

CBmed GmbH
Center for Biomarker Research in Medicine
Programme: COMET – Competence Centers for Excellent Technologies
Programme line: K1-Centers

CBmed initiate Core Labs for Biomarker Research

2015 represented CBmed's first year as a Competence Center during which the establishment of Core Labs was a key target. CBmed opened Core Labs based on crucial, cutting-edge technology platforms included NGS (next generation sequence), metabolomics, immunology and digital pathology in Graz as well as a Core Lab for clinical MALDI applications in Vienna. The core labs serve to foster interdisciplinary research, focus CBmed's research into valued services and act as an interface with our customers. Furthermore, the core labs bring value to our industry partners by providing a high quality showcase for their analytical equipment and workflows.

Core Lab NGS (next generation sequencing)

All preparations are complete for the arrival of the GeneReader NGS System from QIAGEN in CBmed's Core Lab. The GeneReader NGS System follows QIAGEN's philosophy of "Sample to Insight" and in so provides the world's first complete NGS workflow allowing CBmed to lead the way in high quality, cutting edge biomarker research.

Core Lab Metabolomics

In 2015, CBmed's Metabolomics team, in collaboration with the Joanneum Research, achieved multiple targets. The state-of-the-art targeted mass spectrometry device from Agilent has been installed and assay development and optimization is well underway. Several scientific collaborations have been initiated with scientific publications already submitted. Finally, new biomarkers with high potential for clinical application have already been discovered.

Core Lab Immunology

The Immunology Core Lab, powered by the LSRFortessa Cell Analyzer from BD, has generated a great deal of interest. The team is well on its way to realising the full potential of this high-performance flow cytometer. The Immunology Core Lab is also highly active in supporting additional CBmed projects such as biomarker research into minimal residual disease in hematologic malignancies. The high quality and experience of the Immunology team has resulted in the acquisition of contract research and the potential for many more collaborations.

Core Lab Digital Pathology

The Digital Pathology Core Lab is focused on *in-situ* characterization and analysis of the immune cell population in diseased tissues. With the explosion of interest in immunotherapies for cancer, the timing is perfect. The Digital Pathology Core Lab uses the Vectra System from PerkinElmer, and 2015 saw the start of assay

development and validation projects as well as the creation of custom-made algorithms for the spatial analysis of immune cell biomarkers. The ground work for extensive collaborations with the Department of Pathology (MUG) has also been made and gives the Core Lab a good starting point for the new year.

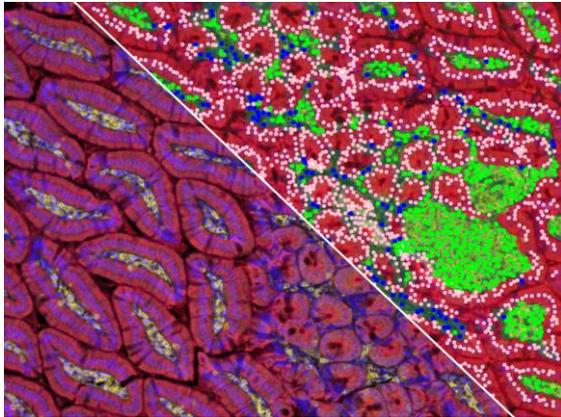


Fig. 1: Core Lab Digital Pathology: Digital image analysis of biomarkers in sections of intestinal tissue (copyright CBmed)

Core Lab Clinical MALDI Applications

The Clinical MALDI applications Core Lab, in collaboration with the Medical University of Vienna, represents the establishment of CBmed's first Core Lab in Vienna and will pave the way for further CBmed Core Labs in Vienna as well as internationally. The MALDI Mass Spectrometer from Kratos Analytical has been installed and presents great opportunities for discovery of novel biomarkers. Furthermore, the Mass Spectrometry Imaging team have been highly active in the development of protocols using the TissueFAXS from TissueGnostics as well as presentation at numerous conferences.

Impact and effects

The establishment of Core Labs at CBmed brings many advantages. The Core Labs focus the research of individual projects into valued services. The Core Labs help to increase the visibility of CBmed to our customer-base and provides an entry point and interface for companies wanting to conduct contract research projects with CBmed.

The Core Labs also bring value to our industry partners as they act as showcases for their cutting-edge analysis equipment and analytical workflows.

Additionally the Core Labs brings the different research projects within CBmed together, fostering interdisciplinary research and generating new collaborations and research initiatives.

Finally, the Core Labs provide a model by which CBmed can expand its operations on a national and international basis.



Fig. 2: Core Lab Immunology: analysing immune cell populations in blood by flow cytometry (copyright CBmed)

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Agilent Technologies Österreich GmbH	Austria
Becton Dickinson GmbH	Germany
TissueGnostics GmbH	Austria
Kratos Analytical Ltd	UK

Further information on COMET – Competence Centers for Excellent Technologies: www.ffg.at/comet

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