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## New Test Announcement Serum Free Kappa and Lambda Light Chain Assay

Beginning February 9th, 2010, the Methodist Pathology Center will offer the quantitative measurement of serum free Kappa and Lambda light chains. Used in conjunction with serum electrophoresis and immunofixation, measurement of serum free light chains is a useful tool for the diagnosis and monitoring of monoclonal gammopathies.

Kappa and Lambda light chains are produced by plasma cells. Those that are not bound by heavy chains are released into the bloodstream, and are cleared by the kidneys. The ratio of kappa to lambda normally ranges between 0.26 and 1.65. An abnormal ratio supports a diagnosis of monoclonal gammopathy. Results should be used in conjunction with other tests and clinical findings.

Multiple myeloma and other monoclonal gammopathies represent a family of disorders characterized by the proliferation of a monoclonal population of plasma cells and the production of a monoclonal immunoglobulin protein. (1) In almost 80% of patients with multiple myeloma, the M-protein is an intact immunoglobulin composed of both a heavy chain (IgG, IgA, IgM, IgD, IgE) and a light chain (kappa or lambda), and in 20% of patients the M-protein is composed of only light chains.(1)

Testing for monoclonal gammopathy is routinely done by serum and urine electrophoresis and immunofixation. In 2001, testing for free kappa and lambda light chains was FDA-approved, and has been integrated into the diagnostic and monitoring algorithms for multiple myeloma that are endorsed by the International Myeloma Working Group.(2) The sensitivity of the free light chain immunoassay enables a more accurate detection of multiple myeloma, light chain multiple myeloma, AL amyloidosis, and B-cell dyscrasias. (3) Due to the short half-life of free kappa and lambda (less than six hours) the assay is also valuable for assessing the response to treatment. (4)

### ORDERING INFORMATION:

Test Name: Kappa Lambda Free Light Chains Quant w/ Ratio

Synonym: Free Light Chains Quant with Ratio

Specimen: Serum

Volume: 0.5 mL

Storage: Stable at 2-8C for 4 days, or store at -20C. Avoid repeat freeze/thaw cycles.

Days of Testing: Tuesday and Friday

Methodology: Turbidimetric

Reference Range: Kappa 3.3-19.4 mg/L

Lambda 5.7-26.3 mg/L

Ratio: 0.26-1.65

Please contact Dr. Tom Williams (402-354-4540) with questions or comments

### References:

(1) Katzmann, JA. Serum free light chains: quantitation and clinical utility in assessing monoclonal gammopathies. *Clin Lab News*, June 2006

(2) Durie BG, Harousseau JL, Miguel JS, et al. International uniform response criteria for multiple myeloma. *Leukemia*, 2006; 20:1467-1473

(3) Bradwell AR. *Serum Free Light Chain Analysis 4th edition*. Birmingham, UK: The Binding Site Ltd; 2006

(4) Durie BGM. Serum free light chains in clinical practice: Guidelines for free light chain measurements. 5th International Symposium on Clinical Applications of Serum Free Light Chain Analysis, Bath, UK, Sept 18-19 2008. *Hematol Meet Rep*. 2008; 2(2):19