bioavid – Standard Operating Procedure (SOP)

For approximation of analytical sensitivity of bioavid lateral flow devices (LFDs) with non-validated matrices

I. Preparation of analyte spiking solution

- Prior to analyte extraction, solid materials (e.g. nuts) should be ground in a household mixer until a homogenous paste/flour is obtained. Liquid materials (e.g. milk) should be mixed and homogenous before extraction.
- Prepare a 20,000 ppm analyte extract by thoroughly mixing/vortexing the homogenized analyte material at a 1:50 ratio in distilled water for at least 1 min (e.g. weigh in 1 g of homogenized material in 49 mL water).
- Centrifuge the extract at 2,000 *x* g for 2 min (Solution A).

II. Spiking of unknown matrix samples

- Homogenize solid matrices in a household mixer until a homogenous paste/flour is obtained. Liquid materials should be mixed and homogenous before using.
  - Please note, that certain matrices may require more sophisticated processing, such as heat treatment or fat removal by filtration/centrifugation.
- Prepare a spiked matrix sample by mixing the homogenized matrix material at a 1:10 ratio in distilled water and adding supernatant from Solution A at a 1:200 ratio. The spiked matrix sample corresponds to 100 ppm of analyte in the 1:10 diluted matrix (e.g. weigh in 5 g homogenized matrix material, add 0.25 mL analyte extract and fill up to 50 mL with distilled water).
- Repeat the procedure without adding analyte extract to generate a negative matrix control.
- Thoroughly mix/vortex both samples for at least 1 min, before centrifugation at 2,000 *x* g for 2 min.

Preparation of positive control:

- Prepare a 100 ppm positive control, by diluting supernatant from the analyte extract at a 1:200 ratio in distilled water.
  - e.g. dilute 0.25 mL of supernatant from the analyte extract in 49.75 mL distilled water.

III. Approximation of analytical sensitivity

- Run three bioavid LFDs according to the instructions for use (IFU). Use 0.1 mL supernatant from the spiked matrix extract, the negative matrix extract and the positive control as samples.
- Interpret results according to the IFU. The test results are valid, if the positive control shows a positive result and the negative matrix sample extract is negative. An evaluation card can be found in the IFU.
- If the test is valid and the spiked matrix extract shows a positive result, approximation of the LFDs analytical sensitivity in the matrix of interest may be performed. Serially dilute supernatant from the spiked matrix extract in the negative matrix extract and use 0.1 mL of each dilution step as an LFD sample.

R-Biopharm • An der neuen Bergstraße 17, 64297 Darmstadt, Germany • E-mail: info@r-biopharm.de • food.r-biopharm.com