ДОПОЛНИТЕЛЬНЫЕ МАТЕРИАЛЫ

Доп. Рис. 1. «Калькулятор» вычисления числа тканей, в которых ген экспрессируется, от отношения stddev/avg (для таблиц внизу) для 53 величин экспрессии тканей в GTEX. При отношении 7 и более – гарантированная одна ткань; при 2-3 и меньше - 5-6... 53 тканей. При 1 имеем распределение Пуассона – около половины в медиане. При ~<1 – нормальное распределение с больше чем половиной в среднем. За промежутком std/avg <2 имеется сильная нелинейность и неточность.

Приложение 1. Таблица экспрессии в CGI выборке тканеспецифичных генов (65 входов), за исключением семенников (приложение 3)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Среднее (avg)** | **Станд. Откл (std)** | **Мини мум** | **Макси мум** | **Макс/std** | **std/avg** | **tx\_id** | **genesymbol** |
| 13.80 | 99.61 | 0 | 725.3 | 3.40 | **7.22** | NR\_037915 | FAM24B-CUZD1 |
| 3.25 | 21.96 | 0 | 159.7 | 3.39 | **6.76** | NR\_027300 | C3P1 |
| 6.59 | 41.40 | 0 | 302.2 | 3.38 | **6.28** | NR\_001458 | MIR155HG |
| 5.79 | 35.99 | 0 | 260.4 | 3.35 | **6.22** | NR\_110261 | RHCG |
| 2.13 | 12.91 | 0 | 94.3 | 3.37 | **6.06** | NR\_111920 | LOC101929829 |
| 21.11 | 125.18 | 0 | 913.1 | 3.36 | **5.93** | NR\_003149 | ADGRV1 |
| 1.51 | 8.71 | 0 | 62.72 | 3.31 | **5.76** | **NR\_049726** | **TCL1A** |
| 2.38 | 13.34 | 0 | 96.48 | 3.32 | **5.60** | NR\_024058 | YWHAE |
| 1.64 | 8.44 | 0 | 61.63 | 3.33 | **5.14** | NR\_023918 | LINC00339 |
| 2.41 | **12.33** | 0 | 88.05 | 3.25 | **5.12** | NR\_033343 | PSCA |
| 6.63 | 32.41 | 0 | 237 | 3.32 | **4.89** | NR\_073461 | PNMT |
| 5.97 | 28.90 | 0 | 178.5 | 2.80 | **4.84** | NR\_024281 | LINC00599 |
| 2.27 | 10.80 | 0 | 78.13 | 3.27 | **4.76** | NR\_038877 | C8orf34-AS1 |
| 3.96 | 18.74 | 0 | 137.6 | 3.32 | **4.73** | NR\_002570 | CYP2D7 |
| 9.78 | 43.37 | 0 | 304.3 | 3.15 | **4.44** | NR\_033854 | LOC283335 |
| 10.53 | 45.92 | 0 | 332 | 3.24 | **4.36** | NR\_073560 | STXBP2 |
| 2.43 | 9.36 | 0 | 68.07 | 3.22 | **3.86** | NR\_034013 | WDR86-AS1 |
| 2.66 | 10.22 | 0 | 68.26 | 2.96 | **3.84** | NR\_002798 | NAPSB |
| 3.00 | 10.39 | 0 | 62.97 | 2.65 | **3.47** | NR\_003186 | NCF1B |
| 3.27 | 11.18 | 0 | 73.33 | 2.86 | **3.42** | NR\_121192 | PGM5-AS1 |
| 19.58 | 66.46 | 0 | 431.5 | 2.83 | **3.39** | NR\_103505 | MOBP |
| 6.21 | 20.73 | 0.09 | 126 | 2.64 | **3.34** | NR\_003187 | NCF1C |
| 2.55 | 8.32 | 0 | 56.75 | 2.96 | **3.27** | NR\_026717 | STK19 |
| 3.98 | 12.30 | 0.02 | 71.65 | 2.51 | **3.09** | NR\_027064 | TINCR |
| 30.58 | 93.86 | 0 | 577.8 | 2.65 | **3.07** | NR\_003090 | MOBP |
| 6.11 | 18.70 | 0 | 137.7 | 3.16 | **3.06** | NR\_037860 | EGFL8 |
| 9.43 | 28.74 | 0.43 | 209.6 | 3.13 | **3.05** | NR\_024158 | PP7080 |
| 29.39 | 86.96 | 0.38 | 622.6 | 3.06 | **2.96** | NR\_001447 | MT1L |
| 4.46 | 12.98 | 0.05 | 82.93 | 2.73 | **2.91** | NR\_027620 | SCGB1B2P |
| 3.02 | 8.76 | 0 | 55.64 | 2.71 | **2.90** | NR\_033849 | FAM83H-AS1 |
| 14.32 | 41.17 | 0 | 204.9 | 2.12 | **2.88** | NR\_038064 | PLIN2 |
| 22.71 | 62.60 | 0.83 | 457.4 | 3.09 | **2.76** | NR\_047516 | **ARRB2** |
| 28.05 | 76.14 | 0 | 532.5 | 2.95 | **2.71** | NR\_002196 | H19 |
| 13.11 | 35.57 | 0 | 202.1 | 2.40 | **2.71** | NR\_015423 | PGM5-AS1 |
| 116.81 | 300.51 | 0 | 1544 | 2.15 | **2.57** | NR\_002766 | MEG3 |
| 4.43 | 11.12 | 0 | 70.69 | 2.65 | **2.51** | NR\_037611 | SEPT5-GP1BB |
| 5.33 | 13.00 | 0.14 | 64.89 | 2.07 | **2.44** | NR\_110912 | KCNC3 |
| 4.66 | 11.31 | 0 | 79.39 | 2.91 | **2.43** | NR\_026699 | GLYCTK |
| 3.82 | 9.21 | 0 | 61.32 | 2.76 | **2.41** | NR\_104019 | MLPH |
| 3.68 | 8.82 | 0 | 59.72 | 2.80 | **2.40** | NR\_038262 | MIR210HG |
| 17.88 | 42.81 | 0 | 223.1 | 2.16 | **2.39** | NR\_038133 | CHN1 |
| 3.36 | 8.01 | 0 | 58.16 | 3.00 | **2.38** | NR\_125381 | LOC100288798 |
| 7.39 | 17.45 | 0 | 89.4 | 2.11 | **2.36** | NR\_036442 | LMF1 |
| 5.92 | 13.90 | 0.07 | 101.9 | 3.02 | **2.35** | NR\_027391 | SLC15A3 |
| 5.19 | 11.82 | 0 | 60.12 | 2.08 | **2.28** | NR\_075089 | SOX2-OT |
| 21.11 | 47.09 | 0 | 280.7 | 2.43 | **2.23** | NR\_003530 | MEG3 |
| 14.46 | 31.23 | 0 | 161.3 | 2.10 | **2.16** | NR\_131224 | H19 |
| 6.20 | 13.27 | 0 | 74.69 | 2.28 | **2.14** | NR\_046473 | MEG3 |
| 5.78 | 11.98 | 0 | 65.91 | 2.22 | **2.07** | NR\_046331 | BRSK2 |
| 9.51 | 19.42 | 0 | 121.5 | 2.51 | **2.04** | NR\_104035 | CERS5 |
| 5.75 | 11.16 | 0.24 | 69.95 | 2.49 | **1.94** | NR\_026811 | GOLGA2P10 |
| 9.84 | 18.88 | 0 | 120.7 | 2.54 | **1.92** | NR\_046464 | MEG3 |
| 5.52 | 10.53 | 0 | 57.06 | 2.15 | **1.91** | NR\_073112 | SERPINB1 |
| 6.84 | 12.85 | 0 | 91.5 | 2.81 | **1.88** | NR\_123740 | RIMKLB |
| 7.96 | 14.40 | 0 | 106 | 2.88 | **1.81** | NR\_033429 | ABTB1 |
| 33.16 | 54.35 | 0 | 299.2 | 2.11 | **1.64** | NR\_046467 | MEG3 |
| 6.79 | 10.49 | 0 | 59 | 2.13 | **1.54** | NR\_046308 | TSPO |
| 8.30 | 12.43 | 0.48 | 77.31 | 2.33 | **1.50** | NR\_028039 | GATS |
| 8.95 | 13.37 | 0 | 98.08 | 2.75 | **1.49** | NR\_024024 | ACAA1 |
| 70.93 | 102.85 | 0.3 | 635 | 2.30 | **1.45** | NR\_028500 | LDHA |
| 10.76 | 15.57 | 0 | 92.18 | 2.20 | **1.45** | NR\_036447 | PKD1P1 |
| 9.15 | 13.10 | 0.25 | 89.03 | 2.52 | **1.43** | NR\_028322 | LOC100132287 |
| 9.18 | 12.80 | 0.02 | 73.67 | 2.12 | **1.39** | NR\_026656 | LOC400043 |
| 7.33 | 9.88 | 0.29 | 61.92 | 2.28 | **1.35** | NR\_027001 | GOLGA2P7 |
| 10.14 | 13.01 | 0 | 72.71 | 2.01 | **1.28** | NR\_125375 | LOC100288152 |

Приложение 2. Таблица экспрессии тканеспецифичных генов в ^CGI выборке (44 входа), за исключением семенников (приложение 3). Гены упорядочены по отношению: stddev/avg. Жирным выделен ключевой показатель макс. экспрессии. Максимальное количество тканеспецифичных генов относятся к Pancreas (поджел. железа; 4 транскрипта).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Среднее (avg)** | **Станд. Откл (std)** | **Мини мум** | **Макси мум** | **Макс/std** | **std/avg** | **tx\_id** | **genesymbol** |
| 20.06 | 145.31 | 0 | **1058** | 3.41 | 7.25 | NR\_109777 | LOC100506281 |
| 3.11 | 22.43 | 0 | **163.3** | 3.40 | 7.21 | NR\_125986 | LOC101929592 |
| 7.01 | 50.30 | 0 | **366.3** | 3.40 | 7.17 | NR\_001275 | **CELP** |
| 1.45 | 10.34 | 0 | **75.33** | 3.40 | 7.11 | NR\_049735 | PTCSC3 |
| 10.14 | 72.10 | 0 | **525.1** | 3.40 | 7.11 | NR\_045762 | KLK2 |
| 1.54 | 10.94 | 0 | **79.66** | 3.40 | 7.09 | NR\_038455 | LOC100507389 |
| 3.65 | 25.46 | 0 | **185.5** | 3.40 | 6.99 | NR\_073414 | KRT16P1 |
| 4.43 | 30.73 | 0 | **223.9** | 3.40 | 6.93 | NR\_037912 | CUZD1 |
| 1.49 | 10.35 | 0 | **75.38** | 3.40 | 6.92 | **NR\_104400** | SLAMF1 |
| 7.57 | 51.76 | 0 | **377** | 3.39 | 6.84 | NR\_029392 | KRT16P2 |
| 1.98 | 13.42 | 0 | **97.81** | 3.39 | 6.77 | NR\_117092 | LOC441178 |
| 1.43 | 9.66 | 0 | **70.39** | 3.39 | 6.74 | NR\_037932 | APOC4-APOC2 |
| 5.60 | 37.70 | 0 | **274.5** | 3.39 | 6.74 | NR\_027148 | MIR7-3HG |
| 3.20 | 21.08 | 0 | **153.6** | 3.39 | 6.58 | NR\_028414 | APOC1P1 |
| 1.19 | 7.80 | 0 | **56.54** | 3.37 | 6.55 | NR\_110844 | HRAT13 |
| 3.01 | 19.29 | 0 | **139.8** | 3.36 | 6.41 | NR\_028413 | APOC1P1 |
| 1.88 | 12.00 | 0 | **86.93** | 3.36 | 6.38 | NR\_046377 | LOC728040 |
| 2.11 | 13.24 | 0 | **96.4** | 3.37 | 6.27 | NR\_026800 | KIAA0125 |
| 3.71 | 23.25 | 0 | **168.1** | 3.35 | 6.26 | NR\_036513 | LINC01405 |
| 4.05 | 24.11 | 0 | **174.1** | 3.33 | 5.96 | NR\_130720 | MUC21 |
| 1.99 | 10.18 | 0 | **72.94** | 3.26 | 5.13 | NR\_026936 | LINC01554 |
| 1.93 | 9.21 | 0 | **65.43** | 3.21 | 4.77 | NR\_125857 | EVADR |
| 2.32 | 11.03 | 0 | **80.35** | 3.29 | 4.76 | NR\_108028 | LINC01485 |
| 2.08 | 9.80 | 0 | **67.97** | 3.13 | 4.72 | NR\_104039 | FAM25BP |
| 2.62 | 12.27 | 0 | **83.21** | 3.06 | 4.69 | NR\_001278 | CYP2B7P |
| 1.87 | 8.41 | 0 | **55.33** | 2.96 | 4.51 | NR\_036581 | LINC00675 |
| 11.58 | 50.99 | 0 | **338.7** | 2.98 | 4.40 | NR\_033746 | DMKN |
| 2.09 | 8.85 | 0 | **64.24** | 3.25 | 4.23 | NR\_033807 | CYP3A5 |
| 1.93 | 7.98 | 0.02 | **55.87** | 3.12 | 4.14 | NR\_110668 | LOC101927164 |
| 2.72 | 10.48 | 0 | **64.5** | 2.72 | 3.85 | NR\_030732 | WFDC21P |
| 3.35 | 12.38 | 0 | **78.22** | 2.78 | 3.69 | NR\_002817 | AQP7P1 |
| 2.92 | 10.27 | 0.02 | **75.26** | 3.21 | 3.51 | NR\_102735 | DBH-AS1 |
| 10.78 | 36.02 | 0 | **236.8** | 2.86 | 3.34 | NR\_048564 | IL1R2 |
| 2.86 | 8.75 | 0 | **57.3** | 2.81 | 3.06 | NR\_108040 | LINC00702 |
| 33.89 | 102.24 | 0 | **538.8** | 2.26 | 3.02 | NR\_027293 | BMS1P20 |
| 4.01 | 12.07 | 0.05 | **75.48** | 2.68 | 3.01 | NR\_104098 | LILRA6 |
| 5.91 | 17.60 | 0 | **100.8** | 2.45 | 2.98 | NR\_026755 | CYP4F29P |
| 4.67 | 13.86 | 0 | **95.58** | 2.95 | 2.97 | NR\_028324 | LINC01002 |
| 19.89 | 47.88 | 0 | **267.5** | 2.31 | 2.41 | NR\_027753 | HHATL |
| 4.37 | 9.94 | 0 | **67.34** | 2.78 | 2.28 | NR\_037182 | LOC653513 |
| 8.27 | 17.49 | 0.04 | **91.37** | 2.11 | 2.11 | NR\_003190 | USP32P1 |
| 8.92 | 18.83 | 0 | **93.95** | 2.02 | 2.11 | NR\_037155 | SEPT4 |
| 8.72 | 14.45 | 0 | **87.69** | 2.33 | 1.66 | NR\_045555 | ENPP2 |
| 21.04 | 31.58 | 0.47 | **186.4** | 2.21 | 1.50 | NR\_024206 | LINC00152 |

Приложение 3. Семенник - специфические некодирующие lncRNA из CGI (выделено желтым) и ^CGI выборок.

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Среднее (avg)** | **Станд. Откл (std)** | **Мини мум** | **Макси мум** | **Макс/std** | **std/avg** | **tx\_id** | **genesymbol** |
| 1.34 | **9.54** | 0 | 69.48 | 3.40 | 7.10 | NR\_003083 | SLC6A10P |
| 1.48 | 10.75 | 0 | 78.25 | 3.41 | 7.28 | NR\_038384 | MCHR2-AS1 |
| 3.16 | 22.42 | 0 | 163.3 | 3.40 | 7.09 | NR\_034128 | LINC01191 |
| 13.40 | 94.42 | 0 | 687.8 | 3.40 | 7.05 | NR\_015343 | RBAKDN |
| 1.85 | 12.79 | 0 | 93.22 | 3.40 | 6.91 | NR\_037626 | LOC100507334 |
| 1.31 | 8.75 | 0 | 63.77 | 3.39 | 6.68 | NR\_046374 | MRVI1-AS1 |
| 1.40 | 9.22 | 0 | 67.21 | 3.39 | 6.61 | NR\_130910 | YPEL1 |
| 3.43 | 21.94 | 0 | 160.1 | 3.38 | 6.40 | NR\_034094 | MRVI1-AS1 |
| 1.25 | 7.94 | 0 | 57.95 | 3.38 | 6.37 | NR\_108105 | LOC100507468 |
| 4.82 | 30.08 | 0 | 219.6 | 3.38 | 6.25 | NR\_026761 | LINC00467 |
| 1.56 | 9.52 | 0 | 69.55 | 3.38 | 6.11 | NR\_024593 | POM121L10P |
| 1.52 | 8.25 | 0 | 60.33 | 3.35 | 5.42 | NR\_003574 | ABCA17P |
| 1.67 | 8.33 | 0 | 59.3 | 3.23 | 4.98 | NR\_036494 | LOC643201 |
| 2.80 | 13.71 | 0 | 99.78 | 3.30 | 4.89 | NR\_103775 | LOC100505984 |
| 6.55 | 31.97 | 0 | 233.7 | 3.32 | 4.88 | NR\_027142 | LOC440895 |
| 1.90 | 8.84 | 0.04 | 64.98 | 3.32 | 4.64 | NR\_003602 | LOC541473 |
| 2.29 | 10.39 | 0 | 75.29 | 3.26 | 4.53 | NR\_104593 | CENPU |
| 1.98 | 8.84 | 0 | 64.35 | 3.27 | 4.47 | NR\_034106 | CRNDE |
| 1.97 | 8.12 | 0 | 59.3 | 3.26 | 4.13 | NR\_033932 | RGMB-AS1 |
| 7.57 | 27.31 | 0 | 201.6 | 3.24 | 3.61 | NR\_073059 | C7orf55 |
| 4.60 | 13.48 | 0.08 | 98.78 | 3.13 | 2.93 | NR\_046325 | PCAT6 |
| 5.51 | 14.75 | 0 | 108.7 | 3.11 | 2.68 | NR\_038269 | LOC100506844 |
| 4.15 | 10.56 | 0.31 | 78.41 | 3.10 | 2.55 | NR\_104246 | AGBL5 |
| 4.13 | 10.44 | 0 | 76.24 | 3.05 | 2.53 | NR\_026815 | TMEM191A |
| 7.25 | 17.20 | 0 | 122.9 | 2.95 | 2.37 | NR\_034105 | CRNDE |
| 20.72 | 42.23 | 0 | 216.7 | 2.06 | 2.04 | NR\_109933 | HN1 |
| 4.56 | 7.99 | 0 | 56.33 | 2.74 | 1.75 | NR\_033385 | KLHDC9 |
| 4.57 | 7.63 | 0.16 | 57.3 | 2.89 | 1.67 | NR\_038854 | NRAV |
| 36.10 | 60.13 | 0.08 | 364.9 | 2.33 | 1.67 | NR\_024537 | GSTM3 |
| 1.09 | 7.94 | 0 | 57.8 | 3.41 | 7.27 | NR\_110793 | LINC01350 |
| 1.24 | 9.02 | 0 | 65.67 | 3.41 | 7.27 | NR\_024406 | LINC00917 |
| 1.72 | 12.47 | 0 | 90.78 | 3.41 | 7.26 | NR\_038233 | LINC00919 |
| 15.80 | 114.59 | 0 | 834.3 | 3.41 | 7.25 | **NR\_130782** | **LOC101928327** |
| 1.09 | 7.92 | 0 | 57.63 | 3.41 | 7.24 | NR\_110308 | LINC00238 |
| 2.72 | 19.65 | 0 | 143.1 | 3.41 | 7.24 | NR\_073153 | DEFB119 |
| 1.74 | 12.60 | 0 | 91.75 | 3.41 | 7.24 | NR\_034168 | SPATA42 |
| 1.13 | 8.17 | 0 | 59.49 | 3.41 | 7.23 | NR\_104028 | SORCS3-AS1 |
| 1.53 | 11.04 | 0 | 80.42 | 3.40 | 7.22 | NR\_038213 | IQCF4 |
| 1.37 | 9.92 | 0 | 72.22 | 3.40 | 7.21 | NR\_033906 | LOC442132 |
| 2.86 | 20.60 | 0 | 150 | 3.40 | 7.20 | NR\_015396 | CDIPT-AS1 |
| 2.59 | 18.62 | 0 | 135.6 | 3.40 | 7.19 | NR\_038215 | IQCF4 |
| 2.15 | 15.39 | 0 | 112.1 | 3.40 | 7.17 | NR\_026794 | LINC00202-2 |
| 5.05 | 36.20 | 0 | 263.6 | 3.40 | 7.16 | NR\_049777 | SPATA42 |
| 1.15 | 8.18 | 0 | 59.6 | 3.40 | 7.09 | NR\_038256 | LINC00943 |
| 1.13 | 7.93 | 0 | 57.73 | 3.40 | 6.98 | NR\_119385 | ZNF295-AS1 |
| 1.47 | 9.86 | 0 | 71.84 | 3.39 | 6.69 | NR\_038989 | LINC01016 |
| 1.49 | 8.92 | 0 | 65.16 | 3.37 | 6.00 | NR\_120502 | JARID2-AS1 |
| 2.43 | 14.08 | 0.02 | 102.9 | 3.36 | 5.80 | NR\_021493 | LINC00930 |
| 18.43 | 95.17 | 0 | 663 | 3.18 | **5.16** | **NR\_108079** | **MIR202HG** |
| 1.76 | 8.78 | 0 | 64.21 | 3.32 | 4.98 | NR\_026759 | FAM95B1 |
| 5.68 | 25.94 | 0 | 166.8 | 2.90 | 4.57 | NR\_108078 | MIR202HG |
| 1.84 | 7.63 | 0 | 55.67 | 3.25 | 4.14 | NR\_026795 | LINC00202-1 |
| 3.64 | 10.34 | 0 | 66.35 | 2.73 | 2.84 | NR\_028324 | LINC01002 |