

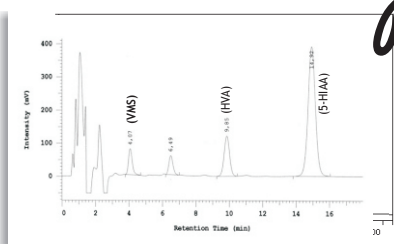
# VMA

**Epinephrine**, **Nor-epinephrine** and **Serotonin** are biogenic amines that serve as neuronal and hormonal signals in a wide range of physiological processes. Abnormal production of these biogenic amines may occur in a number of **neuroendocrine tumors**. **Pheochromocytoma** is one such rare and dangerous tumor that causes hypertension. Since a large number of people do have hypertension, measurement of biogenic amines or their metabolites aids in tumor detection and monitoring.

VMA is the major metabolite of Epinephrine and nor-Epinephrine and its raised levels in urine indicate **Pheochromocytoma**.

**Neuroblastoma** is another neoplastic disease in infants and early childhood and is the third most common cancer disease in children. The affected children will excrete excess amount of VMA and HVA (Homovanillic Acid) into urine. Thus measurement of VMA & HVA serves as the screening tests for neuroblastoma.

Serotonin is produced from the enterochromaffin cells of the gastrointestinal tract and its major metabolite is 5HIAA (5 Hydroxy Indole Acetic Acid) which is excreted into urine. When there is a malignant proliferation of the chromaffin cells (**Carcinoid Syndrome**) excess serotonin is secreted with a consequent increase in the excretion of 5HIAA. Thus, high levels of 5HIAA in urine is a diagnostic marker for the carcinoid syndrome.



*Pay for one test & get checked for*

## THREE TESTS

# VMA, HVA, 5-HIAA

## HPLC Method

Microbiological  
Laboratory



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