4th Global Conference on Cancer Science and therapy

9th World Summit on Virology, Microbiology & Infectious Disease

6th International Conference on Biomedical Biopharma and Clinical Research

October 11, 2022 | Webinar

Reversed-phase UPLC-MS/MS analysis of serum reverse T3 (rT3) for clinical research
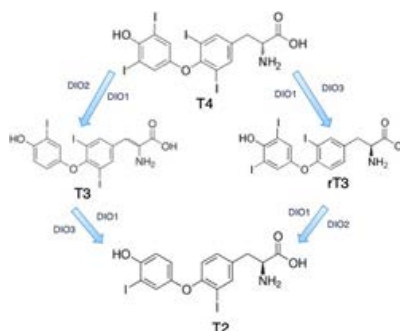
Angelina I Nikitkina*, Elena S Simenel and Alexander N Nizhnik
ArhiMed Clinique for New Medical Technologies, Russia

Reverse T3 (3,3',5'-triiodothyronine or rT3) is the third most abundant iodothyronine circulating in human blood and is produced by the inner ring deiodination of the pro-hormone thyroxine (T4) 80% of T3, and 95% to 98% of all reverse T3, is derived from peripheral conversion of T4 through deiodination. Both T3 and reverse T3 can shed more iodine atoms, forming in turn various isomers of T2, T1, and ultimately T0. Unlike the more abundant and active metabolite T3, the measurement of serum rT3 is yet to find a routine clinical application. Elevated level of rT3 associated with non-thyroidal illness syndrome (NTIS), stress, liver disease, inflammation, depression, and malignant tumors. rT3 is often analyzed by using clinical routine testing methods based on immunoassay (ECLIA and ELISA) which show limited sensitivity.

Thus, a reversed-phase analytically sensitive with excellent linearity and precision, and minimal matrix effects UPLC-MS/MS method was developed that employs a SPE procedure and combines it with reversed-phase chromatography using the Waters Atlantis T3 HPLC Column. The use of mixed-mode anion exchange solid-phase extraction (SPE) plates, in combination with the unique retention and selectivity of the Waters Atlantis T3 HPLC Column and Shimadzu LCMS-8060, results in a rapid, fast and simple analysis of serum T4, T3, rT3 and T2.

Biography