

bovine FAP cells. The expression level of PDGFR $\alpha$  in bovine FAP cells remained unchanged 7 days after isolation and gradually decreased afterwards. Prolonged in vitro culture on plastic surface induced spontaneous differentiation of FAP cells into alpha smooth muscle actin positive myofibroblasts expressing high level of collagens, which was further promoted by transforming growth factor beta treatment. Treating bovine FAP cells with adipogenic induction cocktail composed of insulin, dexamethasone and isobutylmethylxanthine induced adipogenic differentiation in these cells. These data indicate the bipotential capacity of bovine FAP cells similar to mouse FAP cells. Ongoing study are being carried out to understand the fate determination of bovine FAP cells.

**Key Words:** FAP, adipocyte, fibroblast

**PSXV-1** **The effect of Improvac® at two live weights on testes size, behavior, gains and hormonal profile of beef bulls.** A. Sanz<sup>1</sup>, A. Noya<sup>1</sup>, I. Casasús<sup>1</sup>, E. Monleón<sup>2</sup>, G. Ripoll<sup>1</sup>, <sup>1</sup>*CITA de Aragón-IA2, Zaragoza, Spain*, <sup>2</sup>*Facultad de Medicina, Universidad de Zaragoza, Zaragoza, Spain*

Physical castration implies pain, inflammatory reactions and weight losses to the animals. Bopriva® (an anti-gonadotropin releasing hormone vaccine for cattle) is not authorized in Europe; therefore, the aim of this assay was to study the effects of the administration of Improvac® (a similar vaccine for pigs, authorized in Europe) on development, sexual function and temperament in calves vaccinated at two live weights (LW). The assay was a 2x2 factorial design, in which factors were calf LW at start of immunization (Light vs. Heavy) and treatment (Vaccinated vs. Control). Sixteen Serrana calves received a fattening diet (ad lib concentrate and straw) during  $164 \pm 8.8$  days. Calf LW was recorded fortnightly and blood samples were collected monthly to analyze testosterone and IGF-I concentrations. Temperament was scored in a "Chute Test" (calves restrained in a single animal scale) and a "Flight speed Test" over 5 m on days 1, 28, 104 and 146. Subcutaneous fat thickness, scrotal circumference, echotexture and diameter of testes were registered by ultrasounds (days 1, 21, 61, 104, 164). Vaccinated calves had lower weight gains than control ones (1.33 vs. 1.64 kg/d,  $P < 0.01$ ) and higher feed conversion ratios (5.5 vs. 4.7 kg DM/LW kg,  $P < 0.01$ ), regardless of LW at start of immunization. During the last three months of assay, Light-Vaccinated calves had lower plasma IGF-I than Light-Control ones, reflecting the growth differences. Improvac® did not evidence differences

in fat thickness or behavior tests, but reduced testis growth and plasma testosterone (10 ng/dL vs. 350 ng/dL,  $P < 0.001$ ). In our conditions, Improvac® was a non-invasive alternative to surgical castration, which reduced bulls' development, testes growth and testosterone concentrations, regardless of calf LW at start of immunization. These results highlight the potential use of the vaccine at commercial farms, with the aim of fattening together males and females without risk of undesirable pregnancies.

**Key Words:** anti-GnRH vaccine, temperament, IGF-I

**PSXV-10 Targeted Gene Evaluation for Association with Heifer Maturity Grading based upon Skeletal Ossification.** A. Colacchio<sup>1</sup>, B. Murdoch<sup>1</sup>, K. Salove<sup>1</sup>, K. Davenport<sup>1</sup>, M. Doumit<sup>2</sup>, A. O'Connell<sup>1</sup>, G. Murdoch<sup>2</sup>, <sup>1</sup>*University of Idaho, Moscow, ID, United States*, <sup>2</sup>*University of Idaho, Animal and Veterinary Science, Moscow, ID, United States*

Over the last several decades, there has been an increase in the number of heifers categorized as B and C-maturity based upon skeletal maturity at harvest in animals that are actually under 30 months of age chronologically. While the losses associated with advanced maturity will be abated through the new USDA approved use of dentition to determine carcass age, in large commercial plants; it is important to examine the biology associated with the advanced skeletal ossification for the US beef industry and smaller plants still utilizing ossification. We hypothesize that selection for early reproductive maturity, along with faster growth rate and increased feed conversion efficiency has increased the propensity for advanced osteogenesis that physiologically mediate endochondral ossification. Specifically, we examined the genetic variation in genes that promote ossification or extracellular matrix mineralization in young heifers resulting in maturity grades more representative of heifers that are over 30 months of age. In this study, we extracted DNA from 90 heifers; 30 A-maturity, 30 B-maturity and 30 C-maturity. Following DNA library preparation we utilized targeted gene pulldown and sequencing to examine candidate genes that play an important role in ossification of cartilage for sequence variation. Sequence variations within our candidate genes, were tested for association with our A, B, and C- carcass maturity. In association with maturity grading, we have identified a significant ( $p < 0.04$ ) single nucleotide polymorphism (SNP) in the alkaline phosphatase (ALPL) gene on chromosome