Angiotensin 1-7

Method:	Liquid Chromatography-Tandem Mass Spectrometry (LC/MS/MS)
Description:	Angiotensin is a peptide hormone that causes vasoconstriction and increase in blood pressure; it has been shown to be the culprit in hypertension, CVD, diabetes, etc.. As a precursor and renin substrate, angiotensin is cleaved at the N-terminus by renin resulting in angiotensin I, which will later be metabolized by ACE (Angiotensin-Converting Enzyme) peptidases, to become angiotensin II (Ang II), and metabolized further by aminopeptidase A, into Ang III and then into Ang IV [10]. In addition, Ang II is metabolized alternatively by a second form of ACE peptidases (ACE2- regulatory enzyme) into novel peptides angiotensin 1-9, and then by ACE into angiotensin 1-7. Clinical findings in COVID-19 patients mainly point to increased activity of angiotensin II and the corresponding lack of angiotensin 1-7 activity suggesting a role of ACE2 blockade in its pathogenesis. Kinin peptide metabolism is an important determinant of kinin levels in blood and tissue. The assessment on metabolites of angiotensin (Ang II and Ang 1-7) are useful for understanding inflammatory processes and pathophysiology of COVID-19 related to the Kallikrein–Kinin (KKS), the Coagulation/Fibrinolysis, and the Renin–Angiotensin (RAS) Systems Angiotensin metabolites of angiotensin II and angiotensin 1-7 in human plasma/serum are extracted by Protein Precipitation (PP) followed by Solid Phase Extraction (SPE), separated and eluted by High Performance of Liquid Chromatography (HPLC), and determined by Mass Spectrometry (MS) in Electrospray Ionization (ESI) source at positive ionization mode with multiple reaction monitoring (MRM) of transitions. Stable isotope labeled Angiotensin II, are utilized as internal standards for the calibration of Angiotensin II assay.

Collection and Performance Characteristics

Tube type:	Preferred: SST Alternate: Plasma
Minimum Volume:	0.5 mL
Special Processing Considerations	Quick freeze the sample after separation, and store at -80°C or colder Avoid freezing and thawing samples more than once.
Lowest Reportable Value:	2 pg/mL
Dynamic range:	2 – 500 pg/mL
Precision:	Intra-assay variation is 2.4 – 8.2% Inter-assay variation is 4.9 – 14.9%
Reference Range:	Unknown