Ractopamine LFD screening test for swine and turkey feed – 250 ppb cutoff
Cat No: RT-LFD-25-F-IDS

A Screening Test for Rapid Detection of Ractopamine in Swine and Turkey Feed Samples

ABOUT RACTOPAMINE

Ractopamine is a beta-adrenergic agonist feed-additive that enhances the leanness of market hogs. The mechanisms of Ractopamine's leanness-enhancing actions are unknown but are believed to be mediated through beta-adrenergic receptors located on muscle and adipose tissue cells. It was found that Ractopamine may stimulate adipose tissue lipolysis through either the beta-1 or beta-2 adrenergic receptor. Because the beta-1 adrenergic receptor appears to be the most common adrenergic receptor type in swine adipose tissue, Ractopamine may mediate lipolytic effects through this receptor in swine. The Beta-1 AR may be the preferred target receptor because it is the most abundant subtype in swine adipocytes, but targeting the beta-2 AR should also result in reduced fat accretion in swine. These results suggest that Ractopamine has the capacity to mediate leanness through a receptor subtype hypothesized to mediate the leanness-enhancing effects of other beta-agonists.[1]

INTENDED USE

The Ractopamine lateral flow device (LFD) is designed solely for use in preliminary screening of swine and turkey feed samples. It is a competitive inhibition immunoassay for the qualitative detection of Ractopamine. The Ractopamine LFD provides only a preliminary qualitative analytical test result. Professional judgment should be applied to any test results, particularly when preliminary positive or negative results are used. HPLC-MS or GC-MS are recommended as methods of choice for confirmation of positive results obtained with the Ractopamine LFD.

INTRODUCTION

The Ractopamine LFD is a qualitative one-step competitive inhibition immunoassay for the detection of Ractopamine in animal feed. It detects the presence of Ractopamine at 250 ppb or higher concentrations by utilizing highly specific reactions between antibodies and Ractopamine drug.

PRINCIPLE

If Ractopamine is present in the feed sample, it competes with the immobilized Ractopamine conjugate in the test area for the antibody binding sites on the colloidal gold labeled antibody complex. If a sufficient amount of Ractopamine analyte is present, it will fill all of the available binding sites, thus preventing attachment of the labeled antibody to the Ractopamine conjugate. If an obvious colored line is not visible in the Test Line region, Ractopamine is likely present at levels of concern.

The formation of two visible lines indicates a negative test result or a concentration of Ractopamine less than the established cutoff level.

WARNINGS AND PRECAUTIONS

1. This test is for preliminary *screening* use.
2. Prior to use, ensure that the product has not expired by verifying that the date of use is prior to the expiration date on the foil pouch.
3. The foil pouch containing the test device must remain completely sealed before use. Do not use if foil pouch seal is not intact.
4. Avoid cross-contamination of feed samples by using a new container for each specimen.
5. Do not reuse test device.
6. The Control Line must develop on all test devices to be valid.

STORAGE

The Ractopamine LFD may be stored at room temperature (15° to 30°C) or refrigerated (2° to 8°C) if available (optional). The test device and feed extract must be at room temperature before use.

Starter Kit available - Catalog No.: RT-STK-LFD-F-IDS

Reusable equipment and supplies. Purchase separately.

1. 50 µL Minipet pipettor
2. Timer single channel
3. Foam rack for 50 mL centrifuge tubes
4. Foam rack for 2 mL microtubes
5. Plastic Spatula with handle
6. Red Scoop – use large (T-tablespoon) end only
7. Squirt bottle (for diluting sample to 4 ppm cutoff)

Ractopamine Kit contents - 1 sample per Test Device.

Item Description	Cat No. RT-LFD-25-F-IDS 25-Pack	Purpose
Ractopamine LFD test devices	25	For samples (1 per sample)
50 mL centrifuge tubes	26	For samples (1 per sample) plus 1 for measuring solvent (to be reused for each sample)
2 mL graduated microtubes with flip top	25	For samples (1 per sample)
Pipet tips	50	2 per sample: 1 required for extraction of sample; 1 required for dispensing sample to sample port
1mL transfer pipet	1	For transferring distilled or deionized water to microtube (to be reused for each sample)
16 x 79 mm graduated polypropylene tubes with caps	25	For diluting samples (1 per sample)
Pour Boats	25	To assist transfer of feed from scoop to 50 mL centrifuge tube (1 per sample)
Package Insert	1	

Materials required but not supplied

1. 70% Isopropanol (Isopropyl alcohol)
2. Deionized or distilled water

SAMPLE COLLECTION AND EXTRACTION

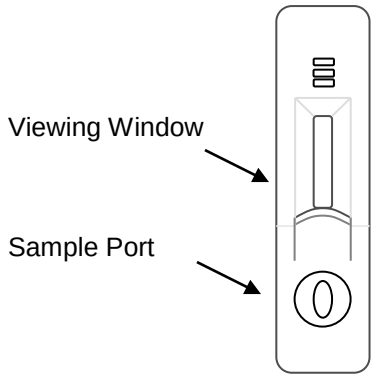
1. Add 10 gm feed to 30 mL 70% Isopropanol in 50 mL disposable centrifuge tube. For transferring sample, use large end (15 mL) of red scoop and level off. (Red scoop comes separately in Starter Kit.) Coarse or pelleted feed can be used but must be crushed to small particle size with spatula after 30 mL solvent is added.

2. Shake mixture intermittently for 10 minutes and allow to settle for 5 minutes (a liquid solvent layer will be visible).

3. **250 ppb cutoff:** Transfer 50 µl of extracted feed sample liquid to microcentrifuge tube. Dilute the sample with distilled or deionized water to 1 mL using the reusable 1 mL transfer pipet and mix well.

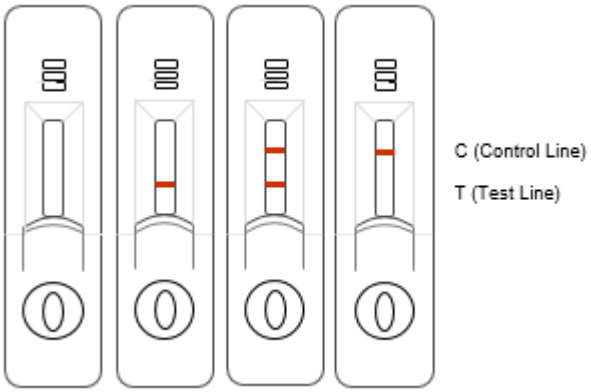
Ractopamine LFD screening test for swine and turkey feed – 250 ppb cutoff
Cat No: RT-LFD-25-F-IDS

ASSAY PROCEDURE



1. The test device and feed extract must be at room temperature before conducting any testing.
2. Remove test device from the sealed foil pouch. Transfer 2 x 50 µl drops of the prepared feed extract to the test device sample port (100 µl total). Do not delay between the addition of drops.
3. Allow the test to develop for 10 minutes and read the result as explained below.

INTERPRETATION OF RESULTS
Results should be reviewed after 10 minutes. Negative test results may be visible within 2-3 minutes.



(Control line must be present for valid test)

CONTROLS
It is good laboratory practice to use positive and negative controls to ensure proper test performance. If available, feed samples containing known quantities of Ractopamine may be run on each lot of test devices to provide a visual reference of expected line intensity. Note: Reference samples with Ractopamine concentrations greater than the cutoff level will result in no obvious test line being formed in the test region of the LFD viewing window.

LIMITATIONS OF PROCEDURE
The assay is designed solely for use with extracts of feed. The Ractopamine LFD provides only a preliminary qualitative test result. Use another more quantitative and definitive analytical method to obtain a confirmed analytical result. Apply professional judgment to any test result, particularly when preliminary positive results are used.

BIBLIOGRAPHY

Mills, S.E., Spurlock, M.E., Smith, D.J. 2002. Beta-adrenergic receptor subtypes that mediate ractopamine stimulation of lipolysis. Journal of Animal Science 81:662-668.

WARRANTY
Neogen Corporation makes no warranty of any kind, either expressed or implied, except that the material from which its products are made are of standard quality. If any materials are defective, Neogen Corporation will provide a replacement product. Buyer assumes all risk and liability resulting from the use of this product and any of the predictive models. There is no warranty of merchantability of this product for any purpose. Neogen Corporation shall not be liable for any damages, including special or consequential damage, or expense arising directly or indirectly from use of this product.

For Technical Support Contact:
Neogen Headquarters
620 Lesher Place, Lansing, MI 48912 USA
800/234-5333 (USA/Canada) or 517/372-9200
Fax: 517/372-2006 • foodsafety@neogen.com
www.neogen.com