

Evidence Proforma  
Food Authenticity Centres of Expertise

**Leatherhead Food Research (LFR)**

**What is your organisations particular area(s) of expertise in food authenticity testing?**

- Food industry market knowledge and insight
- Application of microscopy in food authenticity analysis
- Application of molecular techniques in food authenticity analysis
- Assay development and reference materials for food analysis

**Please highlight your organisations key skills and capabilities in this area and provide a justification as to why you feel it should be regarded as a Centre of Expertise? In particular you should focus on highlighting your key analytical skills and capabilities and any accreditation and how you ensure fitness for purpose testing. (250 words max)**

**Market knowledge and insight.**

Leatherhead Food Research (LFR) has a membership of over 1,500 companies world-wide allowing LFR insight to potential and emerging authenticity issues within the food industry. Emerging issues are further identified by database analysis through LFRs information database [Foodline Web](#), and [Horizonscan](#) (a joint initiative with FERA). Additionally our knowledge base is further supported by LFRs strong global regulatory and labelling team.

**Application of microscopy in food authenticity analysis**

LFR provides foreign body and structural analysis of foods. LFR have particular experience in the evaluation of muscle structure relating to Mechanically Separated Meat (MSM). LFRs Microscopy method for evaluating muscle structure related to MSM is accredited to *ISO 17025*.

**Application of molecular techniques in food authenticity analysis**

LFR have developed several novel assays for examining food authenticity including ELISA and DNA based assays. Recent work has resulted in a unique quantitative DNA based screening tool allowing unequivocal speciation analysis and the identification of unknown adulterants within highly processed food matrices. The method is currently being accredited to *ISO 17025*.

**Assay development and reference materials**

LFR have a track record in analytical method development and the manufacture of processed food reference materials for proficiency testing. Fitness for purpose of

test methods is ensured by assay validation using appropriate reference materials or comparisons to external compositional data, or other database information, and UKAS accreditation with proficiency testing as appropriate.

**Briefly highlight your experience in method validation, data interpretation and evaluation and the reporting of analytical results? (150 words max)**

LFR manufacture food reference materials for use in method validation and proficiency testing for determining the accuracy and precision of analytical methods.

LFR provides expert interpretation of data based upon a detailed understanding of the underpinning science and regulatory background. Supporting evidence may be found in the peer reviewed literature and reports for FSA and DEFRA.

LFR provide independent expert witness consultancy for many authenticity based legal cases including cases associated with the “horsemeat scandal” and plant varietal identification. This includes evidence based opinion on the use of appropriate analysis and the expert evaluation of analytical data and its interpretation.

Additionally, LFR conduct independent evaluations and comparisons of commercially available kits, assessing fitness for purpose in different matrices, and following food processing.

LFR has an internal QC department, operates UKAS accredited methods, and complies with the Joint Code of Practice for Research, ensuring the accurate reporting of analytical data.

**Please provide brief details where possible, of your experience in dealing with complex technical authenticity challenges and evidence of your ability to provide solutions. (150 words max)**

LFR scientists have been at the forefront of providing solutions to technical authenticity challenges since discovering the cause of the infamous Spanish Toxic Oil in the 1980s. More recently LFR developed the UKs first testing service for foods derived from genetically modified crops, the first quantitative sequence based screening tool for food authentication, and the first analytical method for determining MSM. Results of LFR studies have been utilised by the food industry and published in peer reviewed journals, industry reports, and reports for DEFRA and FSA.

LFR provide independent analysis and advice to resolve complex technical matters (and disputes) for clients regarding food authentication. Recent examples have included microscopic examination to determine herb composition, plant varietal

identification, and meat and fish speciation analysis in difficult processed food matrices.

**Are you willing to provide advice on your areas of expertise and assist others through partnership working and sharing of information? Outline briefly your experience in collaborative working and how you could contribute to enhancing the UKs standing in the field of authenticity testing. (150 words max)**

Yes.

LFR has developed, participated, and managed many collaborative R&D projects. Examples include DEFRA LINK, FSA, EU and industrial collaborative projects. LFR are a research sub-contractor in an EU FP7 project MACSYS examining quantitative methods for measuring meat quality related to MSM.

Contributions might include

- Development of novel methods to meet industry needs and priorities
- Acting as a link between enforcement and industry
- Utilising our global membership base and contacts to provide opportunities for communication and dissemination of outputs
- Provision of test methods to industry

**Please provide a brief statement of your capabilities to be included on the virtual food authenticity network portal ( 50 words max)**

[Leatherhead Food Research](#) is an authority on the science of food and drink production. A [Science Group](#) company, LFR provides a comprehensive skill-set for meeting authenticity challenges including developing novel methods and providing expert advice based upon our knowledge of the food-supply-chain and our global membership of 1400 food companies.