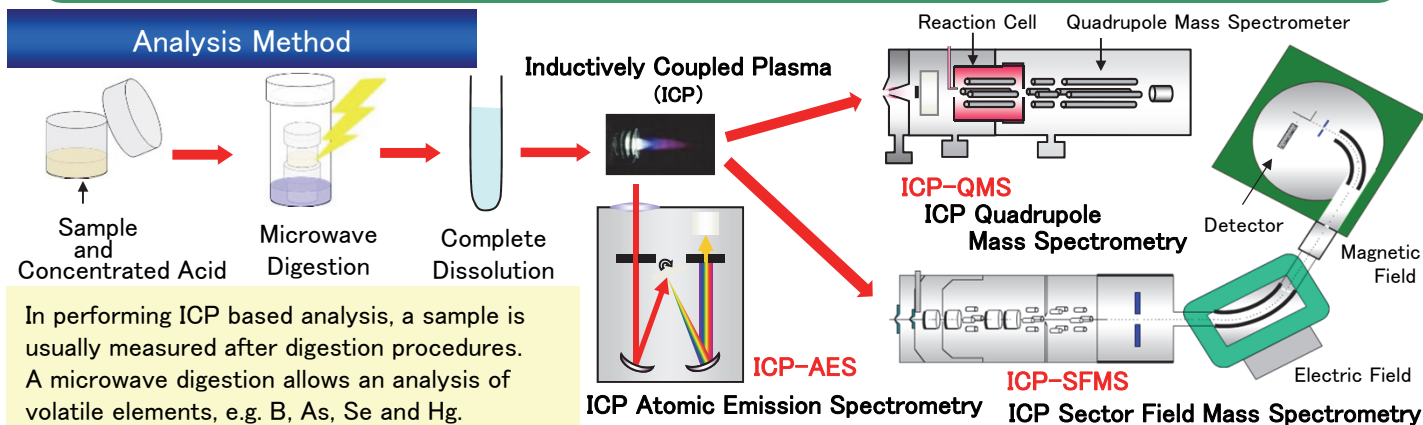


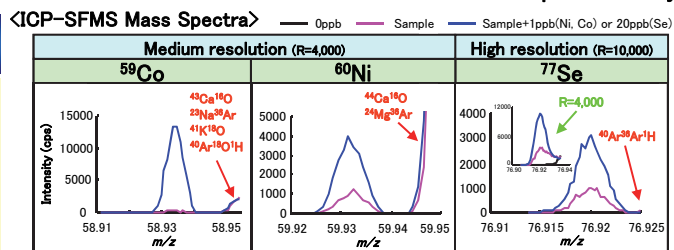
# Analysis of Inorganic Elements in Media using ICP-MS and ICP-AES

Media are widely used in the manufacturing of biotech products such as biopharmaceuticals or regenerative medicines. For evaluating the characteristics of media and the purification schemes used in manufacturing process, an analysis of inorganic elements can be performed using ICP mass spectrometry (ICP-QMS and ICP-SFMS) and ICP atomic emission spectrometry (ICP-AES).



## Example of Analysis of All Elements in Media

An analysis of all elements (Li to U) was carried out for two commercial media: a medium for regenerative medicine and a serum-free CHO medium. Even if interferences of polyatomic ions occur, ICP-SFMS permits a high-sensitive analysis: typical LOQ is 0.01 ng/mL to 0.5 ng/mL.



Element	Medium for Regenerative Medicine (ng/mL)	Serum-Free CHO Medium (ng/mL)	Measurement Technique	Element	Medium for Regenerative Medicine (ng/mL)	Serum-Free CHO Medium (ng/mL)	Measurement Technique
Li	6,600	4.8	ICP-QMS	As	1.2	0.73	ICP-SFMS
B	6.4	36	ICP-QMS	Se	8.3	7.4	ICP-SFMS
Na	3,700,000	2,800,000	ICP-AES	Rb	5.2	160	ICP-QMS
Mg	20,000	11,000	ICP-AES	Sr	24	38	ICP-QMS
Al	2.0	7.7	ICP-QMS	Y	0.01	0.19	ICP-QMS
P	28,000	210,000	ICP-AES	Zr	0.75	2.5	ICP-QMS
K	130,000	680,000	ICP-AES	Mo	1.7	2.7	ICP-QMS
Ca	32,000	23,000	ICP-AES	Cd	1.4	0.46	ICP-QMS
Ti	<0.5	4.3	ICP-SFMS	Sn	2.3	1.7	ICP-QMS
V	0.7	5.7	ICP-SFMS	Sb	0.51	0.61	ICP-QMS
Cr	1.1	2.7	ICP-SFMS	Cs	0.10	1.7	ICP-QMS
Mn	1.1	31	ICP-SFMS	Ba	22	2.6	ICP-QMS
Fe	65	24,000	ICP-SFMS	Hf	0.03	0.05	ICP-QMS
Co	21	28	ICP-SFMS	Tl	0.02	0.28	ICP-QMS
Ni	0.53	10	ICP-SFMS	Pb	0.11	0.28	ICP-QMS
Cu	22	17	ICP-SFMS	Th	0.07	0.04	ICP-QMS
Zn	150	670	ICP-SFMS	U	0.16	0.06	ICP-QMS