

**Table S3: List of functional annotation from Gene Ontology that are used to filter for receptor proteins for the control sets.**

| <b>GO Category</b>          | <b>GO Term (GO Id)</b>                  | <b>Definition</b>  |
|-----------------------------|---|--|
| <b>Molecular Function</b>   | Receptor activity (GO:0004872)          | Combining with an extracellular or intracellular messenger to initiate a change in cell activity.  |
|                             | Co-receptor activity (GO:0015026)       | Combining with an extracellular or intracellular messenger, and in cooperation with a nearby primary receptor, initiating a change in cell activity  |
| <b>Biological Process</b>   | Receptor metabolic process (GO:0043112) | The chemical reactions and pathways involving a receptor molecule, a macromolecule that undergoes combination with a hormone, neurotransmitter, drug or intracellular messenger to initiate a change in cell function. |
| <b>Cellular Compartment</b> | Receptor complex (GO:0043235)           | Any protein complex that undergoes combination with a hormone, neurotransmitter, drug or intracellular messenger to initiate a change in cell function.  |
|                             | Membrane (GO:0016020)                   | Double layer of lipid molecules that encloses all cells, and, in eukaryotes, many organelles; may be a single or double lipid bilayer; also includes associated proteins.  |
|                             | Extracellular space (GO:0005615)        | That part of a multicellular organism outside the cells proper, usually taken to be outside the plasma membranes, and occupied by fluid.   |