Epi Stroma Timeline

# Timeline

## July 11-15

* Finish implementing multiple file uploads for the delta matrix
* Add the ability to delete a file
* Bulletproof server so that it can’t be crashed by bad requests
* Add more validation to R scripts and send errors in the case that bad information such as a missing gene or incorrect filename are supplied
* Create test cases for the app
* Client side glitch fixes
  + Might have to redraw graph when switching from main to interaction explorer
  + Need to only resize when switching from tables to graph view UNLESS the graph has not yet been seen
  + Fixed the issue! Turns out that the problem was the fact that in the GraphConfigService, we werern’t using strict mode, so the cy variable ended up becoming a global variable when initialized in the applyConfig() method since it was never declared in the method using var cy = null;
  + Make feature that tells users to go load a file if they try to enter genes prior to doing so
  + Make it obvious that all paths table is sortable
  + Make the loading status more obvious and not just in the top left corner
  + Put the filter button and put it in the filter box
  + Add a legend for the graph
  + Tooltip that shoots out of get genes button
  + Move get first neighbours button right underneath the choose genes dropdown
  + Make it so that when uploading a file, the file will only show in the dropdown once its corresponding degrees file also exists.
  + Start using global variables like DELTA instead of ‘delta’. Also, vm.sharedData.networkTypes.delta is far too cumbersome
  + Don’t concatenate “degrees” and a matrix file name in the R scripts. This should be done on the server side. The R scripts should never be manipulating file paths or names.
* Cleanup code and remove unnecessary files
* Add documentation to the R Code

## July 18-22

* Add documentation to client-side code
* Add documentation to server-side code
* Make the server side code implement the fluent interface. We should not be having a mixture of methods some of which return objects and some of which only modify objects and return nothing.
  + Implementing a fluent interface might take too long and thus we should just stick to making every function return something
* Separate data from layouts
* Might have to move layout and stying options to client side
* Can instead keep track of which tab request came from (query, layout),
* Create a tab for the communities

## July 25-29

* Add a min degree tab that allows for the retrieval of genes with a certain degree. For example, this could be top 10 genes, or top 10 percent of genes, or just a simple minimum cutoff on the degree.
* Add a tab to display the communities in. A new layout needs to be generated for this as well.

# Test Cases

## TNBCGenWideEpiStrInt.001.Rdata

### Main Graph

#### First Neighbours

##### CD8A-E

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| CD8A-E | 49 | NA |

Webapp R

|  |  |  |  |
| --- | --- | --- | --- |
| **Column1** | **CD8A** | **Column1** | **weight** |
| PDCD1 | 0.7033 | PDCD1-S | 0.703315 |
| ZBED2 | 0.7308 | ZBED2-S | 0.730849 |
| CD3D | 0.7341 | CD3D-S | 0.734062 |
| GZMA | 0.7861 | GZMA-S | 0.786052 |
| CXCR3 | 0.7463 | CXCR3-S | 0.74632 |
| GBP4 | 0.6895 | GBP4-S | 0.689516 |
| FASLG | 0.7352 | FASLG-S | 0.735249 |
| CD52 | 0.7055 | CD52-S | 0.705455 |
| PVRIG | 0.718 | PVRIG-S | 0.718041 |
| GZMB | 0.7797 | GZMB-S | 0.779694 |
| LCK | 0.7383 | LCK-S | 0.738281 |
| SAMD3 | 0.6977 | SAMD3-S | 0.697743 |
| STAT1 | 0.6913 | STAT1-S | 0.691263 |
| UBASH3A | 0.7063 | UBASH3A-S | 0.706305 |
| IL18RAP | 0.7776 | IL18RAP-S | 0.77764 |
| GPR171 | 0.7082 | GPR171-S | 0.708229 |
| SELL | 0.6976 | SELL-S | 0.69764 |
| RHOH | 0.7004 | RHOH-S | 0.700402 |
| GBP5 | 0.7114 | GBP5-S | 0.711387 |
| LRMP | 0.6976 | LRMP-S | 0.697642 |
| ARHGAP25 | 0.6826 | ARHGAP25-S | 0.682642 |
| TRAFD1 | 0.702 | TRAFD1-S | 0.702016 |
| PRKCQ-AS1 | 0.7286 | PRKCQ-AS1-S | 0.728581 |
| PTPN7 | 0.7488 | PTPN7-S | 0.748844 |
| DENND2D | 0.6968 | DENND2D-S | 0.696765 |
| CD247 | 0.7017 | CD247-S | 0.701732 |
| STAT4 | 0.7179 | STAT4-S | 0.717864 |
| IL2RB | 0.6861 | IL2RB-S | 0.68612 |
| WARS | 0.6969 | WARS-S | 0.696911 |
| NCR3 | 0.7803 | NCR3-S | 0.780262 |
| FYB | 0.6825 | FYB-S | 0.682545 |
| RAC2 | 0.6887 | RAC2-S | 0.688665 |
| KIAA1551 | 0.6864 | KIAA1551-S | 0.686417 |
| TAP1 | 0.734 | TAP1-S | 0.733971 |
| CD8A | 0.82 | CD8A-S | 0.819975 |
| ZNF683 | 0.7167 | ZNF683-S | 0.716725 |
| KLRC4 | 0.7055 | KLRC4-S | 0.705489 |
| ATP8A1 | 0.6829 | ATP8A1-S | 0.682867 |
| GZMK | 0.7666 | GZMK-S | 0.766642 |
| DOCK8 | 0.6794 | DOCK8-S | 0.679357 |
| LAG3 | 0.7289 | LAG3-S | 0.728908 |
| SIRPG | 0.7142 | SIRPG-S | 0.714216 |
| GNLY | 0.7283 | GNLY-S | 0.728346 |
| PPP1R16B | 0.7358 | PPP1R16B-S | 0.735814 |
| GPR155 | 0.6824 | GPR155-S | 0.682429 |
| CD8B | 0.7797 | CD8B-S | 0.779726 |
| C16ORF54 | 0.7333 | C16ORF54-S | 0.73332 |
| RGL4 | 0.7054 | RGL4-S | 0.705433 |
| NKG7 | 0.6949 | NKG7-S | 0.694865 |

##### CD8A-S

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| CD8A-S | 23 | NA |

|  |  |  |  |
| --- | --- | --- | --- |
| **Column1** | **CD8A** | **Column1** | **weight** |
| CXCL13 | 0.6977 | CXCL13-E | 0.697655 |
| CD3D | 0.8154 | CD3D-E | 0.815378 |
| GZMA | 0.7553 | GZMA-E | 0.755271 |
| CD2 | 0.7726 | CD2-E | 0.772643 |
| CD52 | 0.7437 | CD52-E | 0.743729 |
| PVRIG | 0.6933 | PVRIG-E | 0.693327 |
| GZMB | 0.7462 | GZMB-E | 0.746203 |
| GZMH | 0.7966 | GZMH-E | 0.796577 |
| ICOS | 0.7262 | ICOS-E | 0.726242 |
| CXCL9 | 0.7328 | CXCL9-E | 0.732821 |
| CCR5 | 0.7416 | CCR5-E | 0.741603 |
| GBP5 | 0.7455 | GBP5-E | 0.745504 |
| TBC1D10C | 0.7182 | TBC1D10C-E | 0.718151 |
| HCST | 0.7224 | HCST-E | 0.722413 |
| CCL4 | 0.6923 | CCL4-E | 0.692261 |
| AMICA1 | 0.6957 | AMICA1-E | 0.69565 |
| RASAL3 | 0.729 | RASAL3-E | 0.729008 |
| CYTIP | 0.6802 | CYTIP-E | 0.680163 |
| IL2RG | 0.7595 | IL2RG-E | 0.759542 |
| CD8A | 0.82 | CD8A-E | 0.819975 |
| SIRPG | 0.6832 | SIRPG-E | 0.683169 |
| NKG7 | 0.7255 | NKG7-E | 0.725518 |
| ARHGAP9 | 0.7235 | ARHGAP9-E | 0.723484 |

##### CXCL13-E

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| CXCL13-E | 14 | NA |

|  |  |  |  |
| --- | --- | --- | --- |
| **Column1** | **CXCL13** | **Column1** | **weight** |
| PDCD1 | 0.728 | PDCD1-S | 0.727963 |
| ZBED2 | 0.6925 | ZBED2-S | 0.692478 |
| CXCL13 | 0.7447 | CXCL13-S | 0.744672 |
| SAMD3 | 0.7265 | SAMD3-S | 0.726494 |
| SELL | 0.7546 | SELL-S | 0.75455 |
| PATL2 | 0.6867 | PATL2-S | 0.686659 |
| CD40LG | 0.7376 | CD40LG-S | 0.737583 |
| STAT4 | 0.6815 | STAT4-S | 0.681542 |
| CD8A | 0.6977 | CD8A-S | 0.697655 |
| SCML4 | 0.7063 | SCML4-S | 0.706336 |
| GZMK | 0.682 | GZMK-S | 0.681968 |
| USP30-AS1 | 0.6937 | USP30-AS1-S | 0.693653 |
| SIRPG | 0.6842 | SIRPG-S | 0.684152 |
| CXCR2P1 | 0.6915 | CXCR2P1-S | 0.691526 |

##### CXCL13-S

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| CXCL13-S | 2 | NA |

|  |  |  |  |
| --- | --- | --- | --- |
| **Column1** | **CXCL13** | **Column1** | **weight** |
| CXCL13 | 0.7447 | CXCL13-E | 0.744672 |
| CXCL9 | 0.706 | CXCL9-E | 0.706023 |

##### GZMB-E

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| GZMB-E | 26 | NA |

x <- corMatrix["GZMB-E", which(corMatrix["GZMB-E",] != 0)]

data.frame(row.names = names(x), weight=x)

|  |  |  |  |
| --- | --- | --- | --- |
| **Column1** | **GZMB** | **Column1** | **weight** |
| PDCD1 | 0.7262 | PDCD1-S | 0.726175 |
| ZBED2 | 0.6809 | ZBED2-S | 0.680882 |
| GZMA | 0.748 | GZMA-S | 0.748043 |
| CXCR3 | 0.6925 | CXCR3-S | 0.692504 |
| GBP4 | 0.6934 | GBP4-S | 0.693376 |
| FASLG | 0.7676 | FASLG-S | 0.767554 |
| GZMB | 0.8455 | GZMB-S | 0.845515 |
| LCK | 0.6813 | LCK-S | 0.681289 |
| IL18RAP | 0.7171 | IL18RAP-S | 0.717063 |
| GPR171 | 0.6897 | GPR171-S | 0.689683 |
| GBP5 | 0.7159 | GBP5-S | 0.715859 |
| PTPN7 | 0.6805 | PTPN7-S | 0.680465 |
| IRF1 | 0.7204 | IRF1-S | 0.72043 |
| WARS | 0.755 | WARS-S | 0.754953 |
| NCR3 | 0.6805 | NCR3-S | 0.680481 |
| TAP1 | 0.7755 | TAP1-S | 0.77549 |
| CD8A | 0.7462 | CD8A-S | 0.746203 |
| ZNF683 | 0.7397 | ZNF683-S | 0.739685 |
| KLRC4 | 0.7287 | KLRC4-S | 0.72868 |
| LAG3 | 0.7749 | LAG3-S | 0.774865 |
| SIRPG | 0.6937 | SIRPG-S | 0.693701 |
| GNLY | 0.816 | GNLY-S | 0.815957 |
| CD8B | 0.7272 | CD8B-S | 0.727181 |
| RGL4 | 0.682 | RGL4-S | 0.681968 |
| NKG7 | 0.6977 | NKG7-S | 0.697678 |
| OR10H2 | 0.7075 | OR10H2-S | 0.707521 |

##### GZMB-S

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| GZMB-S | 17 | NA |

x <- corMatrix[which(corMatrix[,"GZMB-S"] != 0), "GZMB-S"]

data.frame(row.names = names(x), weight=x)

|  |  |  |  |
| --- | --- | --- | --- |
| **Column1** | **GZMB** | **Column1** | **weight** |
| CD3D | 0.701 | CD3D-E | 0.700962 |
| GZMA | 0.768 | GZMA-E | 0.768024 |
| CD2 | 0.7179 | CD2-E | 0.717884 |
| FASLG | 0.6965 | FASLG-E | 0.696546 |
| GZMB | 0.8455 | GZMB-E | 0.845515 |
| GZMH | 0.6969 | GZMH-E | 0.696853 |
| CCL18 | 0.6869 | CCL18-E | 0.686929 |
| CXCL9 | 0.7068 | CXCL9-E | 0.706813 |
| GBP5 | 0.7502 | GBP5-E | 0.750197 |
| HCST | 0.7371 | HCST-E | 0.737087 |
| CCL5 | 0.69 | CCL5-E | 0.690048 |
| IL2RG | 0.6793 | IL2RG-E | 0.679344 |
| CD8A | 0.7797 | CD8A-E | 0.779694 |
| ZNF683 | 0.7418 | ZNF683-E | 0.741782 |
| GNLY | 0.7488 | GNLY-E | 0.748831 |
| TIGIT | 0.7066 | TIGIT-E | 0.706574 |
| NKG7 | 0.7486 | NKG7-E | 0.748645 |

##### GZMB-E, CD8A-E

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| GZMB-E, CD8A-E | 26, 49 | NA |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Column1** | **GZMB** | **CD8A** | **Column1** | **weight.GZMB** | **weight.CD8A** |
| PDCD1 | 0.7262 | 0.7033 | PDCD1-S | 0.7261749 | 0.7033151 |
| ZBED2 | 0.6809 | 0.7308 | ZBED2-S | 0.6808819 | 0.7308494 |
| GZMA | 0.748 | 0.7861 | GZMA-S | 0.7480433 | 0.7860518 |
| CXCR3 | 0.6925 | 0.7463 | CXCR3-S | 0.6925036 | 0.74632 |
| GBP4 | 0.6934 | 0.6895 | GBP4-S | 0.6933762 | 0.6895162 |
| FASLG | 0.7676 | 0.7352 | FASLG-S | 0.7675544 | 0.7352491 |
| GZMB | 0.8455 | 0.7797 | GZMB-S | 0.8455147 | 0.7796937 |
| LCK | 0.6813 | 0.7383 | LCK-S | 0.6812893 | 0.7382814 |
| IL18RAP | 0.7171 | 0.7776 | IL18RAP-S | 0.7170625 | 0.7776401 |
| GPR171 | 0.6897 | 0.7082 | GPR171-S | 0.6896832 | 0.708229 |
| GBP5 | 0.7159 | 0.7114 | GBP5-S | 0.7158593 | 0.7113872 |
| PTPN7 | 0.6805 | 0.7488 | PTPN7-S | 0.6804653 | 0.748844 |
| IRF1 | 0.7204 | 0 | IRF1-S | 0.7204301 | 0 |
| WARS | 0.755 | 0.6969 | WARS-S | 0.7549531 | 0.6969106 |
| NCR3 | 0.6805 | 0.7803 | NCR3-S | 0.680481 | 0.7802622 |
| TAP1 | 0.7755 | 0.734 | TAP1-S | 0.7754899 | 0.7339708 |
| CD8A | 0.7462 | 0.82 | CD8A-S | 0.7462025 | 0.8199746 |
| ZNF683 | 0.7397 | 0.7167 | ZNF683-S | 0.7396852 | 0.716725 |
| KLRC4 | 0.7287 | 0.7055 | KLRC4-S | 0.7286799 | 0.7054893 |
| LAG3 | 0.7749 | 0.7289 | LAG3-S | 0.774865 | 0.7289077 |
| SIRPG | 0.6937 | 0.7142 | SIRPG-S | 0.6937007 | 0.714216 |
| GNLY | 0.816 | 0.7283 | GNLY-S | 0.8159571 | 0.728346 |
| CD8B | 0.7272 | 0.7797 | CD8B-S | 0.7271811 | 0.7797259 |
| RGL4 | 0.682 | 0.7054 | RGL4-S | 0.6819681 | 0.7054325 |
| NKG7 | 0.6977 | 0.6949 | NKG7-S | 0.697678 | 0.6948652 |
| OR10H2 | 0.7075 | 0 | OR10H2-S | 0.7075214 | 0 |
| CD3D | 0 | 0.7341 | CD3D-S | 0 | 0.7340619 |
| CD52 | 0 | 0.7055 | CD52-S | 0 | 0.7054553 |
| PVRIG | 0 | 0.718 | PVRIG-S | 0 | 0.7180412 |
| SAMD3 | 0 | 0.6977 | SAMD3-S | 0 | 0.6977433 |
| STAT1 | 0 | 0.6913 | STAT1-S | 0 | 0.6912633 |
| UBASH3A | 0 | 0.7063 | UBASH3A-S | 0 | 0.7063046 |
| SELL | 0 | 0.6976 | SELL-S | 0 | 0.6976399 |
| RHOH | 0 | 0.7004 | RHOH-S | 0 | 0.7004016 |
| LRMP | 0 | 0.6976 | LRMP-S | 0 | 0.697642 |
| ARHGAP25 | 0 | 0.6826 | ARHGAP25-S | 0 | 0.6826424 |
| TRAFD1 | 0 | 0.702 | TRAFD1-S | 0 | 0.702016 |
| PRKCQ-AS1 | 0 | 0.7286 | PRKCQ-AS1-S | 0 | 0.7285809 |
| DENND2D | 0 | 0.6968 | DENND2D-S | 0 | 0.696765 |
| CD247 | 0 | 0.7017 | CD247-S | 0 | 0.7017323 |
| STAT4 | 0 | 0.7179 | STAT4-S | 0 | 0.7178641 |
| IL2RB | 0 | 0.6861 | IL2RB-S | 0 | 0.6861199 |
| FYB | 0 | 0.6825 | FYB-S | 0 | 0.682545 |
| RAC2 | 0 | 0.6887 | RAC2-S | 0 | 0.6886652 |
| KIAA1551 | 0 | 0.6864 | KIAA1551-S | 0 | 0.686417 |
| ATP8A1 | 0 | 0.6829 | ATP8A1-S | 0 | 0.6828671 |
| GZMK | 0 | 0.7666 | GZMK-S | 0 | 0.7666421 |
| DOCK8 | 0 | 0.6794 | DOCK8-S | 0 | 0.6793567 |
| PPP1R16B | 0 | 0.7358 | PPP1R16B-S | 0 | 0.7358141 |
| GPR155 | 0 | 0.6824 | GPR155-S | 0 | 0.6824288 |
| C16ORF54 | 0 | 0.7333 | C16ORF54-S | 0 | 0.7333202 |

##### GZMB-E, CD8A-E, STAT1-E, CXCL13-E

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| GZMB-E, CD8A-E, STAT1-E, CXCL13-E | 26, 49, 4, 14 | NA |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Column1** | **GZMB** | **CD8A** | **STAT1** | **CXCL13** | **Column1** | **GZMB-E** | **CD8A-E** | **STAT1-E** | **CXCL13-E** |
| PDCD1 | 0.7262 | 0.7033 | 0 | 0.728 | PDCD1-S | 0.7261749 | 0.703315 | 0 | 0.7279633 |
| ZBED2 | 0.6809 | 0.7308 | 0 | 0.6925 | ZBED2-S | 0.6808819 | 0.730849 | 0 | 0.6924781 |
| GZMA | 0.748 | 0.7861 | 0 | 0 | GZMA-S | 0.7480433 | 0.786052 | 0 | 0 |
| CXCR3 | 0.6925 | 0.7463 | 0 | 0 | CXCR3-S | 0.6925036 | 0.74632 | 0 | 0 |
| GBP4 | 0.6934 | 0.6895 | 0 | 0 | GBP4-S | 0.6933762 | 0.689516 | 0 | 0 |
| FASLG | 0.7676 | 0.7352 | 0 | 0 | FASLG-S | 0.7675544 | 0.735249 | 0 | 0 |
| GZMB | 0.8455 | 0.7797 | 0 | 0 | GZMB-S | 0.8455147 | 0.779694 | 0 | 0 |
| LCK | 0.6813 | 0.7383 | 0 | 0 | LCK-S | 0.6812893 | 0.738281 | 0 | 0 |
| IL18RAP | 0.7171 | 0.7776 | 0 | 0 | IL18RAP-S | 0.7170625 | 0.77764 | 0 | 0 |
| GPR171 | 0.6897 | 0.7082 | 0 | 0 | GPR171-S | 0.6896832 | 0.708229 | 0 | 0 |
| GBP5 | 0.7159 | 0.7114 | 0 | 0 | GBP5-S | 0.7158593 | 0.711387 | 0 | 0 |
| PTPN7 | 0.6805 | 0.7488 | 0 | 0 | PTPN7-S | 0.6804653 | 0.748844 | 0 | 0 |
| IRF1 | 0.7204 | 0 | 0 | 0 | IRF1-S | 0.7204301 | 0 | 0 | 0 |
| WARS | 0.755 | 0.6969 | 0.6793 | 0 | WARS-S | 0.7549531 | 0.696911 | 0.6793181 | 0 |
| NCR3 | 0.6805 | 0.7803 | 0 | 0 | NCR3-S | 0.680481 | 0.780262 | 0 | 0 |
| TAP1 | 0.7755 | 0.734 | 0.7779 | 0 | TAP1-S | 0.7754899 | 0.733971 | 0.777853 | 0 |
| CD8A | 0.7462 | 0.82 | 0 | 0.6977 | CD8A-S | 0.7462025 | 0.819975 | 0 | 0.6976546 |
| ZNF683 | 0.7397 | 0.7167 | 0 | 0 | ZNF683-S | 0.7396852 | 0.716725 | 0 | 0 |
| KLRC4 | 0.7287 | 0.7055 | 0 | 0 | KLRC4-S | 0.7286799 | 0.705489 | 0 | 0 |
| LAG3 | 0.7749 | 0.7289 | 0.6945 | 0 | LAG3-S | 0.774865 | 0.728908 | 0.6944753 | 0 |
| SIRPG | 0.6937 | 0.7142 | 0 | 0.6842 | SIRPG-S | 0.6937007 | 0.714216 | 0 | 0.6841521 |
| GNLY | 0.816 | 0.7283 | 0 | 0 | GNLY-S | 0.8159571 | 0.728346 | 0 | 0 |
| CD8B | 0.7272 | 0.7797 | 0 | 0 | CD8B-S | 0.7271811 | 0.779726 | 0 | 0 |
| RGL4 | 0.682 | 0.7054 | 0 | 0 | RGL4-S | 0.6819681 | 0.705433 | 0 | 0 |
| NKG7 | 0.6977 | 0.6949 | 0 | 0 | NKG7-S | 0.697678 | 0.694865 | 0 | 0 |
| OR10H2 | 0.7075 | 0 | 0 | 0 | OR10H2-S | 0.7075214 | 0 | 0 | 0 |
| CD3D | 0 | 0.7341 | 0 | 0 | CD3D-S | 0 | 0.734062 | 0 | 0 |
| CD52 | 0 | 0.7055 | 0 | 0 | CD52-S | 0 | 0.705455 | 0 | 0 |
| PVRIG | 0 | 0.718 | 0 | 0 | PVRIG-S | 0 | 0.718041 | 0 | 0 |
| SAMD3 | 0 | 0.6977 | 0 | 0.7265 | SAMD3-S | 0 | 0.697743 | 0 | 0.7264935 |
| STAT1 | 0 | 0.6913 | 0.6996 | 0 | STAT1-S | 0 | 0.691263 | 0.6996208 | 0 |
| UBASH3A | 0 | 0.7063 | 0 | 0 | UBASH3A-S | 0 | 0.706305 | 0 | 0 |
| SELL | 0 | 0.6976 | 0 | 0.7546 | SELL-S | 0 | 0.69764 | 0 | 0.7545502 |
| RHOH | 0 | 0.7004 | 0 | 0 | RHOH-S | 0 | 0.700402 | 0 | 0 |
| LRMP | 0 | 0.6976 | 0 | 0 | LRMP-S | 0 | 0.697642 | 0 | 0 |
| ARHGAP25 | 0 | 0.6826 | 0 | 0 | ARHGAP25-S | 0 | 0.682642 | 0 | 0 |
| TRAFD1 | 0 | 0.702 | 0 | 0 | TRAFD1-S | 0 | 0.702016 | 0 | 0 |
| PRKCQ-AS1 | 0 | 0.7286 | 0 | 0 | PRKCQ-AS1-S | 0 | 0.728581 | 0 | 0 |
| DENND2D | 0 | 0.6968 | 0 | 0 | DENND2D-S | 0 | 0.696765 | 0 | 0 |
| CD247 | 0 | 0.7017 | 0 | 0 | CD247-S | 0 | 0.701732 | 0 | 0 |
| STAT4 | 0 | 0.7179 | 0 | 0.6815 | STAT4-S | 0 | 0.717864 | 0 | 0.6815424 |
| IL2RB | 0 | 0.6861 | 0 | 0 | IL2RB-S | 0 | 0.68612 | 0 | 0 |
| FYB | 0 | 0.6825 | 0 | 0 | FYB-S | 0 | 0.682545 | 0 | 0 |
| RAC2 | 0 | 0.6887 | 0 | 0 | RAC2-S | 0 | 0.688665 | 0 | 0 |
| KIAA1551 | 0 | 0.6864 | 0 | 0 | KIAA1551-S | 0 | 0.686417 | 0 | 0 |
| ATP8A1 | 0 | 0.6829 | 0 | 0 | ATP8A1-S | 0 | 0.682867 | 0 | 0 |
| GZMK | 0 | 0.7666 | 0 | 0.682 | GZMK-S | 0 | 0.766642 | 0 | 0.6819677 |
| DOCK8 | 0 | 0.6794 | 0 | 0 | DOCK8-S | 0 | 0.679357 | 0 | 0 |
| PPP1R16B | 0 | 0.7358 | 0 | 0 | PPP1R16B-S | 0 | 0.735814 | 0 | 0 |
| GPR155 | 0 | 0.6824 | 0 | 0 | GPR155-S | 0 | 0.682429 | 0 | 0 |
| C16ORF54 | 0 | 0.7333 | 0 | 0 | C16ORF54-S | 0 | 0.73332 | 0 | 0 |
| CXCL13 | 0 | 0 | 0 | 0.7447 | CXCL13-S | 0 | 0 | 0 | 0.7446723 |
| PATL2 | 0 | 0 | 0 | 0.6867 | PATL2-S | 0 | 0 | 0 | 0.6866594 |
| CD40LG | 0 | 0 | 0 | 0.7376 | CD40LG-S | 0 | 0 | 0 | 0.7375834 |
| SCML4 | 0 | 0 | 0 | 0.7063 | SCML4-S | 0 | 0 | 0 | 0.7063359 |
| USP30-AS1 | 0 | 0 | 0 | 0.6937 | USP30-AS1-S | 0 | 0 | 0 | 0.6936529 |
| CXCR2P1 | 0 | 0 | 0 | 0.6915 | CXCR2P1-S | 0 | 0 | 0 | 0.6915264 |

### Second Neighbours

##### PLA2G2A-E

|  |  |  |
| --- | --- | --- |
| Gene(s) of Interest | Degree | Filter |
| PLA2G2A-E | 6 | NA |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Column1** | **PLA2G2A** | **INSL4** | **SERPINB4** | **GJB5** | **CLCF1** | **Column1** | **PLA2G2A-S** | **INSL4-S** | **SERPINB4-S** | **GJB5-S** | **CLCF1-S** |
| IL6 | 0.8583 | 0.7938 | 0.8605 | 0.8115 | 0.7385 | IL6-E | 0.8582521 | 0.793788 | 0.8605101 | 0.811532 | 0.7384918 |
| RRAD | 0.6894 | 0 | 0 | 0.6813 | 0.7864 | RRAD-E | 0.6893809 | 0 | 0 | 0.681286 | 0.7863595 |
| INSL4 | 0.8423 | 0.9129 | 0.9507 | 0.8698 | 0 | INSL4-E | 0.8422928 | 0.9128815 | 0.9506561 | 0.869779 | 0 |
| SPINK6 | 0.7384 | 0 | 0 | 0 | 0 | SPINK6-E | 0.7384112 | 0 | 0 | 0 | 0 |
| CLDN5 | 0.7159 | 0 | 0 | 0.7176 | 0.854 | CLDN5-E | 0.7158922 | 0 | 0 | 0.717643 | 0.8540456 |
| GAST | 0.6867 | 0 | 0 | 0.7022 | 0.8744 | GAST-E | 0.6867414 | 0 | 0 | 0.702206 | 0.8744135 |
| SH2D1B | 0.8063 | 0.7002 | 0.682 | 0 | 0 | SH2D1B-E | 0.8063392 | 0.7001811 | 0.6819528 | 0 | 0 |
| LOC102723895 | 0.6997 | 0 | 0 | 0 | 0.8773 | LOC102723895-E | 0.6996895 | 0 | 0 | 0 | 0.8773129 |
| FAM83A | 0.8099 | 0.8109 | 0.7787 | 0.7244 | 0 | FAM83A-E | 0.8098533 | 0.8109225 | 0.7787395 | 0.724387 | 0 |
| RBM15 | 0 | -0.6906 | 0 | 0 | 0 | RBM15-E | 0 | -0.690639 | 0 | 0 | 0 |
| TPTE | 0 | 0.7942 | 0 | 0 | 0 | TPTE-E | 0 | 0.7941696 | 0 | 0 | 0 |
| PCSK1 | 0 | 0.7034 | 0 | 0 | 0 | PCSK1-E | 0 | 0.7033521 | 0 | 0 | 0 |
| FAM135B | 0 | -0.7077 | 0 | 0 | 0 | FAM135B-E | 0 | -0.707701 | 0 | 0 | 0 |
| OSMR | 0 | 0.6907 | 0 | 0.6919 | 0 | OSMR-E | 0 | 0.6906886 | 0 | 0.691872 | 0 |
| CDH24 | 0 | 0.7225 | 0 | 0 | 0 | CDH24-E | 0 | 0.7224781 | 0 | 0 | 0 |
| GPX3 | 0 | 0.8276 | 0.6906 | 0 | 0 | GPX3-E | 0 | 0.8275663 | 0.6906397 | 0 | 0 |
| FGG | 0 | 0.7012 | 0 | 0 | 0 | FGG-E | 0 | 0.7011918 | 0 | 0 | 0 |
| SERPINB4 | 0 | 0.7771 | 0.8989 | 0.7948 | 0 | SERPINB4-E | 0 | 0.7770645 | 0.8988655 | 0.794839 | 0 |
| SERPINB3 | 0 | 0.8695 | 0.9089 | 0.7739 | 0 | SERPINB3-E | 0 | 0.8694807 | 0.9088956 | 0.773893 | 0 |
| NLRP5 | 0 | 0.7439 | 0 | 0 | 0 | NLRP5-E | 0 | 0.7439235 | 0 | 0 | 0 |
| HPD | 0 | 0.7184 | 0 | 0 | 0 | HPD-E | 0 | 0.7183931 | 0 | 0 | 0 |
| NME8 | 0 | 0.7272 | 0 | 0 | 0 | NME8-E | 0 | 0.7272183 | 0 | 0 | 0 |
| EPO | 0 | 0.7421 | 0 | 0 | 0 | EPO-E | 0 | 0.7420872 | 0 | 0 | 0 |
| AURKC | 0 | 0.8674 | 0 | 0 | 0 | AURKC-E | 0 | 0.8674473 | 0 | 0 | 0 |
| FGB | 0 | 0.8122 | 0 | 0 | 0 | FGB-E | 0 | 0.8122023 | 0 | 0 | 0 |
| C1ORF167 | 0 | 0.8246 | 0 | 0 | 0 | C1ORF167-E | 0 | 0.8245757 | 0 | 0 | 0 |
| CALCA | 0 | 0.8817 | 0 | 0 | 0 | CALCA-E | 0 | 0.8817453 | 0 | 0 | 0 |
| IGFL1 | 0 | 0.7745 | 0 | 0 | 0 | IGFL1-E | 0 | 0.7745172 | 0 | 0 | 0 |
| STEAP4 | 0 | 0.784 | 0 | 0 | 0 | STEAP4-E | 0 | 0.7839616 | 0 | 0 | 0 |
| FGA | 0 | 0.7836 | 0 | 0 | 0 | FGA-E | 0 | 0.7836233 | 0 | 0 | 0 |
| GABRG2 | 0 | 0.7842 | 0 | 0 | 0 | GABRG2-E | 0 | 0.784246 | 0 | 0 | 0 |
| RTBDN | 0 | 0.7065 | 0 | 0 | 0 | RTBDN-E | 0 | 0.7065285 | 0 | 0 | 0 |
| PDE4D | 0 | 0.6814 | 0 | 0 | 0 | PDE4D-E | 0 | 0.681405 | 0 | 0 | 0 |
| BPIFB1 | 0 | 0.8783 | 0.7203 | 0 | 0 | BPIFB1-E | 0 | 0.8783273 | 0.7202587 | 0 | 0 |
| C8ORF87 | 0 | 0.7679 | 0 | 0 | 0 | C8ORF87-E | 0 | 0.7678946 | 0 | 0 | 0 |
| GREM2 | 0 | 0.7349 | 0 | 0 | 0 | GREM2-E | 0 | 0.7349357 | 0 | 0 | 0 |
| SFTPB | 0 | 0.8388 | 0 | 0 | 0 | SFTPB-E | 0 | 0.8387953 | 0 | 0 | 0 |
| CASP14 | 0 | 0.7278 | 0 | 0 | 0 | CASP14-E | 0 | 0.7278188 | 0 | 0 | 0 |
| VIPR2 | 0 | 0.6992 | 0 | 0 | 0 | VIPR2-E | 0 | 0.6992119 | 0 | 0 | 0 |
| CDHR4 | 0 | 0.7676 | 0 | 0 | 0 | CDHR4-E | 0 | 0.7675972 | 0 | 0 | 0 |
| CAB39 | 0 | 0.7343 | 0 | 0 | 0 | CAB39-E | 0 | 0.7343026 | 0 | 0 | 0 |
| ATP8B3 | 0 | 0.9089 | 0.7954 | 0.7233 | 0 | ATP8B3-E | 0 | 0.9089037 | 0.7953998 | 0.723321 | 0 |
| CGA | 0 | 0 | 0.6995 | 0.7129 | 0.797 | CGA-E | 0 | 0 | 0.6994623 | 0.712946 | 0.796968 |
| BPIFA1 | 0 | 0 | 0 | 0 | 0.8477 | BPIFA1-E | 0 | 0 | 0 | 0 | 0.8477194 |
| TBX18 | 0 | 0 | 0 | 0 | 0.8311 | TBX18-E | 0 | 0 | 0 | 0 | 0.8310697 |
| IL11 | 0 | 0 | 0 | 0 | 0.8036 | IL11-E | 0 | 0 | 0 | 0 | 0.8036407 |
| TESC | 0 | 0 | 0 | 0 | 0.7129 | TESC-E | 0 | 0 | 0 | 0 | 0.7128903 |
| LGMN | 0 | 0 | 0 | 0 | 0.7166 | LGMN-E | 0 | 0 | 0 | 0 | 0.7165665 |
| ECEL1 | 0 | 0 | 0 | 0 | 0.7118 | ECEL1-E | 0 | 0 | 0 | 0 | 0.71181 |
| GRIP1 | 0 | 0 | 0 | 0 | 0.8797 | GRIP1-E | 0 | 0 | 0 | 0 | 0.8797358 |
| TNFAIP6 | 0 | 0 | 0 | 0 | -0.6798 | TNFAIP6-E | 0 | 0 | 0 | 0 | -0.679754 |
| C3ORF58 | 0 | 0 | 0 | 0 | 0.8681 | C3ORF58-E | 0 | 0 | 0 | 0 | 0.8681488 |