



HISTOLOGY

STRONG TRADITION WITH MODERN APPROACHES

Histology, the study of tissues and their structure, has been the gold standard for disease diagnostics and confirmation of scientific findings for more than a century. Meticulous histopathological analysis provides the ground truth for the validation of a multitude of molecular imaging modalities, such as MRI or CT.

The VBCF Histology Facility offers a comprehensive, modern-day service suite ranging from experiment planning to tissue processing to obtaining and analyzing data. The goal and main effort are to combine the classic with the cutting edge in all aspects of the services. The traditional focus is on immunodetection of proteins, which we continuously develop further using the most advanced approaches, but we also offer the detection of RNA in-situ with the RNAscope Technology.

Going beyond conventional immunohistochemistry, we have recently adopted the microfluidic chip technology of Lunaphore. This most recent add-on to our suite of histology equipment provides for unparalleled speed, through-put and accuracy, yielding results within hours instead of days.

The most important aspect of our daily work is close collaboration with researchers and facilities on VBC campus. Individual approaches, flexibility and scientific curiosity are the hallmarks of every project tackled, resulting in optimization of protocols and approaches to ensure high quality output. Moreover, cross-facility interactions enable successful introduction of novel, cutting edge techniques.

One shining examples of such a collaboration is the recently developed Visium spatial transcriptomics by 10X Genomics. In this approach, histology intersects with Next-Generation Sequencing (NGS) and provides near single cell transcriptomics with precise spatial localization of the cell of interest. This cross-facility collaboration with the VBCF NGS Facility made VBCF one of the first providers of Spatial Transcriptomics as a service in Austria.

Our continuously expanding capacities identify the histology unit as a pro-active partner for our customers, which goes beyond tissue processing and staining. We offer advice and support from the beginning of any research project as we conceive ourselves as a one-stop-shop from experimental design to data acquisition allowing researchers the freedom to pursue their scientific questions.

VBCF HISTOLOGY TEAM



SERVICES AND METHODOLOGIES

- Experimental design and protocol planning
- Preanalytical procedures (e.g. sample collection, fixation and processing; embedding and sectioning)
- Routine and special histochemical staining
- Immunostaining (incl. multiplex stains)
- Cross-facility workflows (e.g. spatial transcriptomics)
- Support during self-service

EQUIPMENT

- **LabSat® Automated Stainer** (microfluid technology for multiplexed immunostaining)
- **BioGenex i6000 stainer** (immunostaining of up to 60 slides per run)
- **Gemini AS Automated Stainer** (hematoxylin and eosin staining, slide dehydration and rehydration)
- **Donatello Automated Tissue Processor** (dehydration, clearing and paraffin infiltration of up to 360 samples per run)
- Various **microtomes**, **automated stainers** and a **tissue embedding console**



Sample preparation of paraffin embedding



Microfluidic chip technology for ultra-fast staining



Sectioning a paraffin block using a microtome

CONTACT

Histology

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