**Supplementary table 1**

* 1. **Antibodies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Citation** | **Supplier** | **Cat no.** | **Clone no.** |
| Akt2 | RRID: AB 2800461. | Abcam | Cat:ab175354; | 4H7 |
| Phospho-Akt(Ser473) Antibody | RRID: AB 2315049. | Cell Signaling Technology | Cat: #4060s; | D9E |
| Phospho-Akt(Thr450) Antibody | RRID: AB 2734744 | Cell Signaling Technology | Cat: #12178; | D5G4 |
| Phospho-Akt(Thr308) (C31E5E) Rabbit | RRID: AB 2255933 | Cell Signaling Technology | Cat: # 2965; | C31E5E |
| Foxo1 | RRID: AB 1268912 | Abcam | Cat: # ab70382; | Q12778 |
| p-Foxo1 | RRID: AB 329831 | Cell Signaling Technology | Cat；#84192 |  |
| Raptor (24C12) Rabbit mAb | RRID: AB 561245 | Cell Signaling Technology | Cat: #2280; | 24C12 |
| rictor | RRID: AB 2179963 | Cell Signaling Technology | Cat: # 2114; | 53A2 |
| SREBP1 | RRID: AB 778069 | Abcam | Cat: # ab28481; |  |
| Fasn | RRID: AB 2100798 | Cell Signaling Technology | Cat: # 3189; |  |
| Scd1 | RRID: AB 2744674 | Proteintech | Cat: #23393-1-AP; |  |
| G6pc | RRID: 00051508 | Proteintech | Cat: #22169-1-AP; |  |
| Pck1 | RRID: AB 2160031 | Proteintech | Cat: #16754-1-AP; |  |
| INSIG1 | RRID: AB 11183051 | Proteintech | Cat: #22115-1-AP; |  |
| INSIG2 | RRID: AB 2126801 | Abcam | Cat: #ab86415； |  |
| Mul1 |  | Abcam | Cat: ab209263 | EPR20241 |
| SKP2 | RRID: AB 2187645 | Abcam | Cat: #ab68455 |  |
| TTC3 | RRID: AB 2211545 | Santa Cruz Biotechnology | Cat: #sc-49563; |  |
| TRAF6 | RRID: AB 2209844 | Cell Signaling Technology | Cat: #4743; |  |
| CHIP | RRID: AB 2286870 | Santa Cruz Biotechnology | Cat: #sc-133066; |  |
| BRCA1 (M-20) Antibody | RRID: AB 2067340 | Santa Cruz Biotechnology | Cat: #sc-1553; | M-20 |
| p-GSK3α/β |  | Cell Signaling Technology | Cat: #9327; | 37F11 |
| GSK3α/β |  | Cell Signaling Technology | Cat: #5676: | D75D3 |
| LXRα | RRID; AB 10899673 | Abcam | Cat: #ab106464 |  |
| LXRβ | RRID: AB 10726675 | Genetex | Cat: GTX89656; |  |
| ubiquitin | RRID: AB 31292 | Cell Signaling Technology | Cat: # 3936 | P4D1 |

* 1. **Cell lines**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Citation** | **Supplier** | **Cat no.** | **Passage no.** | **Authentication test method** |
| Human: HepG2 |  | ATCC | HB-8065 |  |  |

* 1. **Organisms**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Name** | **Citation** | **Supplier** | **Strain** | **Sex** | **Age** | **Overall n number** |
| C57BL/6 mice |  | Air Force Military Medical University | C57BL/6 mice | male | 8 week | 150 |

* 1. **Sequence based reagents**

|  |  |  |
| --- | --- | --- |
| **Name** | **Sequence** | **Supplier** |
| **RT-PCR primer** |  |  |
| Fasn forward | AAGGCTGGGCTCTATGGATT | Sangon biotech |
| Fasnreverse | GGAGTGAGGCTGGGTTGATA | Sangon biotech |
| Scd1 forward | CTGACCTGAAAGCCGAGAAG | Sangon biotech |
| Scd1 reverse | GCGTTGAGCACCAGAGTGTA | Sangon biotech |
| Srebp1c forward | GGAGCCATGGATTGCACATT | Sangon biotech |
| Srebp1c reverse | GCTTCCAGAGAGGAGGCCAG | Sangon biotech |
| Insig1 forward | CACGACCACGTCTGGAACTAT | Sangon biotech |
| Insig1 reverse | TGAGAAGAGCACTAGGCTCCG | Sangon biotech |
| Insig2a forward | CCCTCAATGAATGTACTGAAGGATT | Sangon biotech |
| Insig2a reverse | TGTGAAGTGAAGCAGACCAATGT | Sangon biotech |
| Insig2b forward | CCGGCAGAGCTCAGGATTT | Sangon biotech |
| Insig2b reverse | AACTGTGGACTGAAGCAGACCAA | Sangon biotech |
| Mttp forward | CGTCCACATACAGCCTTGAC | Sangon biotech |
| Mttp reverse | CCACCTGACTACCATGAAGC | Sangon biotech |
| Mcad forward | TTTCGAAGACGTCAGAGTGC | Sangon biotech |
| Mcad reverse | TGCGACTGTAGGTCTGGTTC | Sangon biotech |
| Cpt1a forward | GGAGAGAATTTCATCCACTTCCA | Sangon biotech |
| Cpt1a reverse | CTTCCCAAAGCGGTGTGAGT | Sangon biotech |
| Ppara forward | TGTTTGTGGCTGCTATAATTTGC | Sangon biotech |
| Ppara reverse | GCAACTTCTCAATGTAGCCTATGTTT | Sangon biotech |
| G6pc forward | CGGGGCATCTACAATGCCAG | Sangon biotech |
| G6pc reverse | GGCTGGCAAAGGGTGTAGTG | Sangon biotech |
| Pck1 forward | GAGATAGCGGCACAAT | Sangon biotech |
| Pck1 reverse | TTCAGAGACTATGCGGTG | Sangon biotech |
| Igfbp1 forward | GGAGCCTGTGTACCAGAACC | Sangon biotech |
| Igfbp1 reverse | CCTTTGCCTCTTCATGCTG | Sangon biotech |
| Akt2 forward | AGGAGGTCATGGAGCACA | Sangon biotech |
| Akt2 reverse | AAGCCCAGGCYGTCATAG | Sangon biotech |

* 1. **Biological samples**

|  |  |  |
| --- | --- | --- |
| **Description** | **Source** | **Identifier** |
| D-(+)-Glucose | Sigma | Cat: G8270 |
| Sodium pyruvate | Sigma | Cat: P2256 |
| 8-CPT-cAMP | Sigma | CAS: 129735-01-9 |
| Medium199 | Thermofisher | Cat: 11150-059 |
| Penicillin-Streptomycin | Thermofisher | Cat: 15140-122 |
| Sodium L-lactate | Sigma | Cat: L7022 |
| L-isoleucine | Sigma | CAS: 73-32-5 |
| L-valine | Sigma | CAS: 72-18-4 |
| L-leucine | Sigma | CAS: 61-90-5 |
| HEPES buffer solution | Invitrogen | Cat: 15630-080 |
| Insulin | Sigma | Cat: I9278 |
| Dulbecco’s modified eagle’s medium (DMEM), without glucose, L-glutamine, phenol red, sodium pyruvate and sodium bicarbonate, powder | Sigma | Cat: D5030 |
| Sodium palmitate | Sigma | CAS: 408-35-5 |
| Sodium bicarbonate | Sigma | Cat: S5761 |
| PBS | Beyotime Biotechnology | Cat: C0221A |
| 3-Methyl-2-oxopentanoic acid sodium salt | Sigma | CAS: 3715-31-9 |
| Sodium 4-methyl-2-oxovalerate | Sigma | CAS: 4502-00-5 |
| Sodium 3-methyl-2-oxobutyrate | Sigma | CAS: 3715-29-5 |
| Pierce™ Classic Magnetic IP/Co-IP Kit | Thermofisher | CAS: 88804 |
| BCA Protein Quantitative Kit | Beyotime Biotechnology | Cat: P0012 |
| PrimeScript™ RT reagent Kit with gDNA Eraser (Perfect Real Time) | Takara | Cat: RR047A |
|  |  |  |

* 1. **Software**

|  |  |  |
| --- | --- | --- |
| **Software name** | **Manufacturer** | **Version** |
| GraphPad Prism 7.04 | GraphPad software | **7.04** |
| Image Lab | Bio-rad |  |
| Quantity one | Bio rad |  |