VISIOPHARM®

Improving bladder cancer grading

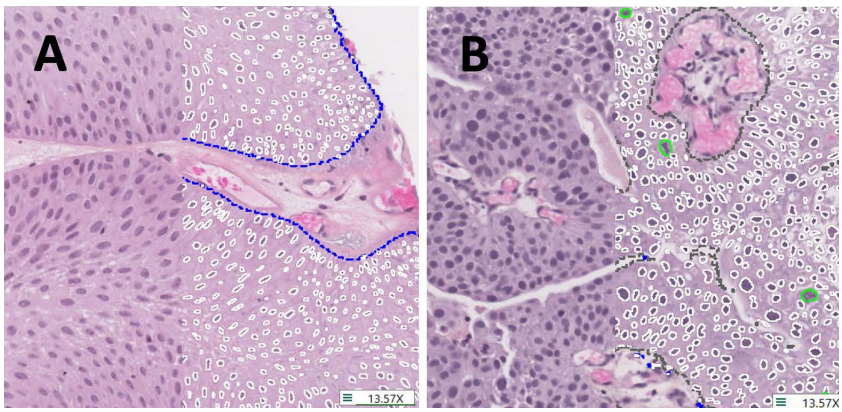
Research question

The research focuses on improving bladder cancer grading by addressing variability in how pathologists categorize tumors into low-grade or high-grade. The challenge lies in the subjectivity of grading, which can lead to differing treatment decisions, impacting patient outcomes. This study aims to create an objective, reproducible grading system through AI-driven image analysis.

How Visiopharm's Discovery software helps

Visiopharm's Discovery software enables the automated analysis of millions of nuclei, overcoming the limitations of manual grading. By using precise measurements and algorithms, the software allows researchers to distinguish between low- and high-grade tumors with greater accuracy. This high-throughput analysis provides more objective, consistent results, reducing inter-observer variability and improving clinical decision-making.

Dr. David M. Berman (Principal Investigator and Professor at Queen's University in Kingston, Ontario) leads a research group developing high-impact cancer tests for prostate and bladder cancer.



Nuclear segmentation and morphometric features analysed. Discovery software segments individual nuclei (white lines), mitotic figures (green lines) and tissue regions (blue dashes outline tumour, grey dashes non-tumour). A. Histology representative of low-grade. B. Histology representative of high-grade.

Publications

Slotman A, Xu M, Lindale K, Hardy C, Winkowski D, Baird R, Chen L, Lal P, van der Kwast T, Jackson CL, Gooding RJ, Berman DM. Quantitative Nuclear Grading: An Objective, Artificial Intelligence-Facilitated Foundation for Grading Noninvasive Papillary Urothelial Carcinoma. Lab Invest. 2023 Jul;103(7):100155. doi: 10.1016/j.labinv.2023.100155. Epub 2023 Apr 13. PMID: 37059267.

USCAP 2024: Improving Bladder Cancer Grading with AI-Enabled Computer Vision Externally Validating Grading Models and Incorporating Highly Prognostic Nuclear Features