

Health – Bioanalysis



Total Se and selenoproteins in human serum

One of the key missions of the [Chemical and Biological Metrology Laboratory](#) of LNE is to establish the metrological traceability and to assess the uncertainty of analytical measurements. To this end, LNE implements primary reference methods and produces Certified Reference Materials (CRMs), for various applications in the field of industrial, environmental and health analysis.

CRMs are metrological tools to achieving the traceability of measurement results and therefore ensuring reliability and comparability of results of chemical analyses everywhere in the world. Ensuring traceability is moreover a requirement of ISO/CEI-17025 standard.

CRMs are mainly used to carry out analytical instruments calibration and analytical procedures validation.

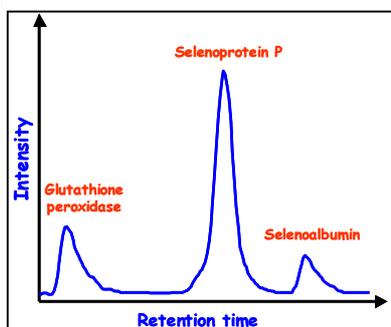
All reference materials produced by the [Chemical and Biological Metrology Laboratory](#) of LNE are **Certified** Reference Materials, meaning that the traceability to SI (International System of Units) is fully ensured through primary methods of measurement. The quality of each CRM is fully documented in the certificate describing the way the traceability is established and providing the uncertainty of the certified value.

Most of the CRMs produced are covered by CMCs (Calibration and Measurement Capabilities) published in the BIPM (Bureau International des Poids et Mesures) database ensuring the equivalence of LNE capabilities with the other National Metrology Institutes worldwide. Accreditation against ISO Guide 34 for CRMs production is currently in progress.

Speciation analysis is one of the key challenges of modern analytical chemistry. The toxicity of an element as well as the mechanisms of accumulation, storage, or expulsion within an organism are, for instance, strongly dependent on its chemical forms.

Se is one of the most investigated trace essential elements in the last years, mostly due to its cancer prevention properties. Nevertheless, the accurate determination of its biologically active species present in human serum, such as selenoproteins (SeProt), is currently a challenging task. This is because of the lack of appropriate quantification standards, certified reference materials (CRMs) and/or reference measurement methods.

Research is needed to characterize one or more human serums in terms of SeProt in order to produce 'speciated' CRMs for selenoproteins, or at least provide indicative levels, given the importance of such materials for method validation and for ensuring data traceability for the assessment of selenium status in humans.



Chromatogram showing the selenoproteins species in human serum

Concentration range:

Availability: In development

Conditioning:

Price:

Contact person: Paola FISICARO (paola.fisicaro@lne.fr) or metrology@lne.fr