REGIONAL MEDICAL LABORATORY

TO: All Regional Medical Laboratory Clients

FROM: Cindi R. Starkey, MD, PhD, Chief of Molecular Diagnostics

SUBJECT: UroVysion

DATE: July 11, 2008

We are pleased to announce that RML is now offering **UroVysion**, a molecular test for the detection of common chromosomal abnormalities associated with bladder cancer. **Bladder cancer is the fourth most common type of cancer** occurring in men in the United States, with urothelial carcinoma accounting for approximately 90% of primary bladder cancers. There are factors which render a patient at higher risk for bladder cancer including smoking, increased age, and occupational exposure to chemicals especially those in the rubber, chemical and leather industries. The majority of urothelial bladder cancers are low-grade, non-invasive papillary lesions most often treated with surgical excision. However, the recurrence rate of urothelial carcinoma after surgical excision is very high (70%), and up to 30% show progression to higher grade lesions. These biological characteristics of urothelial carcinoma therefore require frequent patient surveillance or cystectomy. Current practices of surveillance include frequent cytoscopic examination with urine cytology.

UroVysion is the first FDA-approved molecular urine cytology test that uses DNA probes to identify chromosomal abnormalities commonly associated with urothelial carcinomas. **UroVysion is designed to detect aneuploidy for chromosomes 3, 7, 17 and loss of the 9p21 locus via fluorescence in situ hybridization (FISH) in urine specimens from persons with hematuria suspected of having bladder cancer.** Results of UroVysion testing are intended for use in conjunction with, and not in lieu of, current standard diagnostic procedures, as an aid for initial diagnosis of bladder carcinoma in patients with hematuria and subsequent monitoring for tumor recurrence in patients previously diagnosed with bladder cancer.

UroVysion offers a significant advantage over routine cystoscopy and/or cytology. Urine cytology used alone for bladder cancer screening has a clinical sensitivity of only 36.7%. Cystoscopy alone provides an average of 74% sensitivity for detection of urothelial carcinomas and up to 89% sensitivity when combined with cytology. However, when **cystoscopy is combined with UroVysion, the sensitivity and specificity for detecting urothelial carcinoma is approximately 97%.** Further, **UroVysion may detect chromosomal abnormalities before abnormalities are visible by cystoscopy or cytology**, a phenomenon termed **"anticipatory positive".** In fact, studies have shown that in cases with a positive UroVysion test and negative results by cystoscopy and cytology show a recurrence rate of urothelial carcinoma in 41-100% of cases. **UroVysion testing is not hindered by prior BCG therapy or inflammatory conditions, unlike cystoscopy and cytology.**

Test code: **UroVysion alone: 5601525 - UROVYSION**
UroVysion plus cytology: 5601525 & 8090001 – UROVYSION & CYTOLOGY

Specimen requirements: UroVysion alone: at least 30 mL urine plus 15 mL UroVysion preservative, refrigerated
UroVysion plus cytology: at least 100 mL urine with 30 mL added to 15 mL UroVysion preservative, refrigerated

References

Canfield SE, Dinney CP, Droller MJ. Surveillance and management of recurrence for upper tract transitional cell carcinoma. *Urol Clin North Am.*2003;30:791-802.

Halling KC et al. A comparison of cytology and fluorescence in situ hybridization for the detection or urothelial carcinoma. *J Urol.* 2000; 164:1768-1775.

Bubendorf L et al. Multiprobe FISH for enhanced detection of bladder cancer in voided urine specimens and bladder washings. *Am J Clin Pathol.* 2001;116:79-86

Sarosdy MF et al. Clinical evaluation of a multi-target fluorescent in situ hybridization assay for detection of bladder cancer. *J Urol*. 2002; 168:1950-1954.

Skacel M et al. Multitarget fluorescence in situ hybridization assay detects transitional cell carcinoma in the majority of patients with bladder cancer and atypical or negative urine cytology. *J Urol.* 2003;169:2101-2105.

Kipp BR et al. Monitoring intravesical therapy for superficial bladder cancer using fluorescence in situ hybridization. *J Urol.*2005;173:401-404.

Yoder BJ et al. Reflex UroVysion testing of bladder cancer surveillance patients with equivocal or negative urine cytology. *Am J Clin Pathol.* 2007;127:295-301.

918-744-2553 | 1-800-722-8077 | [fax] 918-744-3327 | 1923 South Utica Avenue | Tulsa, Oklahoma 74104
918-331-1300 ext.1775 | [fax] 918-331-1850 | 3500 Southeast Frank Phillips Boulevard | Bartlesville, Oklahoma 74006
918-224-4280 ext.2230 | [fax] 918-224-8927 | 1004 East Bryan | Sapulpa, Oklahoma 74066
918-274-5151 | [fax] 918-274-5159 | 12451 East 100th Street North | Owasso, Oklahoma 74055
www.rmlonline.com