metabolomics</b> allowing for a relatively unbiased view upon biological systems.</p>	
<p><b>Main objectives</b></p> <ul style="list-style-type: none"> <li>• Targeted relative and absolute analysis of metabolites</li> <li>• Non-targeted analysis of metabolites</li> </ul>	
<p><b>Equipment</b></p> <ul style="list-style-type: none"> <li>• 3 HPLC systems</li> <li>• 2 triple quadrupole mass spectrometers</li> <li>• 1 high resolution mass spectrometer (Q-Exactive)</li> </ul>	

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Metabolomics</b>
<b>SC1-BHC-01-2019</b> Understanding causative mechanisms in co- and multimorbidities	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	We expect to contribute to this topic with our expertise in targeted and non-targeted analysis of biomolecules (metabolites) and other small molecules (e.g. drugs) as well as identification of biomarkers.
<b>SC1-BHC-02-2019</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	We hope to contribute to this topic by high throughput analysis of targeted and nontargeted biomolecules (metabolites) and other small molecules (e.g. drugs) as well as biomarker identification on a large scale.
<b>SC1-BHC-03-2018</b> Exploiting research outcomes and application potential of the human microbiome for personalised prediction, prevention and treatment of disease	16-Apr-2019	We can add to this call the revalidation and further analysis of targeted and non-targeted biomolecules (metabolites) and other small molecules (e.g. drugs).
<b>SC1-BHC-04-2018</b> Rare Disease European Joint Programme Cofund	18-Apr-2018	We can contribute to this call by identification of biomarkers for rare diseases and targeted and non-targeted analysis of biomolecules (metabolites) and other small molecules (e.g. drugs).
<b>SC1-BHC-07-2019</b> Regenerative medicine: from new insights to new applications	16-Apr-2019	Metabolomics and the analysis of targeted and non-targeted biomolecules (metabolites) and other small molecules (e.g. drugs) as well as the identification of biomarker can help to characterize factors involved in regenerative mechanisms.
<b>SC1-BHC-14-2019</b> Stratified host-directed approaches to improve prevention, treatment and/or cure of infectious diseases	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	We offer targeted and nontargeted analysis of biomolecules (metabolites) and other small molecules (e.g. drugs) and the identification of biomarkers, which can then be selected for clinical validation.

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Metabolomics</b>
<b>SC1-BHC-21-2018</b> Research on HIV, tuberculosis (TB) and/or hepatitis C (HCV) in patients with mono-, co-infections and/or comorbidities in the context of fostering collaboration with the Russian Federation	18-Apr-2018	We hope to contribute to this call by helping to identify biomarkers for early screening of tuberculosis risk groups. Moreover, we offer targeted and non-targeted analysis of biomolecules (metabolites) and other small molecules (e.g. drugs).
<b>SC1-BHC-25-2019</b> Demonstration pilots for implementation of personalised medicine in healthcare	2-Oct-2018 (1st stage) 16-Apr-2019 (2nd stage)	As metabolomics is one of the key technologies of personalized medicine, we can contribute to this call with targeted and non-targeted analyses of biomolecules (metabolites) and other small molecules (e.g. drugs) as well as with biomarker identification.
<b>SC1-BHC-27-2018</b> New testing and screening methods to identify endocrine disrupting chemicals	18-Apr-2018	Targeted and non-targeted analysis of biomolecules (metabolites) and other small molecules (e.g. drugs) as well as identification of biomarkers can be used to test and assess chemicals for endocrine disruptor identification.
<b>SC1-BHC-28-2019</b> The Human Exposome Project: a toolbox for assessing and addressing the impact of environment on health	16-Apr-2019	Besides targeted and non-targeted analysis of biomolecules (metabolites) and other small molecules (e.g. drugs), we hope to contribute to this call by biomarker identification for the internal exposome.
<b>SC1-HCO-01-2018-2019-2020</b> Actions in support of the International Consortium for Personalised Medicine	18-Apr-2018 16-Apr-2019	We offer our services of validation of targeted and non-targeted biomolecules (metabolites) and other small molecules (e.g. drugs) as well as identified biomarkers.
<b>SC1-HCO-05-2018</b> Strengthening regulatory sciences and supporting regulatory scientific advice	18-Apr-2018	We offer quality control and validation of pre-existing analysis of targeted and non-targeted biomolecules (metabolites) and other small molecules (e.g. drugs).

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<b>Andreas Sommer</b> , Head of core facility <b>Next Generation Sequencing</b> : <a href="http://www.vbcf.ac.at/facilities/next-generation-sequencing/">http://www.vbcf.ac.at/facilities/next-generation-sequencing/</a> Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a> Contact details: <a href="mailto:andreas.sommer@vbcf.ac.at">andreas.sommer@vbcf.ac.at</a> +43-664-80847-7030
<b>Basic idea</b>	The NGS facility offers next generation sequencing (NGS) analysis for any topic/call requiring a high throughput sequencing approach. The team has been using NGS systems (Illumina, PacBio) since 2008. Over the years, the facility has gathered extensive expertise in <b>library preparation, sequencing and data pre-processing</b> . The basic idea is to offer our well-established expertise and state-of-the-art equipment for research and innovation projects in the field of life sciences, which could profit from inclusion of NGS analyses.
<b>Call</b>	Suitable for any topic which requires <b>next generation sequencing analyses</b>
<b>Status</b>	Medium-sized enterprise (SME)
<b>Background and motivation</b>	
<b>Next Generation Sequencing has become a key analysis method for biological research.</b> The capacity to expand analysis from more or less defined genomic regions to genome wide studies has boosted the pace of research discovery and enabled researchers to obtain a global view on biological processes. With more than one hundred published protocols at disposition, nearly every cellular nucleic acid molecule can be targeted. The broad range of applications makes NGS a key 'omics' technology applicable in a variety of biological contexts.	
<b>Main objectives</b>	
<ul style="list-style-type: none"> <li>• Sequencing library preparation from various starting materials</li> <li>• Development of novel library preparation and sequencing protocols</li> <li>• Development of data processing pipelines</li> </ul>	
<b>Equipment</b>	
<ul style="list-style-type: none"> <li>• HiSeq 2500, MiSeq, NextSeq, PacBio Sequel, access to all other commercial platforms through our Core4Life (<a href="http://www.coreforlife.eu/">http://www.coreforlife.eu/</a>) partners.</li> </ul>	
<b>Selected publications</b>	
<ul style="list-style-type: none"> <li>• Ladurner <i>et al.</i> <b>Sororin actively maintains sister chromatid cohesion.</b> EMBO J. 2016 Mar 15.</li> <li>• Rabe <i>et al.</i> <b>A complete toolset for the study of Ustilago bromivora and Brachypodium sp. as a fungal-temperate grass pathosystem.</b> Elife. 2016 Nov 11.</li> <li>• Feichtinger <i>et al.</i> <b>Comprehensive genome and epigenome characterization of CHO cells in response to evolutionary pressures and over time.</b> Biotechnol Bioeng. 2016 Oct.</li> <li>• Derboven <i>et al.</i> <b>Role of STN1 and DNA Polymerase <math>\alpha</math> in Telomere Stability and Genome-Wide Replication in Arabidopsis.</b> PLoS Genet. 2014 Oct. 9.</li> <li>• Sawicka <i>et al.</i> <b>H3S28 phosphorylation is a hallmark of the transcriptional response to cellular stress.</b> Genome Res. 2014 Nov.</li> </ul>	



Call ID & title	Deadline	Potential contribution of the Core Facility Next Generation Sequencing
<b>INFRAIA-01-2018-2019</b> Integrating Activities for Advanced Communities	20-Mar-2019	We are part of Core4Life, a pan-European network of open access CFs with a focus on sharing expertise, resources and workflows. The Genomics sub-group seeks to strengthen the collaborative actions between members to enhance visibility as a European-wide resource.
<b>LC-SFS-03-2018</b> Microbiome applications for sustainable food systems	13-Feb-2018	Metagenome sequencing enables us to quickly analyse the composition of complex environments. Shotgun sequencing as well as 16S analyses are currently at the core of the metagenomics field, and can be accessed through the VBCF NGS facility.
<b>SC1-BHC-02-2019</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	NGS will likely be a key technology in the re-analysis of patient samples. With the analysis power currently provided by NGS platforms, such as ours, a much deeper understanding of previous and currently running clinical studies can be established.
<b>SC1-BHC-07-2019</b> Regenerative medicine: from new insights to new applications	16-Apr-2019	Many approaches in regenerative research use NGS as a read-out system. NGS allow e.g. the characterization of organoids or can be used as routine test for the efficiency of genome editing.

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<p><b>Jakub Jez</b>, Head of core facility <b>Plant Sciences (Plants)</b>:  <a href="http://www.vbcf.ac.at/facilities/plant-sciences/">http://www.vbcf.ac.at/facilities/plant-sciences/</a>          Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a>          Contact details: <a href="mailto:jakub.jez@vbcf.ac.at">jakub.jez@vbcf.ac.at</a> , +43-1-7962324-7090</p>
<b>Basic idea</b>	<p>With <b>22 high-quality, highly specialized state-of-the-art walk-in phytotrons</b>, Plants can precisely <b>control environmental conditions</b>, reproducing abiotic plant stress conditions such as frost, drought and various spectral light and CO<sub>2</sub> gas conditions. Furthermore, we can accurately <b>simulate global environmental conditions</b> from a range of different climate zones.</p> <p>The second focus is the <b>automated plant phenotyping</b> for objective, highly reproducible and high-throughput assessment of plant phenotypic traits. The phenotyping platform is designed for <b>top-view RGB imaging</b> of small plants like <i>Arabidopsis thaliana</i> and is fully integrated into one of our high-tech phytotrons (features: frost, adjustable light spectrum LED).</p> <p>We offer our well-established expertise and state-of-the art equipment for research and innovation projects in the field of plant sciences requiring a broad range of various environmental simulation and plant phenotyping.</p>
<b>Call</b>	Suitable for any topic requiring environmental simulation/abiotic plant stress and/or high-throughput phenotyping and HT image- and data analysis.
<b>Status</b>	Medium-sized enterprise ( <b>SME</b> )
<p><b>Background and motivation</b></p> <p>We are open to joint projects in the field of plant research, <b>environmental simulation</b> and <b>high-throughput plant phenotyping</b>. We believe that our unique, state-of-the art equipment and our expertise can strongly contribute to answering complex questions in plant research.</p>	
<p><b>Main objectives</b></p> <ul style="list-style-type: none"> <li>• High-throughput plant phenotyping</li> <li>• Abiotic plant stress: frost-, drought-, heat- and water stress</li> <li>• Environmental simulation (e.g. variable spectral composition of light, CO<sub>2</sub> atmosphere)</li> <li>• High-throughput image analysis</li> <li>• Molecular farming (together with VBCF ProTech facility)</li> <li>• CRISPR/Cas9 genome engineering (VBCF ProTech facility)</li> </ul>	
<p><b>Equipment</b></p> <ul style="list-style-type: none"> <li>• 22 state-of-the-art plant growth phytotrons</li> <li>• Temperature range from -15°C to +50°C</li> <li>• Adjustable light spectrum &amp; intensity (LED-phytotrons)</li> <li>• Phytotron-integrated high-throughput plant phenotyping system</li> <li>• Phytotron with adjustable gas composition of atmosphere (CO<sub>2</sub>)</li> <li>• Air-Lock System equipped phytotron for professional pathogen research</li> <li>• Large capacity phytotron</li> <li>• Fully automated watering system (all phytotrons)</li> </ul>	

### Selected publications

- Jez et al (2013) **Expression of functionally active sialylated human erythropoietin in plants.** *Biotechnol J.* 8(3):371-82.
- Jez et al (2012) **Significant impact of single N-glycan residues on the biological activity of Fc-based antibody-like fragments.** *J Biol Chem.* 287(29):24313-9.

Call ID & title	Deadline	Potential contribution of the Core Facility Plant Sciences
<b>BIOTEC-02-2019</b> Boosting the efficiency of photosynthesis (RIA)	22-Jan-2019 (1 <sup>st</sup> stage) 3-Sep-2019 (2 <sup>nd</sup> stage)	Phytotron based simulation of various environments incl. frost, CO <sub>2</sub> and light spectrum (LED), drought stress, heat stress, and water-logging stress plus phytotron-integrated high-throughput plant phenotyping platform (RGB, Arabidopsis).
<b>BIOTEC-03-2018</b> Synthetic biology to expand diversity of nature's chemical production	23-Jan-2018 (1 <sup>st</sup> stage) 28-Jun-2018 (2 <sup>nd</sup> stage)	Molecular pharming in plants, recombinant protein expression in plants, downstream processing and characterisation; Phytotron based simulation of various environments incl. frost, CO <sub>2</sub> and light spectrum (LED), drought stress, heat stress, and water-logging stress plus phytotron-integrated high-throughput plant phenotyping platform (RGB, Arabidopsis).
<b>LC-SFS-15-2018</b> Future proofing our plants	13-Feb-2018	Phytotron based simulation of various environments incl. frost, CO <sub>2</sub> and light spectrum (LED).
<b>LC-SFS-19-2018-2019</b> Climate-smart and resilient farming	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage)  23-Jan-2019 (1 <sup>st</sup> stage) 4-Sep-2019 (2 <sup>nd</sup> stage)	Phytotron based simulation of various environments incl. frost, CO <sub>2</sub> and light spectrum (LED), drought stress, heat stress, and water-logging stress plus phytotron-integrated high-throughput plant phenotyping platform (RGB, Arabidopsis).
<b>SFS-29-2018</b> Innovations in plant variety testing	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage)	Phytotron based simulation of various environments incl. frost, CO <sub>2</sub> and light spectrum (LED), drought stress, heat stress, and water-logging stress plus phytotron-integrated high-throughput plant phenotyping platform (RGB, Arabidopsis).

Call ID & title	Deadline	Potential contribution of the Core Facility Plant Sciences
<b>SFS-30-2018-2019-2020</b> Agri-Aqua Labs (B, C)	13-Feb-2018 (1 <sup>st</sup> stage) 11-Sep-2018 (2 <sup>nd</sup> stage) 23-Jan-2019 (1 <sup>st</sup> stage) 4-Sep-2019 (2 <sup>nd</sup> stage)	Phytotron based simulation of various environments incl. frost, CO <sub>2</sub> and light spectrum (LED), drought stress, heat stress, and water-logging stress plus phytotron-integrated high-throughput plant phenotyping platform (RGB, Arabidopsis).

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<b>Jelena Lazovic Zinnanti</b> , head of the core facility <b>Preclinical Imaging</b> : <a href="http://www.vbcf.ac.at/facilities/preclinical-imaging/">http://www.vbcf.ac.at/facilities/preclinical-imaging/</a> Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a> Contact details: <a href="mailto:jelena.zinnanti@vbcf.ac.at">jelena.zinnanti@vbcf.ac.at</a> , +43-1-664808477140
<b>Basic idea</b>	The mission of the Preclinical Imaging facility is to help researchers gain insight into the physiological and pathological processes <b>in vivo</b> using <b>non-invasive magnetic resonance (MRI) imaging technology</b> . The MRI is a powerful tool to track disease progress, to test effects of drug treatment, and to monitor functional and pathological changes. Specific areas of investigation include functional magnetic resonance imaging, developmental neuroscience, cardiac MRI, imaging strategies for monitoring anti-tumor therapies. <b>Mice</b> and <b>smaller organisms</b> can be investigated due to limitation of the bore size.
<b>Call</b>	Suitable for any topic which requires <b>non-invasive imaging technologies</b>
<b>Status</b>	Medium-sized enterprise (SME)
<b>Background and motivation</b>	
We are a small team, with expertise in <b>magnetic resonance imaging and spectroscopy, advanced image visualization, image processing</b> and <b>statistical analysis</b> . We recognize the power of non-invasive <i>in vivo</i> approach and would like to share our extensive experience in various tumor models, rare metabolic diseases, adult and neonatal models of hypoxia-ischemia, functional and metabolic imaging.	
<b>Main objectives</b>	
<ul style="list-style-type: none"> <li>To offer scientists the ability for non-invasive spatial and temporal monitoring of various physiological and pathological processes.</li> </ul>	
<b>Equipment</b>	
<ul style="list-style-type: none"> <li>The facility features state of the art 15.2 T Bruker Biospin scanner, unique in Europe.</li> <li>Specialized imaging probes are offered for mouse head and body imaging, as well as 1H and 19F imaging.</li> </ul>	
<b>Selected publications</b>	
<ul style="list-style-type: none"> <li>M. Breuss, T. Fritz, T. Gstrein, K. Chan, L. Ushakova, N. Yu, F.W. Vonberg, B. Werner, U. Elling, D.A. Keays, <b>Mutations in the murine homologue of TUBB5 cause microcephaly by perturbing cell cycle progression and inducing p53-associated apoptosis</b>, Development, 143 (2016) 1126-1133.</li> <li>E.A. de Oliveira, J. Lazovic, L. Guo, H. Soto, B.L. Faintuch, M. Akhtari, W. Pope, <b>Evaluation of Magnetanoparticles Conjugated with New Angiogenesis Peptides in Intracranial Glioma Tumors by MRI</b>, Appl Biochem Biotechnol, 183 (2017) 265-279.</li> <li>E. Karaca, et all. <b>Human CLP1 mutations alter tRNA biogenesis, affecting both peripheral and central nervous system function</b>, Cell, 157 (2014) 636-650.</li> </ul>	

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Preclinical Imaging</b>
<b>IMI2-2017-13-04</b> Mitochondrial Dysfunction in Neurodegeneration	28-Feb-2018 (1 <sup>st</sup> stage) 6-Sep-2018 (2 <sup>nd</sup> stage)	We hope to contribute to <i>in vivo</i> deciphering mitochondrial dysfunction by offering highly specialized experience with advanced magnetic resonance neuroimaging and spectroscopy.
<b>ISFP-2017-AG-TERFIN</b> Counter-Terrorism financing	28-Feb-2018 (1 <sup>st</sup> stage) 6-Sep-2018 (2 <sup>nd</sup> stage)	We hope to contribute to this call by developing and improving nuclear magnetic resonance methods for the improved detection of plastic explosives.
<b>SC1-BHC-04-2018</b> Rare Disease European Joint Programme Cofund	18-Apr-2018	We hope to contribute to this call by offering our extensive, more than 10 years of preclinical experience with rare metabolic diseases in both, MRI imaging and novel treatment strategies.
<b>SC1-BHC-07-2019</b> Regenerative medicine: from new insights to new applications	16-Apr-2019	We hope to contribute to the aims of this call by evaluating non-invasive models of tissue/bone regeneration using MRI.
<b>SC1-HCO-10-2018</b> Coordinating European brain research and developing global initiatives	28-Apr-2018	We hope to contribute to this call by offering functional brain mapping and high-resolution MRI analysis of the brain.
<b>SwafS-08-2019</b> Research innovation needs & skills training in PhD programmes	11-Dec-2018 (1 <sup>st</sup> stage), 2-Apr-2019 (2 <sup>nd</sup> stage)	With our high-level expertise and the unique equipment at hand we offer to contribute to this call by educating students on biomedical imaging technologies.

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<b>Sylvia Badurek</b> , Head of the core facility <b>Preclinical Phenotyping</b> : <a href="http://www.vbcf.ac.at/facilities/preclinical-phenotyping/">http://www.vbcf.ac.at/facilities/preclinical-phenotyping/</a> Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a> Contact details: <a href="mailto:sylvia.badurek@vbcf.ac.at">sylvia.badurek@vbcf.ac.at</a> , +43-1-796-2324-7060
<b>Basic idea</b>	We offer preclinical phenotyping services including the <b>behavioral, metabolic and physiological evaluation of transgenic mouse models and/or pharmacologically treated mice</b> . This can be of interest for any call involving basic or applied medical research that requires in vivo testing.
<b>Call</b>	Suitable for any topic which requires in vivo testing of behavior, metabolism, ECG or blood pressure of mice under different genetic or pharmacological treatment conditions
<b>Status</b>	Medium-sized enterprise ( <b>SME</b> )
<b>Background and motivation</b>	
Many human diseases can be mimicked in transgenic mouse models. The thorough characterization of the phenotype of such mice helps to <b>elucidate basic molecular mechanisms</b> , identify <b>novel drug targets</b> , and <b>test potential therapeutic strategies</b> . Our extensive experience with research projects as well as company-driven experiments are the best prerequisite for effective and fruitful collaboration within HORIZON 2020 research and innovation projects.	
<b>Main objectives</b>	
<ul style="list-style-type: none"> <li>• Mouse behavior tests to evaluate learning and memory function, anxiety-and depression-like behavior, pain thresholds, neuromuscular conditions</li> <li>• Measurement of circadian metabolic parameters and activity</li> <li>• ECG, blood pressure, core body temperature measurements</li> <li>• Surgical services</li> </ul>	
<b>Equipment</b>	
<ul style="list-style-type: none"> <li>• TSE phenomaster and motorater systems, Noldus CatWalk system</li> <li>• DSI implantable telemetry system</li> <li>• Various behavior systems for evaluating a wide range of neurological/neuromuscular conditions</li> </ul>	
<b>Selected publications</b>	
<ul style="list-style-type: none"> <li>• Stowers et al. <b>Virtual reality for freely moving animals</b>. Nature Methods. 2017 Oct 14 (10): 995-1002</li> <li>• Mihailovska et al. <b>Neuromuscular synapse integrity requires linkage of acetylcholine receptors to postsynaptic intermediate filament networks via rapsyn-plectin 1f complexes</b>. Mol Biol Cell. 2014 Dec 15;25(25):4130-49</li> </ul>	

Call ID & title	Deadline	Potential contribution of the Core Facility <b>Preclinical Phenotyping</b>
<b>LC-SFS-03-2018</b> Microbiome applications for sustainable food systems	13-Feb-2018	Using the PhenoMaster metabolic cage system, we can study the effects of various diets on the metabolism of mice, and we can study mouse models with aberrant gut microbiota in neurological, metabolic and cardiovascular tests. We hope to contribute to a better understanding of the impact of various foods on the functioning of the gut microbiota and the subsequent effects on the entire body by using mouse models.
<b>SC1-BHC-01-2019</b> Understanding causative mechanisms in co- and multi-morbidities	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	We can study the effect and synergistic actions of multiple morbidities in mouse models in behaviour, metabolic and cardiovascular tests and evaluate treatment options for co- and multi-morbidities. We hope to help with elucidating basic biological questions regarding co- and multi-morbidities in mouse models mimicking human conditions.
<b>SC1-BHC-02-2019</b> Systems approaches for the discovery of combinatorial therapies for complex disorders	2-Oct-2018 (1 <sup>st</sup> stage) 16-Apr-2019 (2 <sup>nd</sup> stage)	We can validate predictions of patient responses to combinatorial therapies for co- and multi-morbidities by using pre-clinical mouse studies using behavior, metabolic and cardiovascular measurements in both genders and different age groups.
<b>SC1-BHC-09-2018</b> Innovation platforms for advanced therapies of the future	18-Apr-2018	We can be part of a platform studying the basic biology of potential therapies in mouse models by studying behaviour, metabolic and cardiovascular effects of treatment options. We hope to help validating new mouse models and new therapeutic interventions.
<b>SC1-BHC-15-2018</b> New anti-infective agents for prevention and/or treatment of neglected infectious diseases (NID)	6-Feb-2018 (1 <sup>st</sup> stage) 4-Sep-2018 (2 <sup>nd</sup> stage)	We can test side effects of new anti-infective agents in mouse models using behaviour, metabolic and cardiovascular measurements. We hope to help assuring the safety of new anti-infective agents by testing for side effects in mouse models.



Call ID & title	Deadline	Potential contribution of the Core Facility <b>Preclinical Phenotyping</b>
<b>SC1-BHC-27-2018</b> New testing and screening methods to identify endocrine disrupting chemicals	18-Apr-2018	We can test effects of potential endocrine disrupting chemicals in mouse models using behavior, metabolic and cardiovascular measurements. We hope to help identifying candidates for new endocrine disrupting chemicals in the mouse and thereby to pave the way for research regarding effects on humans, ultimately leading to policies that ensure a healthier and safer environment.
<b>SC1-HCO-10-2018</b> Coordinating European brain research and developing global initiatives	18-Apr-2018	As a neuroscience core facility, we can help to link brain research groups from the Vienna region and their data (generated by our core facility) to brain research platforms, and we can actively participate in creating such platforms for knowledge exchange. We hope to help connecting different researchers, improve data quality by comparison and to help avoid duplication of research efforts and lead to a reduction in numbers of animals required for research.
<b>SFS-04-2019-2020-B(2020)</b> Integrated health approaches and alternatives to pesticide use- Biocidal and plant protection products	23-Jan-2019 (1 <sup>st</sup> stage), 4-Sep-2019 (2 <sup>nd</sup> stage)	We can test the effects of biocidal and plant protection products on the neurological, metabolic and cardiovascular function of mice. We hope to contribute to a better understanding of the impact of biocidal and plant protection products on humans by using mouse models, thus paving the way for policies ensuring a healthy and safe environment.

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<b>Peggy Stolt-Bergner</b> , head of core facility <b>Protein Technologies</b> : <a href="http://www.vbcf.ac.at/facilities/protein-technologies/">http://www.vbcf.ac.at/facilities/protein-technologies/</a> Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a> Contact details: <a href="mailto:peggy.stolt@vbcf.ac.at">peggy.stolt@vbcf.ac.at</a> , +43-1-7962324-7070
<b>Basic idea</b>	We offer a multitude of services surrounding <b>recombinant protein production, protein biophysical characterization, and CRISPR/Cas9 genome engineering</b> . We can offer expertise in any call topic requiring production and/or analysis of pure proteins to be used for biochemical analysis, structure determination, preparation of reagents such as growth factors, or antigens for antibody production, and also calls requiring generation of CRISPR/Cas9 reagents or knock-out/knock-in cell lines or plant species.
<b>Call</b>	Suitable for any topic which requires <b>generation and/or analysis of recombinant proteins</b> or <b>generation of CRISPR/Cas9 reagents and or mutants</b>
<p><b>Background and motivation</b></p> <p>Many cutting-edge research methods, such as single molecule experiments, high resolution microscopy, and biochemical interaction studies depend on the ability to produce the proteins of interest recombinantly, in high amounts and in pure form. Production of high quality proteins for scientific study is therefore a critical component of many research projects, from biochemistry and cell biology to human medicine. We can provide the necessary experience to generate the proteins and protein complexes for your project, including proper quality control to ensure functional protein as the end product. We have extensive expertise in <b>state-of-the-art molecular cloning technologies, protein production using the baculovirus system, purification of proteins and protein complexes</b>, as well as <b>biophysical analysis methods</b> including <b>Circular Dichroism, Microscale Thermophoresis, Dynamic Light Scattering</b>, and many others.</p>	
<p><b>Main objectives</b></p> <ul style="list-style-type: none"> <li>• Preparation of DNA constructs for protein expression in a variety of systems, including constructs for multi-gene expression</li> <li>• Development and improvement of protein production systems</li> <li>• Establishment of purification protocols</li> <li>• Biophysical characterization of proteins</li> <li>• Optimization and application of CRISPR/Cas9 genome engineering</li> </ul>	
<p><b>Equipment</b></p> <ul style="list-style-type: none"> <li>• Aekta Purifier systems</li> <li>• Simple Western system for automated Western blot analysis</li> <li>• Instruments for biomolecular interaction analysis via Microscale thermophoresis</li> <li>• Chirascan Plus Circular Dichroism spectrophotometer</li> <li>• Robotic system for automated high-throughput purification screening</li> </ul>	

### Selected publications of facility staff

- Valuchova S, Fulneczek J, Prokop Z, Stolt-Bergner P, Janouskova E, Hofr C, Riha K (2017). **Protection of Arabidopsis blunt-ended telomeres is mediated by a physical association with the Ku heterodimer**, *Plant Cell* 29(6):1533-1545
- Stegmann M, Monaghan J, Smakowska-Luzan E, Rovenich H, Lehner A, Holton N, Belkhadir Y, Zipfel C. (2017). **The receptor kinase FER is a RALF-regulated scaffold controlling plant immune signaling**, *Science Jan 20;355(6322):287-289*.
- Koehler C, Sauter PF, Wawryszyn M, Girona GE, Gupta K, Landry JJ, Fritz MH, Radic K, Hoffmann JE, Chen ZA, Zou J, Tan PS, Galik B, Junttila S, Stolt-Bergner P, Pruneri G, Gyenesei A, Schultz C, Biskup MB, Besir H, Benes V, Rappsilber J, Jechlinger M, Korbel JO, Berger I, Braese S, Lemke EA. (2016). **Genetic code expansion for multiprotein complex engineering**, *Nature Methods* 13(12):997-1000 epub Oct 17, 2016
- Le Rhun A, Beer YY, Reimegård J, Chylinski K, Charpentier E. (2016). **RNA sequencing uncovers antisense RNAs and novel small RNAs in Streptococcus pyogenes**, *RNA Biol* 13(2):177-95.

## HORIZON 2020 COLLABORATION OFFER SUMMARY

<b>Contact person</b>	<b>Lisa Meadows</b> , Head of core facility <b>Vienna Drosophila Resource Center</b> : <a href="http://www.vbcf.ac.at/facilities/vienna-drosophila-resource-center/">http://www.vbcf.ac.at/facilities/vienna-drosophila-resource-center/</a> , Vienna Biocenter Core Facilities, GmbH, Vienna, Austria: <a href="http://www.vbcf.ac.at">www.vbcf.ac.at</a> Contact details: <a href="mailto:lisa.meadows@vbcf.ac.at">lisa.meadows@vbcf.ac.at</a> , +43-1-7962324-7020
<b>Basic idea</b>	<p>The Vienna Drosophila Resource Center (VDRC) was established in 2007. It is a professionally organized <b>bioresource center</b> which aims to promote scientific discoveries in Drosophila, primarily by maintaining transgenic Drosophila melanogaster stocks and DNA resources and distributing them to Drosophila researchers both locally and worldwide.</p> <p>With 70% of human genes having a homologue in Drosophila, this organism serves as a simple and tractable model for understanding the molecular basis of more complex cellular and disease processes in humans. The fly can effectively be used for low- to high-throughput <b>drug screens</b> as well as in <b>target discovery</b>.</p> <p>As the biggest Drosophila stock center in Europe, the VDRC has the world's largest and most comprehensive collection of Drosophila RNAi transgenic stocks, enabling <b>genome-wide screens</b>.</p> <p>The basic idea is to offer access our extensive stock collection to carry out screens in <b>Drosophila as a model for human conditions</b>.</p>
<b>Call</b>	Suitable for any topic which requires high throughput screens in Drosophila as a model organism for understanding human physiology and diseases
<b>Status</b>	Medium-sized enterprise ( <b>SME</b> )
<b>Background and motivation</b>	
<p>We are open minded to joint projects in the field of Drosophila research. Our extensive <b>collection of transgenic fly stocks</b>, including <b>RNAi lines</b>, is unique and can be used in <b>phenotypic screens</b> to help understand the function of genes relevant to human physiology and disease. Our expertise in providing flies and carrying out <b>genome-wide screens</b> can strongly contribute to answering complex questions in Drosophila research leading to a greater understanding of human biology.</p>	
<b>Main objectives</b>	
<ul style="list-style-type: none"> <li>• High throughput in vivo RNAi screens in Drosophila</li> <li>• Creation of Drosophila transgenic stocks</li> <li>• Maintenance and worldwide distribution of Drosophila transgenic stocks</li> </ul>	
<b>Equipment</b>	
<ul style="list-style-type: none"> <li>• ~27,000 transgenic RNAi 'effector' lines for in vivo knockdown of gene function in Drosophila</li> <li>• 1,000 GAL4 'driver' lines for restricting expression of 'effector' lines to a specific subset of cells or developmental time-point.</li> <li>• 900 transgenic flies with tags for analysis of gene function and protein localization</li> <li>• DNA plasmids for RNAi lines which can be cloned into other vectors</li> </ul>	

### Selected publications citing the facility

Nearly 2500 publications have cited use of VDRRC resources, including:

- Danielson et al (2016). **A Drosophila Genome-Wide Screen Identifies Regulators of Steroid Hormone Production and Developmental Timing**. *Dev Cell*. 2016; 37(6):558-70.
- Sanchez et al (2016). **Regulation of Ribosome Biogenesis and Protein Synthesis Controls Germline Stem Cell Differentiation**. *Cell Stem Cell*. 2016;18(2):276-90.
- Agrawal & Hardin (2016). **An RNAi Screen To Identify Protein Phosphatases That Function Within the Drosophila Circadian Clock**. *G3 (Bethesda)*. 2016; 6(12):4227-4238.
- Czech et al (2013). **A transcriptome-wide RNAi screen in the Drosophila ovary reveals factors of the germline piRNA pathway**. *Mol Cell*. 2013;50(5):749-61.
- Neeley et al (2010). **A global in vivo Drosophila RNAi screen identifies NOT3 as a conserved regulator of heart function**. *Cell* 141(1):142-153.
- Dietzl et al (2007). **A genome-wide transgenic RNAi library for conditional gene inactivation in Drosophila**. *Nature*. 2007;448(7150):151-6.

Call ID & title	Deadline	Potential contribution of the Core Facility Vienna Drosophila Resource Center
<b>SC1-BHC-04-2018</b> Rare Disease European Joint Programme Cofund	18-Apr-2018	Models for rare human diseases can be created in Drosophila. With our collection of Drosophila RNAi lines, we can carry out phenotypic screens to analyse gene function and molecular pathways related to human diseases. This would help with basic research into pathomechanisms.
<b>SC1-BHC-09-2018</b> Innovation platforms for advanced therapies of the future	18-Apr-2018	Drosophila is a model organism to understand basic biology of potential disease therapies before extending the knowledge to humans. Using our extensive collection of Drosophila RNAi lines, we carry out phenotypic screens to analyse gene function and molecular pathways related to human diseases. This would help with basic research into pathomechanisms.