**Sexually dimorphic changes in the endocrine pancreas and skeletal muscle in young adulthood following intra-amniotic IGF-I treatment of growth-restricted fetal sheep**

**Supplementary Material**

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**Running head**

Pancreas and muscle following IGF-I treatment of FGR lambs

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**Supplementary Figure 1.**

Scatter plots of pancreatic endocrine cell mass vs. bodyweight and composition at 18-months of age in female CON (white, n=7), FGRS (grey, n=7), and IGFI (black, n=7) sheep. Statistically significant correlations are indicated.



**Supplementary Figure 2.**

Scatter plots of pancreatic endocrine cell mass vs. bodyweight and composition at 18-months of age in male CON (white, n=7), FGRS (grey, n=7), and IGFI (black, n=8) sheep. Statistically significant correlations are indicated.

**Supplementary Table 1.**

Primer and probe sequences for genes of interest.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Gene name (gene symbol) | Accession ID (species) |  | Sequence (5’-3’) | Size (base pairs) |
| AKT Serine/Threonine Kinase 2 (AKT2)  | NM\_001206146.1 (Bos Taurus)  | FR P  | CCCGAGCGAGGTGACA CCAGCCTTCTTTGATGACAGACA TCACGCTGCCACCATGA  | 67  |
| Forkhead box O1(FOXO1) | XM\_012184536.2(Ovis Aries) | FRP | GTCAACATCCGCAGTCAATGGGGGCCAGGCGGTTCATACCCCACGCTGTAAAC | 83 |
| Glucokinase (GCK)  | NM\_001102302.1 (Bos Taurus)  | FR P | TGTGAGGTTGGCATGATTGTG TCTGCATCTCCTCCATGTAGCA CACGGGCTGCAACG  | 61  |
| Glutathione peroxidase (GPX)  | L10325.1 (Bos Taurus)  | FR P | ACATCCGGTGGAACTTTGAGAAG GGTGGTACCAGCGCATGAT CAGACGGCATCCCC  | 69  |
| Insulin (INS)  | AH005355.3 (Ovis Aries)  | FR P  | GCAGAAGCGTGGCATCGT TTACAGTAGTTCTCCAGCTGGTAGAGA AGCAGTGCTGCGCC  | 72  |
| Insulin Receptor (INSR)  | AJ844652.1 (Ovis Aries)  | FR P | CCCCAACCTCACGGTCATC CTCCTTCAGGTGAACCATCTCA CTCGCGCCTCTTCTT  | 82  |
| Insulin Receptor Substrate 1 (IRS-1)  | EU681268.1 (Sus Scrofa)  | FR P | GAAGTGGCGGCACAAGTC GCCCGCTTGTTGATGTTGAAG AAACGCTCGATCCCC  | 77  |
| Insulin like growth factor 1 (IGF1) | NM\_001009774.3(Ovis Aries) | FR P  | CTTCCGGAGCTGTGATCTGATGAGCGGGCCGACTTGCTGTGCGCCTCTCAAG | 73 |
| Insulin like growth factor 2(IGF2) | NM\_001009311.1(Ovis Aries) | FR P | CGAGGCATCCAGCGATTAGTAGATGGTGTCACTTGGCAGAATTAGTGAGCCAAAGTGTC | 62 |
| Insulin like growth factor 1 receptor(IGF1R) | AY162434.1(Ovis Aries) | FR P | TCTAACTTTGTCTTTGCAAGAACCATCACTGGCCCAGGAATGTCCCTGCAGAAGGAGCAG | 64 |
| Potassium Voltage-Gated Channel Subfamily J Member 11 (KCNJ11)  | NM\_001081598.1 (Bos Taurus)  | FR P | GCAAGGCCGCTTCCTACA GTGTATGGCCACTTGAGATCCA CCAGCGTGGTGAACAC  | 60  |
| Mitochondrially encoded ATP synthase membrane subunit 6(MTATP6) | DQ320100.1(Ovis Aries) | FRP | AGGCATGGCCATTCCTTTATGAGGAAATGGGCGAGTGAAGCTTTCTTCCGCAACAAAACT | 79 |
| Nuclear Respiratory Factor 1 (NRF1)  | AF233354.1 (Ovis Aries)  | FR P  | GTTCGGTGCAGCTCCTTTG CTTCCAGGATCATGCTCTTGTACTT ACGCACCACATTCTC  | 59  |
| PPARG Coactivator 1 Alpha (PPARGC1A)  | NM\_177945.3 (Bos Taurus)  | FR P | TGTTTATAAATTCAGGACTAGCCATGGATG AATGAATAGGACTGCGTGCCA CTTCGCTGTCATCAAAC  | 103  |
| PI3K Catalytic Subunit Beta (PIK3CB)  | NM\_001206047.1 (Bos Taurus)  | FR P | TCCGGAACTGTGTAATGAACAGAAC TGTTCATACAGCTTCTTGATCTTGCA CATTCCACAAGTATAAAATG  | 79  |
| Protein Kinase C Zeta (PRKCZ)  | NM\_001077833.2 (Bos Taurus)  | FR P | GCCGTGGAGCCAGAAGAT GCGCTTGGCCTGGAAGA TTGGCGCGGTACAGCT  | 65  |
| Peroxisome Proliferator Activated Receptor Gamma 1 (PPARG)  | KF727439.1 (Ovis Aries)  | FR P  | TGCCACAGGCCGAGAAG GGTCGATGTCGCTGGAGATC CCGCTAACAGCTTTTC  | 54  |
| Solute Carrier Family 2 Member 2 (SLC2A2)  | AJ318925.1 (Ovis Aries)  | FR P | GCTCTTCACCAATGCCAGCTA GCCGCATGCAGCATCAAT CCGACAGCCTATTCTAG  | 60  |
| Solute Carrier Family 2 Member 4 (SLC2A4)  | AY949177.1 (Ovis Aries)  | FR P | GTCAACACAGTCTTCACCTTAGTCT CCAGGCCCAGGAGATGGA CCAGCCCGTTCCACC  | 79  |
| Somatostatin(SST) | NM\_001009196.1(Ovis Aries) | FRP | CTGCTGTCTGAACCCAACCAGCAGCCTGGGACAAATCTTCACAGGGCATCGTTCTCT | 65 |
| Transcription Factor A (TFAM)  | XM\_015104510.1 (Ovis Aries)  | FR P | TGCGTATGTTCCAAAATGGTTTTCA GCTGTTCTTTAGAAAACCGAACGT CAGCTTGAGTGGTTATCC  | 89  |
| Uncoupling Protein 2 (UCP2)  | NM\_001280682.1 (Ovis Aries)  | FR P  | AGCCAACGGATGTGGTGAAG CTCAACAGTGCTCTGGTACCT CCTGCGCTTGGAACC  | 80  |
| Beta-Actin (ACTB)  | NM\_001009784.1 (Ovis Aries)  | FR P | ACCAGTTCGCCATGGATGATG CCGGAGCCGTTGTCAAC ATATTGCTGCGCTCGT  | 55  |
| Peptidylprolyl Isomerase A (PPIA)  | AY251270.1 (Ovis Aries)  | FR P | GTACTGGTGGCAAGTCCATCT CAGGACCTGTATGCTTCAGAATGA ATGGCGAGAAATTTG  | 72  |
| Glyceraldehyde-3-Phosphate Dehydrogenase (GAPDH)  | NM\_001190390 (Ovis Aries)  | FR P  | GGGCTGCTTTTAATACTGGCAAA CATGTAGACCATGTAGTGAAGGTCAA CATCGTTGCCATCAATG  | 80  |
| Ribosomal Protein L19 (RPL19)  | AY158223.1 (Ovis Aries)  | FR P | CAAAAACAAGCGGATTCTCATG GCTTCTTGCGAGCCTTGTCT AACATATCCACAAGCTGAA  | 65  |
| Tyrosine 3-Monooxygenase/ Tryptophan 5-Monooxygenase Activation Protein Zeta (YWHAZ)  | AY970970.1 (Ovis Aries)  | FR P  | GAGGGTCGTCTCCAGTATTGAG TTCTCGAGCCATCTGCTGTTTT CAGCACCTTCCGTCTTT  | 67  |

Forward (F), reverse (R), and probe (P) sequences for genes of interest and reference genes.