**Supplementary Information**

**S1 Table. Epithelial differentiation genes in *Map3k1*-/- vs Wild type keratinocytes**

|  |  |  |  |
| --- | --- | --- | --- |
| **Clone** | **Name** | **Symbol** | ***Map3k1*-/- vs Wild type (Fold)**  |
| V00830 | Keratin complex 1, acidic, gene 10 | *Krt 1-10* | 3.23 |
| M34398 | Loricrin | *Lor* | 2.52 |
| X91825 | Small proline-rich protein 1B | *Sprr1b* | 1.74 |
| AJ005562 | Small proline-rich protein 2D | *Sprr2d* | 2.13 |
| AJ005566 | small proline-rich protein 2H | *Sprr2h* | 3.22 |
| NM\_025984 | small proline rich-like 3 | *Sprrl3* | 2.75 |
| NM\_027137 | small proline rich-like 7 | *Sprrl7* | 2.66 |

**S2 Table. Cell culture reagents**

|  |  |  |
| --- | --- | --- |
| **Name** | **Cata No** | **Company** |
| Fetal bovine serum | S11150 | Atlanta Biological  |
| Knockout™ Serum | 1082028 | Gibco  |
| L-glutamine | 25-005-Cl | Corning  |
| Non-essential amino acid | 11140-050 | Gibco  |
| Sodium pyruvate | 11360-070 | Gibco  |
| Penicillin-Streptomycin  | SV30010 | Cytiva |
| 2-mercaptoehanol | 21985023 | Gibco |
| 0.25% Trypsin | 15050-057 | Gibco  |

**S3 Table. List of antibodies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Name** | **Host species** | **Antibody type** | **Cata No** | **Company** |
| Keratin 18 (Krt 18) | Mouse | Monoclonal | MA5-12104 | Thermo Fisher |
| Keratin 14 (Krt 14) | Mouse | Monoclonal | MA5-11599 | Thermo Fisher |
| Keratin 1 (Krt 1) | Rabbit | Polyclonal | 905602 | BioLegend |
| Zonula occludens-1 (ZO-1) | Rabbit | Polyclonal | 61-7300 | Themo Fisher |
| E-Cadherin (E-Cad) | Mouse | Monoclonal | 610181 | Biosciences Discovery |
| Rabbit IgG Alexa Fluor 488 | Goat | Polyclonal | A11034 | Thermo Fisher |
| Mouse IgG Alexa Fluor 568 | Goat | Polyclonal | A11004 | Thermo Fisher |

**S4 Table. Primers sequences in the qPCR**

|  |  |  |
| --- | --- | --- |
| **Gene**  | **Forward (5'-3')** | **Reversre (5'-3')** |
| *Gapdh* | AACGACCCCTTCATTGACC | TGAAGACACCAGTAGACTCC |
| *Krt 14*  | GAGCGGCAAGAGTGAGATTT | CTTTGGTCTCCTCCAGGTTATTC |
| *Krt 1* | TTCATCGACAAGGTGCGCTTCCTA | TGGTCACGAACTCATTCTCTGCGT |
| *Krt 18* | TGCAGCTGGAGACAGAAATC | ATCCACTTCCACAGTCAATCC |
| *Flg* | GATCAGGCTCAGGAGGAAGA | GAAACGATATACCTGGAGATGC |
| *Nanog* | AGGGTCTGCTACTGAGATGCTCTG | CAACCACTGGTTTTTCTGCCACCG |
| *Oct4* | GGCGTTCTCTTTGGAAAGGTGTTC | CTCGAACCACATCCTTCTCT |