

Supplemental Table 1. Primers used in quantitative RT-PCR

| Species | Gene          | Forward                  | Reverse                 | Product size (bp) |
|---------|---------------|--------------------------|-------------------------|-------------------|
| mouse   | <i>Cidea</i>  | aaaccatgaccgaagtagcc     | aggccagttgtgatgactaagac | 96                |
| mouse   | <i>Cideb</i>  | ctgccagcctccaagaac       | ctcactgtccacagcagtc     | 104               |
| mouse   | <i>Fsp27</i>  | atcatggctcacagcttg       | attgtgccatcttctccag     | 101               |
| mouse   | <i>Fsp27a</i> | gccacgcgggtattgccagga    | gggtctcccggctgggctta    | 172               |
| mouse   | <i>Fsp27b</i> | gtgaccacagctgggtcgga     | gggtctcccggctgggctta    | 175               |
| mouse   | <i>Plin1</i>  | tgtacagggtgccagcaa       | tctgcaggccaactcattg     | 97                |
| mouse   | <i>Plin2</i>  | agtctggagctgctggtagac    | tgaaccatatcaaactctcca   | 91                |
| mouse   | <i>Plin3</i>  | aggaccagctaagccagag      | agggccacacacatgctc      | 91                |
| mouse   | <i>Plin4</i>  | catacagcacaaccagtcca     | gcctccatggctcatgtctg    | 84                |
| mouse   | <i>Plin5</i>  | tgtgtgtagtgtgactacctgtgc | ggcaagatcattcactgtgg    | 91                |
| mouse   | <i>Crebh</i>  | gtggccattgacctggac       | ccttcacagtgaggtgaagc    | 91                |
| mouse   | <i>Gapdh</i>  | caatgaatacggctacagcaac   | ttactcctggaggccatgt     | 64                |
| human   | <i>CIDEA</i>  | caggagctcatcagcaagact    | aagaactctctgtgtccaccac  | 104               |
| human   | <i>CIDEB</i>  | tgcagtgacagtgaggact      | gccatatgacagcactccac    | 112               |
| human   | <i>CIDEC</i>  | aggacctctctcaaggctc      | agggcttgaagtactctctg    | 112               |
| human   | <i>CIDEC1</i> | gtatttcaggaggctgtgag     | ctaagggacttcatggcgatt   | 78                |
| human   | <i>CIDEC2</i> | ccagagccaggggatgagaa     | tggagagggacttgggtag     | 104               |
| human   | <i>CREBH</i>  | aaaatccggaacaagcagtc     | gagcagtgcaagctgacatc    | 94                |
| human   | <i>TBP</i>    | gaacatcatggatcagaacaaca  | atagggattccgggagtc      | 87                |

Supplemental Table 2. Primers used in EMSA

| Name                      | Primer sequence |   | Notes   |
|---------------------------|-----------------|---|---|
| <i>Fsp27b</i> (wild-type) | F               | agcgtgaagcggactctgtcccctgagaca          | HNF4 $\alpha$ binding site (wild-type)        |
|                           | R               | tgtctcaggggacagagtccgcttcacgct          |   |
| <i>Fsp27b</i> (mutant)    | F               | agcgtgaagcgg <b>AAGG</b> Ctcccctgagaca  | HNF4 $\alpha$ binding site (mutant)           |
|                           | R               | tgtctcagggga <b>GCCTT</b> tccgcttcacgct | Bold; mutations in HNF4 $\alpha$ binding site |
| <i>Otc</i> (wild-type)    | F               | gtaGGCTTAAAGTTCAagt                     | HNF4 $\alpha$ binding site (wild-type)        |
|                           | R               | cactTGAACTTTAAGCCtaac                   |   |

Supplemental Table 3. Primers used in ChIP

| Name                 | Primer sequence |                       | Notes                                       |
|----------------------|-----------------|-----------------------|---|
| <i>Fsp27b</i>        | F               | ttcaggtccctcacagcac   | with HNF4 $\alpha$ binding site             |
|                      | R               | ctaaagaggcccgcactgat  |   |
| mouse <i>Hmgcs2</i>  | F               | gatccctgggactcacaca   | without negative control (negative control) |
|                      | R               | gaatgcacatttatggaggta |   |
| <i>CIDE2</i>         | F               | aagtgtgaggtggtgtgact  | with HNF4 $\alpha$ binding site             |
|                      | R               | tggtcacactgagcagataa  |   |
| human <i>MIR-194</i> | F               | ccttgtgagggcacaccttt  | without negative control (negative control) |
|                      | R               | aaagccaggcagtcagtgt   |   |