



# Analyses of clinical samples

**Measuring the levels of metals in clinical samples, often referred to as biomonitoring, is required in a variety of fields. Medicine, occupational health studies and therapeutic research, to name but a few, all rely on such information.**

**Due to the high toxicity of some elements, measurements at very low levels are often required. ALS Scandinavia has nearly 15 years of experience of analyzing human biological matrices using high resolution ICP-MS (ICP-SFMS) and we are now proud to offer accredited analyses of 68 elements in whole blood, plasma, serum and urine. Combined with our isotope- and elemental speciation capabilities, this gives ALS Scandinavia a comprehensive portfolio for analyses of clinical samples.**

## Speciation analyses

The toxicity and biological effects of an element depend to a large extent on the chemical form(s) in which it is present. One example is arsenic for which the inorganic species (e.g. arsenite) have been classified as carcinogenic while many organic species are benign. The non-toxic species arsenobetaine is predominant in marine animals

and the concentration of total arsenic may consequently be elevated in the body fluids of individuals who consume a lot of fish.

ALS Scandinavia AB offers speciation analyses for arsenic, mercury and selenium in human biological matrices. Please contact us for more information.

## Isotope analyses

There are numerous medicinal and research areas where isotope ratios are examined in human biological matrices. Isotope ratio measurements in clinical samples are for example used for monitoring occupational or environmental exposure, tracer studies as well as metabolic- and nutrition research.

ALS Scandinavia employees have co-written numerous research articles published in internationally-renowned scientific journals concerning analyses of clinical samples, regarding both isotopes and metals.

ALS Scandinavia offers a large variety of isotope analyses, please contact the laboratory or visit [www.isotope-analysis.com](http://www.isotope-analysis.com) for a complete overview.



There are many sources that may expose us to metals in our everyday life; for example food consumption, ambient air or consumer products that we come in contact with. In some occupational groups it may also be required to regularly monitor certain elemental levels due to known exposure during working hours.

While our accredited method covers 68 elements in whole blood, plasma, serum and urine, the same method can also be applied for other types of body fluids such as saliva and sweat. See the full scope of the accreditation below:

ELEMENT	LOR µg/l	ELEMENT	LOR µg/l	ELEMENT	LOR µg/l	ELEMENT	LOR µg/l
Ag, silver	0.05	Eu, europium	0.05	Nb, niobium	0.05	Sn, tin	0.5
Al, aluminium	5	Fe, iron	10	Nd, neodymium	0.05	Sr, strontium	0.5
As, arsenic	1	Ga, gallium	0.1	Ni, nickel	0.5	Ta, tantalum	0.05
Au, gold	0.1	Gd, gadolinium	0.05	P, phosphorus	500	Tb, terbium	0.05
B, boron	5	Ge, germanium	2	Pb, lead	0.5	Te, tellurium	0.1
Ba, barium	1	Hf, hafnium	0.05	Pd, palladium	0.05	Th, thorium	0.05
Be, beryllium	0.05	Hg, mercury	0.2	Pr, praseodymium	0.05	Ti, titanium	1
Bi, bismuth	0.05	Ho, holmium	0.05	Pt, platinum	0.05	Tl, thallium	0.05
Ca, calcium	500	Ir, iridium	0.05	Rb, rubidium	0.1	Tm, thulium	0.05
Cd, cadmium	0.05	K, potassium	500	Re, rhenium	0.05	U, uranium	0.05
Ce, cerium	0.05	La, lanthanum	0.05	Rh, rhodium	0.05	V, vanadium	0.1
Co, cobalt	0.05	Li, lithium	1	Ru, ruthenium	0.05	W, tungsten	0.05
Cr, chromium	0.5	Lu, lutetium	0.05	S, sulfur	500	Y, yttrium	0.05
Cs, caesium	0.05	Mg, magnesium	200	Sb, antimony	0.2	Yb, ytterbium	0.05
Cu, copper	1	Mn, manganese	0.5	Sc, scandium	0.05	Zn, zinc	10
Dy, dysprosium	0.05	Mo, molybdenum	0.2	Se, selenium	5	Zr, zirconium	0.1
Er, erbium	0.05	Na, sodium	500	Sm, samarium	0.05		

LOR: Limit of reporting

## GLP (Good Laboratory Practice) services

ALS Scandinavia's laboratory in Sweden holds a GLP statement of compliance and is thus a qualified test site for analyses within non-clinical safety studies. All GLP compliant analyses are performed by trained and experienced professionals devoted to offering services that are tailor-made for the project at hand. Please contact us for more information about our analytical GLP services.



**Test kits and sampling instructions can be supplied by ALS Scandinavia AB, please contact us for more information.**