**Supplementary Table 3.** Biological process annotations significantly deregulated in primary SGC.

| No. of Cluster | GO ID        | Term                                                                 | # Entities | FDR      |
|----------------|--------------|----------------------------------------------------------------------|------------|----------|
| 1              | GO:0000082   | G1/S transition of mitotic cell cycle                               | 6          | 3.90E-06 |
|                | GO:0048146   | positive regulation of fibroblast proliferation                      | 5          | 1.30E-05 |
|                | GO:0006977   | DNA damage response                                                  | 4          | 1.50E-03 |
|                | GO:0006268   | DNA unwinding involved in DNA replication                            | 3          | 1.90E-03 |
|                | GO:0071456   | cellular response to hypoxia                                          | 4          | 3.40E-03 |
|                | GO:0010165   | response to X-ray                                                    | 3          | 6.00E-03 |
|                | GO:0051301   | cell division                                                        | 5          | 6.00E-03 |
|                | GO:0006260   | DNA replication                                                       | 4          | 8.50E-03 |
|                | GO:0006270   | DNA replication initiation                                            | 3          | 8.50E-03 |
|                | GO:0000722   | telomere maintenance via recombination                                | 3          | 8.50E-03 |
|                | GO:0000079   | regulation of cyclin-dependent protein serine/threonine kinase activity| 3          | 1.10E-02 |
|                | GO:007067    | mitotic nuclear division                                              | 4          | 2.30E-02 |
|                | GO:1990426   | mitotic recombination-dependent replication fork processing          | 2          | 3.20E-02 |
|                | GO:0000724   | double-strand break repair via homologous recombination               | 3          | 3.20E-02 |
|                | GO:0007275   | multicellular organism development                                   | 9          | 1.90E-05 |
|                | GO:0030198   | extracellular matrix organization                                     | 7          | 1.90E-05 |
|                | GO:0030178   | negative regulation of Wnt signaling pathway                          | 5          | 6.00E-05 |
|                | GO:0090263   | positive regulation of canonical Wnt signaling pathway                | 5          | 1.30E-03 |
|                | GO:0045669   | positive regulation of osteoblast differentiation                    | 4          | 4.40E-03 |
|                | GO:0008285   | negative regulation of cell proliferation                            | 6          | 6.40E-03 |
|                | GO:0007155   | cell adhesion                                                        | 6          | 1.10E-02 |
|                | GO:0007229   | integrin-mediated signaling pathway                                   | 4          | 1.20E-02 |
|                | GO:0043065   | positive regulation of apoptotic process                              | 5          | 2.00E-02 |
|                | GO:0010634   | positive regulation of epithelial cell migration                     | 3          | 3.30E-02 |
| 2              | GO:0090090   | negative regulation of canonical Wnt signaling pathway               | 4          | 3.90E-02 |
|                | GO:0009090   | negative regulation of canonical Wnt signaling pathway               | 4          | 4.10E-02 |
|                | GO:0030198   | extracellular matrix organization                                     | 4          | 4.10E-02 |

SGC, salivary gland carcinoma; FDR, false discovery rate.