

# Analytical Service

**Romer Labs Singapore**

Testing services for:

**Mycotoxins**  
**Food allergens**  
**Genetically modified organisms (GMO)**



At the forefront of diagnostic technology for the food and feed industries, Romer Labs operates an accredited, full-service laboratory in Singapore. We guarantee quality services by complying with ISO standards.

Romer Labs Singapore provides a wide portfolio of analysis in the field of **mycotoxins, food allergens** and **genetically modified organisms**.



# Mycotoxins

Mycotoxins are secondary metabolites of moulds, contaminating a wide range of crop plants and fruits before or after harvesting. Such contaminated crops are toxic to humans and animals, and are thus a major health issue for the consumer.



## Screening Analysis

Item No.	Analysis	Method	Limit of Quantification
30000309	Total Aflatoxins (B1, B2, G1, G2)	ELISA	4 µg/kg
30000315	Deoxynivalenol	ELISA	250 µg/kg
30000311	Ochratoxin A	ELISA	2 µg/kg
30000313	Total Fumonisin (B1, B2, B3)	ELISA	250 µg/kg
30000321	Aflatoxin M1 in milk products	ELISA	0.25 µg/kg
30000317	Zearalenone	ELISA	25 µg/kg

## Reference Analysis

Item No.	Analysis	Method	Limit of Detection	Accr.*
30000359	Aflatoxins (B1, B2, G1, G2)	LC-MS/MS	0.5 µg/kg	x
30000308	Aflatoxins (B1, B2, G1, G2)	HPLC-FLD	0.5 µg/kg	x
30000320	Aflatoxin M1 in milk products	HPLC-FLD	0.01 µg/kg	
30000362	Type B Trichothecenes (Deoxynivalenol, Nivalenol, 3-Acetyldeoxynivalenol, 15-Acetyldeoxynivalenol, Fusarenon-X)	LC-MS/MS	10 µg/kg	x
30000314	Deoxynivalenol	HPLC-UV	50 µg/kg	x
30000328	Ergot alkaloids (Ergometrine, Ergosine, Ergotamine, Ergotaminine, Ergocornine, Ergocorninine, Ergocristine, Ergocristinine, Ergocryptine, Ergocryptinine)	HPLC-FLD	10 µg/kg	x
30000361	Fumonisin (B1, B2, B3)	LC-MS/MS	10 µg/kg	x
30000312	Fumonisin (B1, B2)	HPLC-FLD	100 µg/kg	x
30000360	Ochratoxin A	LC-MS/MS	0.5 µg/kg	x
30000310	Ochratoxin A	HPLC-FLD	0.5 µg/kg	x
30000364	Type A Trichothecenes (Diacetoxyscirpenol, T2 Toxin, HT2 Toxin, Neosolaniol)	LC-MS/MS	10 µg/kg	x
30000324	Patulin in juices	HPLC-UV	8 µg/kg	
30000363	Zearalenone	LC-MS/MS	10 µg/kg	x
30000316	Zearalenone	HPLC-FLD	10 µg/kg	x
300001185	Ergot alkaloids (Ergometrine, Ergometrinine, Ergosine, Ergotamine, Ergocornine, Ergocorninine, Ergocristine, Ergocristinine, Ergocryptine, Ergocryptinine)	LC-MS/MS	75 µg/kg	

\* accredited according to ISO 17025



# Food Allergens

Food allergies, immune responses to proteins present in food that the body mistakenly believes are harmful, are a significant health issue. Allergens are the largest single cause of global product recalls, with the major risk for food manufacturers being the potential for cross-contamination with food allergens during production processes.



ELISA Allergen	LOQ		UKAS/ISO 17025 Accredited
	Samples	Swabs (ng/ml)	
Almond	0.4 – 10 ppm	20 – 500	Yes
β-Lactoglobulin (BLG)	10 – 400 ppb	0.5 – 20	Yes
Casein	0.2 – 6 ppm	10 – 300	Yes
Cashew	2 – 60 ppm	100 – 3000	Yes
Coconut	1 – 54 ppm	10 – 540	No
Crustacea	20 – 400 ppb	1 – 20	Yes
Egg	1 – 25 ppm	20 – 1250	Yes
Egg White Protein	0.4 – 10 ppm	20 – 500	Yes
Fish	4 – 100 ppm	200 – 5000	Yes
Gluten (AgraQuant method)	4 – 120 ppm	8 – 240	Yes
Gluten (G12 method)	4 – 200 ppm	10 – 500	Yes
Gluten (R5 method)	5 – 80 ppm	10 – 160	Yes
Hazelnut	1 – 40 ppm	50 – 2000	Yes
Lupin	2 – 30 ppm	100 – 1500	Yes
Macadamia	1 – 25 ppm	50 – 1250	Yes
Milk	0.4 – 10 ppm	20 – 500	Yes
Mustard	2 – 60 ppm	100 – 3000	Yes
Peanut	1 – 40 ppm	50 – 2000	Yes
Pistachio	1 – 40 ppm	50 – 2000	Yes
Sesame	2 – 30 ppm	100 – 1500	Yes
Soy	40 – 1000 ppb	2 – 50	Yes
Walnut	2 – 60 ppm	100 – 3000	Yes

Qualitative PCR	LOD	UKAS/ISO 17025 Accredited
Celery	10 ppm	Yes
Oats	10 ppm	No
Pecan	10 ppm	No

Samples are sent to Europe and the US for analysis.

# Genetically Modified Organisms (GMO)

Plants of vital importance to agriculture are often genetically modified by the insertion of foreign DNA material into their DNA sequence, resulting in the expression of novel traits, typically herbicide tolerance or insect resistance.

Item No.	Analysis	Method
30000349	35S Promotor	PCR
30000350	NOS Terminator	PCR
30000351	Roundup Ready Soya	PCR
30000352	BAR	PCR
30000353	BT-176	PCR
30000354	BT-11	PCR
30000355	MON 810	PCR
30000356	GMO Screening (35S, Promotor, NOS & BAR)	PCR
30000340	Soy Comb (Qualitative), CP4 EPSPS, LL	LFD
30000341	Corn Comb (Semi Quantitative), CP4 EPSPS, Cry3Bb, Cry1Ab, Cry34Ab1, Cry1F, PAT, VIP3A	LFD

Samples are sent to Europe and the US for analysis.

## Samples and Turnaround Time

Analysis	Recommended Sampling Amount **	Turnaround
Mycotoxins	1 kg (unground material) 0.5 kg (homogenous, finely ground)	6 working days 3 working days - 50% surcharge
Allergens	200 g	5 working days 3 working days - 50% surcharge
GMO	1 kg	14 working days

\*\* The sampling procedure is crucial to obtaining representative results.

## Analytical Methods

### Lateral Flow Device (LFD)

LFDs, also known as strip tests, are immunochromatographical detection devices that use specific antibodies coupled to colloidal gold to bind to proteins and molecules.

### Enzyme Linked Immuno Sorbent Assay (ELISA)

ELISA is an immunological detection method by which specific antibodies bind to proteins and small molecules; this technique allows for the simultaneous measurement of multiple samples.

### High Performance Liquid Chromatography (HPLC)

This chromatographic technique allows for the separation of target compounds from both simple and complex matrices. Several detectors can then be used to identify or quantify the analytes.

### High Performance Liquid Chromatography - Mass Spectrometry (LC-MS/MS)

With very high degrees of selectivity and sensitivity, LC-MS/MS is the state-of-the-art-technique for the analysis of complex mixtures.

### Polymerase Chain Reaction (PCR)

PCR analysis is a highly specific DNA-based test method, which allows for the detection of specific sequences of genes. A very small amount of DNA is copied multiple times by the polymerase and can thus be detected. Real-time PCR is used to amplify and simultaneously detect or quantify a targeted DNA molecule.

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