TIMP-2 modulates cancer cell transcripational profile and enhances E-cadherin/beta-catenin complex expression in A549 lung cancer cells - Bourboulia et al

**Supplementary Figure 1:** (A) List of prominent biological and cellular functions over-represented across TIMP-2 and Ala+TIMP-2 in A549 cells. A threshold value of p<0.05 is shown on the bar chart. (B) Functions predominantly affected by TIMP-2 and Ala+TIMP-2 overexpression and the predicted effect are shown.

| ONTOLOGY CATEGORY                                | FUNCTIONS ANNOTATION                          | TIMP-2 vs EV  |
|-------------------------------------------------|-----------------------------------------------|---------------|
| Tissue Development                              | development of organ                          | p-value       | Predicted Activation State |
| Cellular Movement                               | cell movement of prostate cancer cell lines   | 7.04E-06      | Increased                  |
| Cellular Growth and Proliferation               | proliferation of connective tissue cells      | 1.27E-05      | Increased                  |
| Renal and Urological System Development and Function | cell movement of kidney cell lines          | 2.76E-04      | Increased                  |
| Connective Tissue Development and Function       | focus formation of fibroblast cell lines      | 5.32E-03      | Increased                  |
| Cellular Development                            | epithelial-mesenchymal transition             | 6.01E-03      | Increased                  |
| Neurological Disease                            | experimental autoimmune myasthenia gravis    | 5.95E-03      | Increased                  |
| Tissue Morphology                               | strength of tissue                            | 9.76E-03      | Decreased                  |
| Lipid Metabolism                                | synthesis of lipid                            | 5.72E-03      | Decreased                  |
| Cancer                                          | metastasis of tumor cells                     | 4.02E-03      | Decreased                  |
| Cardiovascular Disease                          | heart disease                                 | 6.10E-03      | Decreased                  |
| Carbohydrate Metabolism                         | phosphorylation of carbohydrate              | 4.22E-02      | Decreased                  |
| Cell Death                                      | cell death of muscle cells                    | 1.01E-02      | Decreased                  |

| ONTOLOGY CATEGORY                                | FUNCTIONS ANNOTATION                          | TIMP-2 vs EV  |
|-------------------------------------------------|-----------------------------------------------|---------------|
| Cell-To-Cell Signaling and Interaction          | binding of connective tissue cells           | p-value       | Predicted Activation State |
| Neurological Disease                            | hyperalgesia                                  | 1.09E-04      | Increased                  |
| Cancer                                          | carcinoma                                     | 1.87E-02      | Increased                  |
| Cancer                                          | solid tumor                                   | 2.59E-07      | Decreased                  |
| Tissue Development                              | differentiation of osteoelasts                | 1.55E-07      | Decreased                  |
| Cell Morphology                                 | volume of cells                               | 4.09E-07      | Decreased                  |
| Nervous System Development and Function         | development of nerves                         | 2.38E-04      | Decreased                  |
| Cell Death                                      | survival of epithelial cells                  | 2.02E-04      | Decreased                  |

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