

SUPPLEMENTARY

Table S1. Conventional methods used for analysis of biomarkers

Molecular category	Analytical process	Conventional methods	References
Proteins	Pre-concentration	Sample stacking; ITP; FAI; SPE; mPC; EE; SLM; Immunoaffinity; Hollow fibres; MIP	[1]
	Detection	Immunoassays (ELISA); MS; Chromatography; Electrophoresis (PAGE, Western blot); Photometry; Electrochemistry; Cytometry	[2-5]
	Quantification	Immunoassays (ELISA); MS; Electrophoresis (PAGE, Western blot); Photometry (Ultraviolet absorbance, Colourimetry); Refractometry; Densitometry; Turbidimetry	[3, 4]
DNA	Amplification	PCR	[4]
	Detection	MS; Photometry (absorption & fluorescence spectroscopy); Electrophoresis (Southern blot); Cytometry (FISH); Microarrays	[4, 6]
	Quantification	Photometry (absorption & fluorescence spectroscopy); Densitometry; qPCR; Cytometry (FISH); Electrophoresis (Southern blot)	[4, 7, 8]
	Sequence determination	Sanger sequencing; Next-generation sequencing	[9]
RNA	Amplification	PCR	[4]
	Detection	Microarrays; MS; Electrophoresis (Northern blot); Photometry (absorption & fluorescence spectroscopy);	[4, 6]

	Quantification	Electrophoresis (Northern blot); Densitometry; qPCR; RPA; RT-PCR; Photometry (absorption & fluorescence spectroscopy); Cytometry (FISH)	[4, 8, 10]
	Sequence determination	RNA-seq (massively parallel cDNA sequencing); Microarrays	[11]
Carbohydrate	Detection	MS; Chromatography (HPLC); Microarrays; Electrochemistry; Photometry; Immunoassays	[4, 12, 13]
	Characterisation	MS; Chromatography (HPLC)	[12]
Lipid	Detection	MS; Chromatography (HPLC, TLC); Immunoassays	[4, 14, 15]
	Quantification	MS; Chromatography (HPLC, TLC); Photometry; Densitometry	[4, 14, 15]
Metabolites	Detection	MS; NMR spectroscopy; Chromatography (LC, GC); Photometry (Ultraviolet absorbance, Infrared spectroscopy); Electrochemistry; Densitometry; Immunoassays; Electrochemistry	[4, 16]
	Quantification	MS; NMR spectroscopy; Chromatography (LC, GC); Photometry (Ultraviolet absorbance, Infrared spectroscopy)	[16, 17]

Abbreviations: ITP: Isotachopheresis; FAI: Field amplified injection SPE: Solid phase extraction; mPC: Membrane pre-concentration; EE: Electro-extraction; SLM: Supported liquid membranes; MIP: Molecularly imprinted polymer; ELISA: Enzyme-linked immunosorbent assay MS: Mass spectrometry; PAGE: Polyacrylamide gel electrophoresis; PCR: Polymerase chain reaction; FISH: Fluorescence in situ hybridisation; qPCR: Real-time quantitative polymerase chain reaction; RPA: RNase

protection assays; RT-PCR: Reverse transcription polymerase chain reaction; HPLC: High performance liquid chromatography; TLC: Thin layer chromatography; NMR: Nuclear magnetic resonance; LC: Liquid chromatography; GC: Gas chromatography.

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