BlAdder Cancer Circulating biomarkers after treatment exposUre for early detection of relapse: The BACCUS study.

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Background

- Radical cystectomy (RC) and chemoradiotherapy (CRT) are standard of care treatments for muscle invasive bladder cancer (MIBC).
- Recurrence rates up to 50% after definitive treatment, with comparable survival between RC and CRT.[1]
- Lack of plasma biomarkers included in standard follow-up.
- Circulating tumour DNA (ctDNA) found to correlate with recurrence and treatment response in RC cohorts.

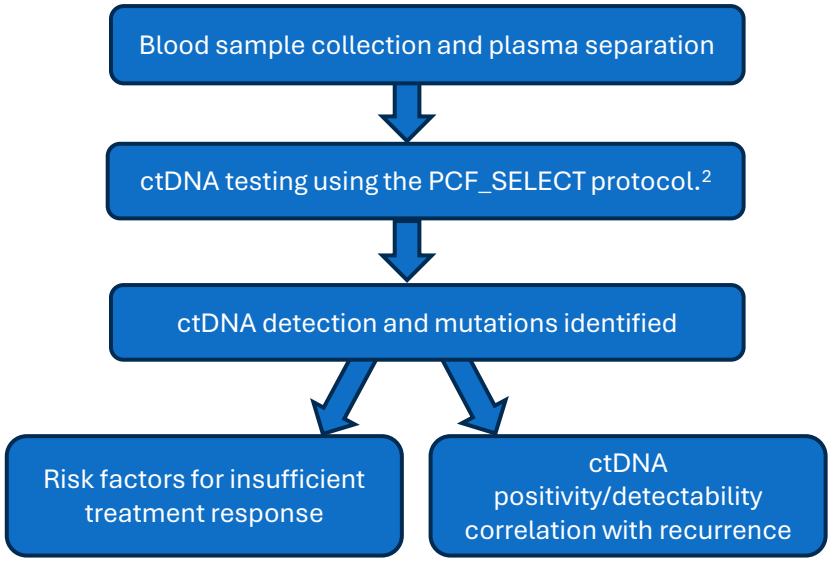
Aims

Assess the performance of ctDNA as a biomarker to recognise disease recurrence and identify possible predictors for insufficient treatment response in CRT.
There is potential for ctDNA status to recognise disease recurrence prior to standard follow-up imaging.

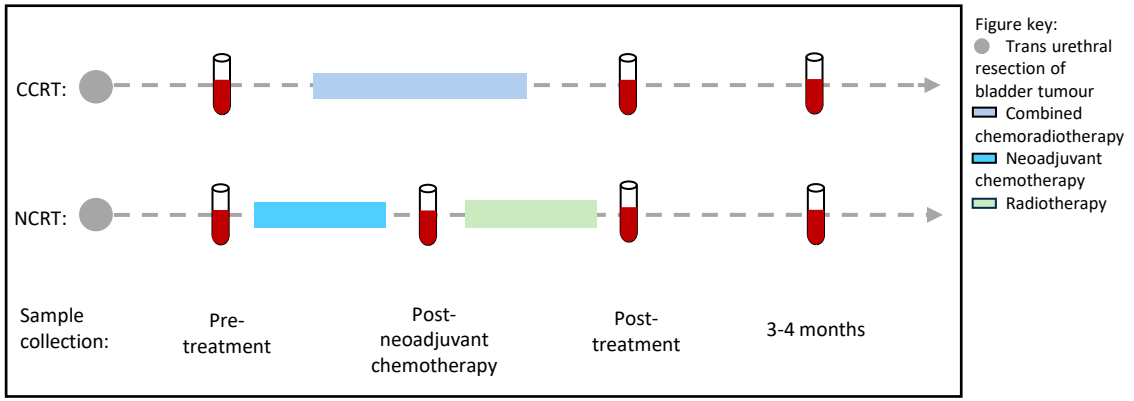
Methods

Eligibility criteria:

- Diagnosis of MIBC (T2-4 N0-1 M0 included)
- ECOG Performance Status 0-2
- Planned for curative-intent CRT



Sample timepoints:



- Sample collection after MIBC diagnosis in concurrent chemoradiotherapy (CCRT) and neoadjuvant chemotherapy with radiotherapy (NCRT) patients.
- Observe ctDNA dynamics over the treatment period and into follow-up.
- Records monitored for 3 years to identify patients with recurrence events.

PCF_SELECT:

- PCF_SELECT is a next generation sequencing panel for ctDNA testing in prostate cancer.[2]
- Common and/or targetable mutation regions selected to identify ctDNA in plasma.[2]
- This will be adapted for use in a bladder cancer setting.

Conclusion

ctDNA analyses at the chosen timepoints should allow us to:

- Assess ctDNA as a marker for treatment response over neoadjuvant chemotherapy and/or CRT.
- Establish if post-treatment samples accurately identify recurrent disease, with ctDNA detectable prior to standard imaging.

Clinical applications

Plasma ctDNA monitoring could enable earlier treatment initiation and identification of targetable mutations in patients with recurrent bladder cancer.

References:
1. van der Heijden AG, Bruins HM, Carrion A, Cathomas R, Compérat E, Dimitropoulos K, et al. European Association of Urology Guidelines on Muscle-invasive and Metastatic Bladder Cancer: Summary of the 2025 Guidelines. European Urology. 2025;87(5):582–600.
2. Orlando F, Romanel A, Trujillo B, Sigouros M, Wetterskog D, Quaini O, et al. Allele-informed copy number evaluation of plasma DNA samples from metastatic prostate cancer patients: the PCF_SELECT consortium assay. NAR Cancer. 2022;4(2):zcac016.