IACUC Objective Examples Using Lay Terminology

The first examples are technical examples of study objectives from IACUC protocols. The modified versions are the same study objectives written in lay terminology. Study objectives should be written in lay terminology.

Example 1:
We aim to evaluate different formulations of a phytogenic product on nursery pig performance and health in a commercial pig nursery. This product is a selected blend of phytogenic components and enzymes that is freely available to the commercial swine industry. The weaned pigs is under major stress when adapting to solid feed from a milk based diet. This change together with low feed intake and social stress, antagonizes intestinal health and function. In order to reducing this stress and help pigs transition better at weaning, diet modulation with enzymes, pre- and probiotics, plants extracts (phytogenic) compound are being widely evaluated. Phytogenic compounds are a group of natural growth promoters or non-antibiotic growth promoters used as feed additives, derived from herbs, spices or other plants. We are to evaluate the ability of this plant extract cocktail on:

1) Nursery pig growth and feed efficiency
2) Nursery pig blood oxidative stress markers
3) Group penned total tract nutrient digestibility

Modified version:
The weaned pig is under major stress when adapting to solid feed from a milk-based diet. This change, together with low feed intake and social stress, is detrimental for their intestinal health and function. To reduce nursery pig stress, dietary inclusion of plant products are being widely evaluated and this study will evaluate different formulations of plant ingredients on nursery pig performance and health in a commercial setting. These plant ingredients act as natural growth promoters and are derived from herbs, spices or other plants. We will evaluate the ability of a plant extract cocktail on nursery pig growth and feed efficiency, markers of stress in the blood, and the ability of the pigs to digest nutrients efficiently.

Example 2:
The body is under constant bacteria endotoxin challenge and this can have adverse effects on intestinal health and function, as well as anabolic processors in the peripheral tissues such as skeletal muscle. Endotoxin (which can be derived from gram negative bacteria such as E. coli and Salmonella found in the gut) can activate toll-like receptors (pattern recognition receptors involved in the activation of an innate immune response). Thus, this renders intestinal cells highly sensitive to subsequent induction of inflammation, decreased intestinal integrity and increased endotoxin and mycotoxin permeability by enhanced translocation across the gut wall. Furthermore, there is increasing evidence that the enteral absorption of the gut-derived bacteria endotoxin plays an important role in the development of intestinal dysfunction, inflammation, peripheral tissue catabolism and metabolic diseases such as obesity and diabetes by triggering the innate immune system. Recent significant findings suggest dietary fat is major and efficient

transporter of endotoxin from the lumen into circulation, leading to increased levels of low grade inflammation. Oral gavaging mice with an endotoxin-corn oil mixture, significantly increased plasma endotoxin within 30-60 min of challenge compared to oil alone. Additionally, similar results were also seen in mice fed a high fat (lard-corn oil) diet. However, these studies have not investigated the role of n-3 fatty acids in dietary fat mediated uptake of endotoxin. Therefore, our primary goal is to test the notion that saturated, n-6 and n-3 fatty acids differential regulate endotoxin translocation and intestinal integrity. We wish to use the pig as a model to test this goal.

Modified version:

A variety of bacterial strains produce a chemical, known as endotoxin, which can have detrimental effects on the health and function of the intestine as well as other tissues, including muscle. Recent studies suggest that dietary fat is a major and efficient transporter of endotoxin from interior of the intestine into the blood, leading to health issues throughout the body. A knowledge gap, however, lies in potential differences between specific types of fat molecules in terms of endotoxin transport. Thus, this study aims to test whether three types of fat molecules (saturated, n-6 or n-3 fatty acids) have different properties in transporting endotoxin, thereby affecting and intestinal integrity. We wish to use the pig as a model to test this theory.