



How you want to be treated.

St. Paul's Hospital and Mount Saint Joseph Hospital

Laboratory Medicine Technical Bulletin

Plasma Renin Activity by Liquid Chromatography and Tandem Mass Spectrometry

November 05, 2013

On the week of November 18, 2013 St. Paul's Hospital will begin offering plasma renin activity (PRA) by liquid chromatography and tandem mass spectrometry (LC-MS/MS). The assay was developed at St. Paul's Hospital based on previously published methods (1)(2) and replaces the radioimmunoassay (RIA) method which has been in use since the early 1980's (3). Because the buffering pH of the new assay is different from the old assay, the results generated will be higher by a factor of 1.7 but will now match results produced by commercial RIAs for PRA. The change in method is associated with a change in minimum required volume and reference interval.

- Sample Type:** EDTA plasma only
- Collection:** pre-chill tube, keep tube on ice, spin cold, freeze immediately
- Shipping:** Ship frozen
- Min Volume:** 750 μ L
- Reference Int:** Adult, upright posture: 0.10-1.10 ng/L/s
Adult, supine* posture: <0.45 ng/L/s

*Note that patients should be supine for at least 1 hr before collection.

Pediatric reference intervals for plasma renin activity by this method are 3-6d: < 8.00 ng/L/s, 3w-6w: < 2.40 ng/L/s, 6w-4y: < 3.90 ng/L/s, 4-13y: < 2.70 ng/L/s, 13-16y: < 1.50 ng/L/s, > 16y: 0.10-1.10 ng/L/s as adapted from (4) and (5).

Should you have any questions, please do not hesitate to contact either Dr Mattman at 604 806 8190 or Dr. Holmes at 604 806 8919.



Daniel T. Holmes, MD FRCPC

Medical Leader, Clinical Chemistry

St. Paul's Hospital Department of Pathology and Laboratory Medicine

References:

1. Fredline VF, Kovacs EM, Taylor PJ, Johnson AG. Measurement of plasma renin activity with use of HPLC-electrospray-tandem mass spectrometry. *Clin Chem.* 1999;45:659-64.
2. Bystrom CE, Salameh W, Reitz R, Clarke NJ. Plasma renin activity by LC-MS/MS: development of a prototypical clinical assay reveals a subpopulation of human plasma samples with substantial peptidase activity. *Clin Chem.* 2010;56:1561-9.
3. Poulsen K, Jorgensen J. An easy radioimmunological microassay of renin activity, concentration and substrate in human and animal plasma and tissues based on angiotensin I trapping by antibody. *J Clin Endocrinol Metab.* 1974;39:816-25.
4. Kotchen TA, Strickland AL, Rice TW, Walters DR. A study of the renin-angiotensin system in newborn infants. *J Pediatr.* 1972;80:938-46.
5. Stalker HP, Holland NH, Kotchen JM, Kotchen TA. Plasma renin activity in healthy children. *J Pediatr.* 1976;89:256-8.