University of Basel

Department of Biomedicine

DBM Basel

QuPath: Streamlined Whole-Slide Image Analysis

Ewelina Bartoszek, 28.03.2025

Universitätsspital Basel

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Lunch Seminar - Bioimage Analysis (ZMB, BVC)

QuPath - open source software for bioimage analysis

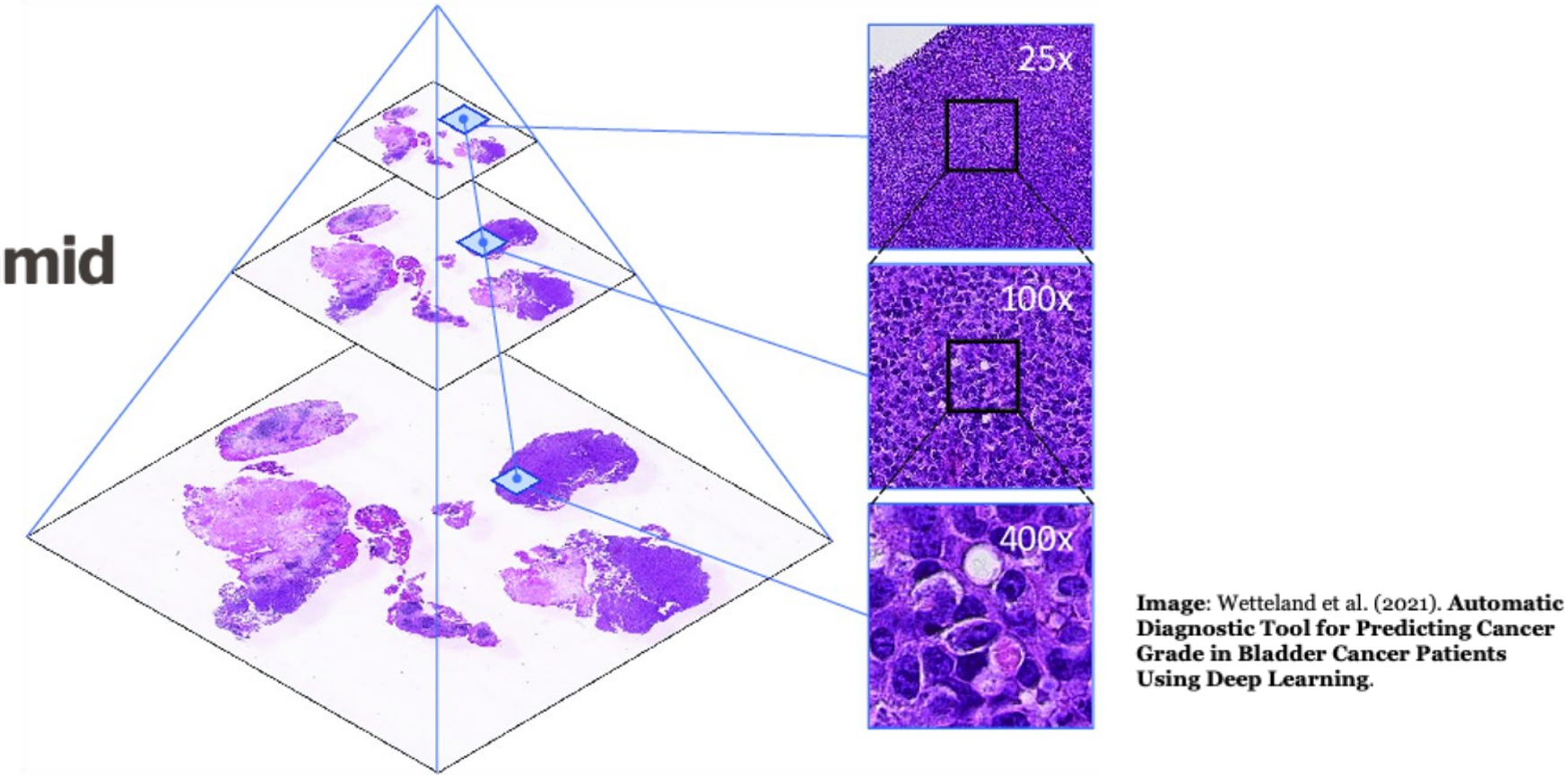
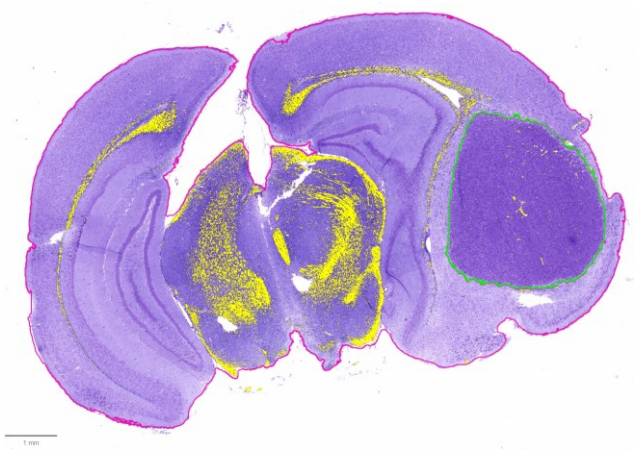
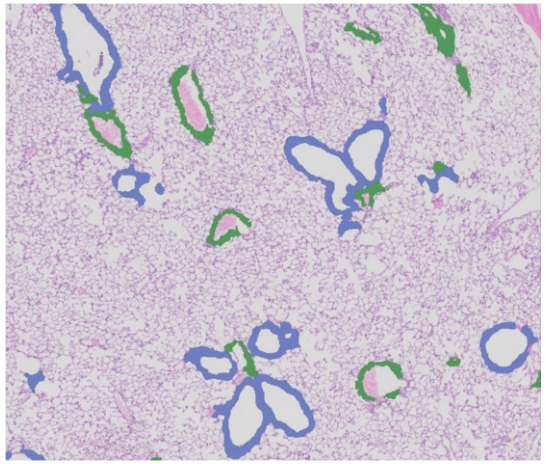


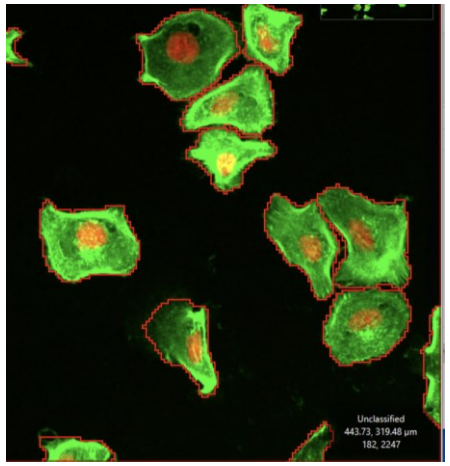
Image: Wetteland et al. (2021). **Automatic Diagnostic Tool for Predicting Cancer Grade in Bladder Cancer Patients Using Deep Learning.**

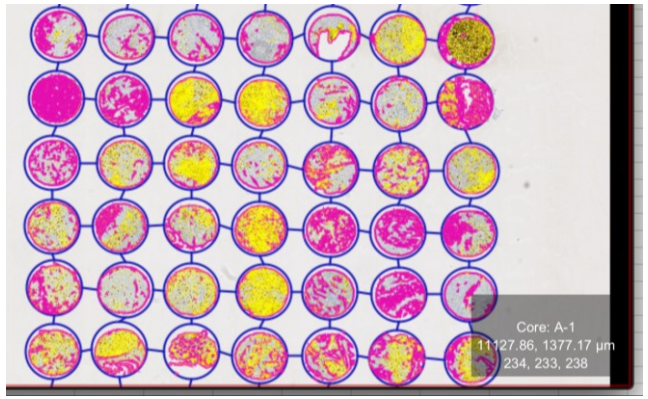
Cite QuPath: Bankhead, P. et al. QuPath: Open source software for digital pathology image analysis. Scientific Reports (2017).

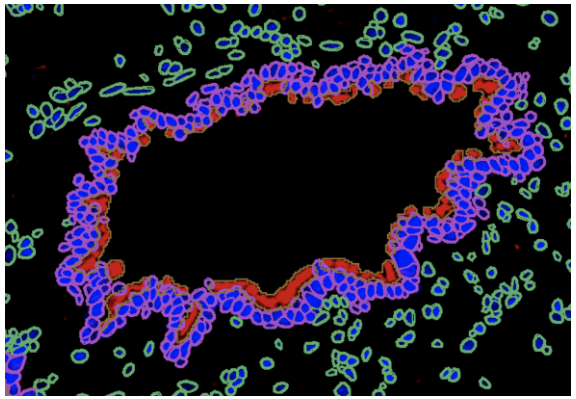
QuPath - open source software for bioimage analysis











Cite QuPath: Bankhead, P. et al. QuPath: Open source software for digital pathology image analysis. Scientific Reports (2017).

Multichannel fluorescence data

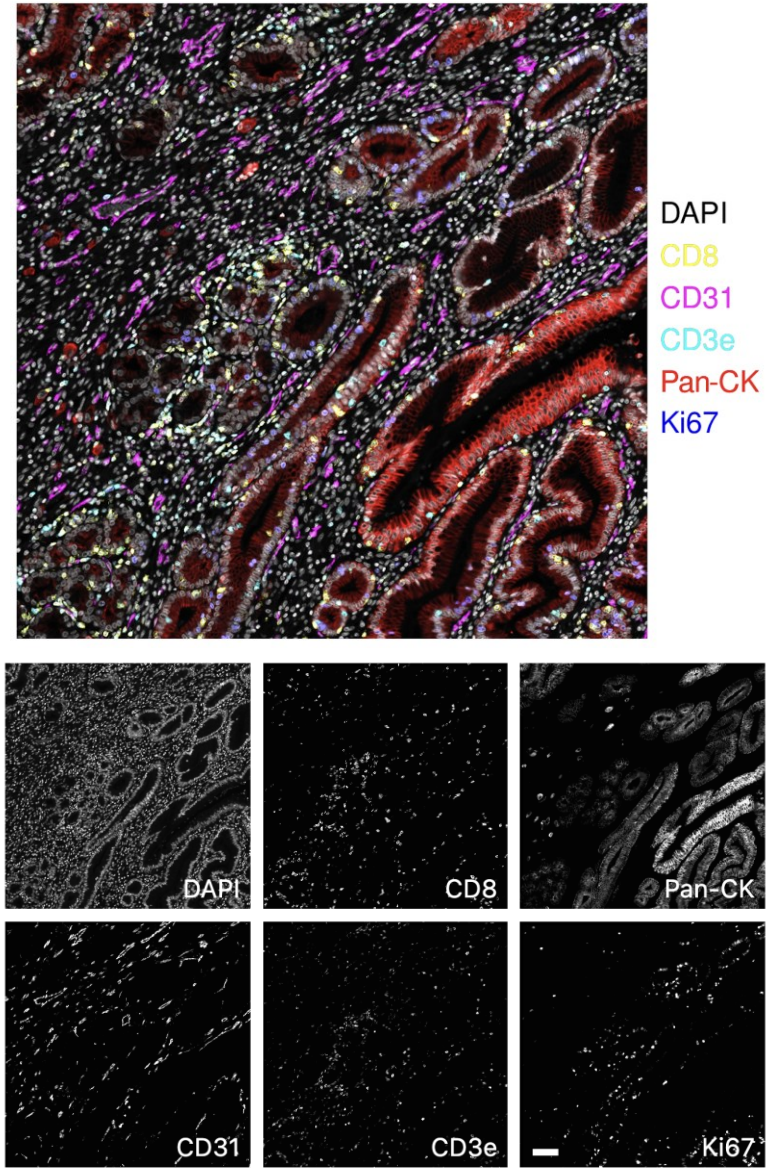
Data:

Philippe Caloba from Läubli Lab

PhenoCycler system

Demo content

1. Create a project & QuPath layout
2. Tissue / structure detection
3. Cell detection and classification
4. Distance to annotation
5. Density maps



Live demo

Demo content

1. Create a project & QuPath layout
2. Tissue / structure detection
3. Cell detection and classification
4. Distance to annotation
5. Heatmap

Live demo

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Demo content

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Additional options for cell detection:

- StarDist
- cellpose & cellpose QuPath extension
- InstanSeg (QuPath 0.6.3)
- other trained models

Additional material

- QuPath Page
- Mike Nelson page
- https://forum.image.sc/
- From Samples to Knowledge 2025 Repo

QuPath extentions:
- StarDist
- Cellpose
- Warpy
- ABBA
- Omero-raw
- Efficient V2 UNet - Deep learning to train model and segment histology images

Cell phenotyping:
- OmiQ software
- paquo: python - QuPath connection
- QuPath for Python programmers
- https://forum.image.sc/ & QuPath<==>CytoMAP cluster analysis

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Thank you for your attention!

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