**Target UroVysion™ FISH for Urinary Specimens Using the Duet™ Imaging System**

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**Abstract**

**Background:** Cytology has a poor sensitivity for urothelial carcinoma, and molecular tests such as UroVysion FISH may aid in interpretation. Target (or Location Guided) FISH is an ideal tool for combining morphology (stained or immunolabeled cells) with FISH; studies show that Target FISH has high sensitivity and negative predictive value for the detection of bladder cancer.

**Materials and Methods:**

- One residual sample had sufficient sample to prepare 2 slides, each of which was carried through the Target FISH procedure on separate occasions, and evaluated.

**Results:** Brightfield, DAP, and signal quality scored 2.95, 2.95, and 3.0 (possible 3.0), and reproducibility was 100%. Target cell relocation to center of field 100% for all but 1 case (86% of cells in center).

**Conclusions:** The study was approved by University of Utah IRB # 00025461. The authors declare that no conflict of interest relationship exists.

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**References**

- Smith G, et al. *Proc Natl Acad Sci USA.*

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**Pilot Study for Target UroVysion FISH Using CK7 Antibody to Preselect Urothelial Cells**

**Principle:** CK7 immunocytochemistry can be used to distinguish expressing urothelial cells from contaminating cervical epithelial cells, which do not express CK7 (Moll, et al., 1982; Pajor, et al., 2008). The procedure is:

1. Hematoxylin and eosin slides with CK7 antibody
2. Scan slides with brightfield microscopy using Duet imaging system.
3. Aggregate CK7 expressing urothelial cells into a single class during digitalization.
4. Distant slides and carry out UroVysion FISH
5. Carry out limited fluorescent scan of only urothelial cells

**Challenges:**

- Currently interacting with BioView personnel to improve software capabilities to better recognize immunolabeled cells.
- Importantly, highly immunolabeled cells are only urothelial cells.

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**Overall Summary and Conclusions**

- Target UroVysion FISH is a useful ancillary method for urinary specimen, particularly for reflex testing or when only stained slides are available. Cell morphology can be correlated with FISH results using the Duet system.
- Importantly, for low grade papillary tumors; may miss CIS.
- If necessary, CK7 can be used to distinguish expressing urothelial cells from contaminating cervical epithelial cells.
- Carry out limited fluorescent scan of only urothelial cells.

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- The study was approved by the University of Utah IRB (IRB # 00025461)

**Conflict of Interest:**

The authors declare that no conflict of interest relationship exists.