

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|---------|------|-----------|--------|------|--------|-------|-------|-------|
| M00107 | E2 | | M00793 | YY1 | | BG | 0.415 | 0.584 | 0.586 |
| M00445 | Xvent-1 | | M00649 | MAZ | | FG | 0.416 | 0.544 | 0.624 |
| M00981 | CREBATF | | M00992 | FOXP3 | | BG | 0.417 | 0.520 | 0.646 |
| M00084 | MZF1 | | M00141 | Lyf-1 | | FG | 0.419 | 0.598 | 0.564 |
| M00076 | GATA-2 | | M00626 | RFX1 | | BG | 0.421 | 0.676 | 0.482 |

Table 1: Five TRANSFAC motif pairs with lowest classification error in Human AdiposeTissue.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00528 | PPAR | | M00931 | Sp-1 | | FG | 0.370 | 0.808 | 0.452 |
| M00423 | FOXJ2 | | M00716 | ZF5 | | FG | 0.378 | 0.638 | 0.606 |
| M00482 | PITX2 | | M00800 | AP-2 | | FG | 0.378 | 0.658 | 0.586 |
| M00045 | E4BP4 | | M00081 | Evi-1 | | BG | 0.396 | 0.478 | 0.730 |
| M00471 | TBP | | M00510 | Lhx3 | | BG | 0.398 | 0.346 | 0.858 |

Table 2: Five TRANSFAC motif pairs with lowest classification error in Mouse AdiposeTissue.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|---------|------|-----------|-----------|------|--------|-------|-------|-------|
| M00042 | Sox-5 | | M01010 | HMG1Y | | BG | 0.400 | 0.636 | 0.564 |
| M00255 | GC | | M00469 | AP-2alpha | | FG | 0.407 | 0.514 | 0.672 |
| M00351 | GATA-3 | | M00463 | POU3F2 | | BG | 0.407 | 0.570 | 0.616 |
| M00291 | Freac-3 | | M00499 | STAT5A | | BG | 0.409 | 0.460 | 0.722 |
| M00729 | Cdx-2 | | M00734 | CIZ | | BG | 0.411 | 0.766 | 0.412 |

Table 3: Five TRANSFAC motif pairs with lowest classification error in Human AdrenalGland.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|-----------|------|--------|-------|-------|-------|
| M00144 | BSAP | | M00803 | E2F | | FG | 0.344 | 0.790 | 0.522 |
| M00189 | AP-2 | | M00322 | c-Myc:Max | | FG | 0.353 | 0.754 | 0.540 |
| M00162 | Oct-1 | | M00802 | Pit-1 | | BG | 0.382 | 0.326 | 0.910 |
| M00616 | AFP1 | | M00725 | HP1 | | BG | 0.384 | 0.526 | 0.706 |
| M00003 | v-Myb | | M00744 | POU1F1 | | BG | 0.393 | 0.478 | 0.736 |

Table 4: Five TRANSFAC motif pairs with lowest classification error in Mouse AdrenalGland.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|---------|------|--------|-------|-------|-------|
| M00087 | Ik-2 | | M00290 | Freac-2 | | BG | 0.401 | 0.704 | 0.494 |
| M00141 | Lyf-1 | | M00205 | GR | | BG | 0.407 | 0.702 | 0.484 |
| M00196 | Sp1 | | M00982 | KROX | | FG | 0.409 | 0.490 | 0.692 |
| M00464 | POU3F2 | | M00808 | Pax | | BG | 0.410 | 0.676 | 0.504 |
| M00033 | p300 | | M00456 | FAC1 | | BG | 0.411 | 0.744 | 0.434 |

Table 5: Five TRANSFAC motif pairs with lowest classification error in Human Amygdala.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|----------|------|-----------|-------------|------|--------|-------|-------|-------|
| M00025 | Elk-1 | | M00478 | Cdc5 | | BG | 0.393 | 0.538 | 0.676 |
| M00239 | v-ErbA | | M00482 | PITX2 | | BG | 0.402 | 0.618 | 0.578 |
| M00330 | Major | | M00644 | LBP-1 | | FG | 0.423 | 0.396 | 0.758 |
| M00073 | deltaEF1 | | M00720 | CAC-binding | | FG | 0.424 | 0.472 | 0.680 |
| M00378 | Pax-4 | | M00626 | RFX1 | | FG | 0.425 | 0.404 | 0.746 |

Table 6: Five TRANSFAC motif pairs with lowest classification error in Mouse Amygdala.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00394 | Msx-1 | | M00940 | E2F-1 | | BG | 0.390 | 0.602 | 0.618 |
| M00224 | STAT1 | | M01002 | DEAF1 | | BG | 0.397 | 0.574 | 0.632 |
| M00419 | MEIS1 | | M00965 | LXR, | | FG | 0.408 | 0.522 | 0.662 |
| M00193 | NF-1 | | M00495 | Bach1 | | FG | 0.411 | 0.706 | 0.472 |
| M00976 | AHRHIF | | M01014 | SOX | | BG | 0.413 | 0.484 | 0.690 |

Table 7: Five TRANSFAC motif pairs with lowest classification error in Human BoneMarrow.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|------|-----------|--------|------|--------|-------|-------|-------|
| M00803 | E2F | | M00916 | CREB | | BG | 0.373 | 0.690 | 0.564 |
| M00322 | c-Myc:Max | | M00652 | Nrf-1 | | BG | 0.386 | 0.684 | 0.544 |
| M00332 | Whn | | M00979 | PAX6 | | BG | 0.398 | 0.716 | 0.488 |
| M00109 | C/EBPbeta | | M00465 | POU6F1 | | FG | 0.407 | 0.450 | 0.736 |
| M00203 | GATA-X | | M00258 | ISRE | | FG | 0.411 | 0.444 | 0.734 |

Table 8: Five TRANSFAC motif pairs with lowest classification error in Mouse BoneMarrow.











| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------------|---|-----------|--------|--|--------|-------|-------|-------|
| M00017 | ATF |  | M00793 | YY1 |  | FG | 0.403 | 0.416 | 0.778 |
| M00431 | E2F-1 |  | M00480 | LUN-1 |  | FG | 0.403 | 0.602 | 0.592 |
| M00032 | c-Ets-1(p54) |  | M00423 | FOXJ2 |  | FG | 0.406 | 0.328 | 0.860 |
| M00257 | RREB-1 |  | M00993 | TAL1 |  | BG | 0.425 | 0.472 | 0.678 |
| M00147 | HSF2 |  | M00175 | AP-4 |  | BG | 0.427 | 0.446 | 0.700 |

Table 9: Five TRANSFAC motif pairs with lowest classification error in Human CD4TCells.











| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|---|-----------|--------|--|--------|-------|-------|-------|
| M00025 | Elk-1 |  | M00273 | R |  | FG | 0.388 | 0.524 | 0.700 |
| M00316 | Imperfect |  | M00803 | E2F |  | FG | 0.390 | 0.700 | 0.520 |
| M00256 | NRSF |  | M00799 | Myc |  | FG | 0.402 | 0.652 | 0.544 |
| M00042 | Sox-5 |  | M00770 | C/EBP |  | BG | 0.411 | 0.360 | 0.818 |
| M00269 | XFD-3 |  | M01004 | Helios |  | BG | 0.413 | 0.486 | 0.688 |

Table 10: Five TRANSFAC motif pairs with lowest classification error in Mouse CD4TCells.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|---------------|------|--------|-------|-------|-------|
| M00691 | ATF-1 | | M00743 | c-Ets-1 | | FG | 0.384 | 0.500 | 0.732 |
| M00695 | ETF | | M00793 | YY1 | | FG | 0.399 | 0.512 | 0.690 |
| M00083 | MZF1 | | M00272 | p53 | | BG | 0.422 | 0.424 | 0.732 |
| M00001 | MyoD | | M00720 | CAC-binding | | BG | 0.423 | 0.620 | 0.534 |
| M00330 | Major | | M00721 | CACCC-binding | | BG | 0.425 | 0.502 | 0.648 |

Table 11: Five TRANSFAC motif pairs with lowest classification error in Human CD8TCells.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|------|-----------|--------|------|--------|-------|-------|-------|
| M00025 | Elk-1 | | M00317 | Poly | | FG | 0.413 | 0.456 | 0.718 |
| M00176 | AP-4 | | M00935 | NF-AT | | BG | 0.423 | 0.526 | 0.628 |
| M00761 | p53 | | M00810 | SRF | | FG | 0.424 | 0.500 | 0.652 |
| M00316 | Imperfect | | M00800 | AP-2 | | FG | 0.424 | 0.612 | 0.540 |
| M00481 | AR | | M01009 | HES1 | | FG | 0.424 | 0.670 | 0.482 |

Table 12: Five TRANSFAC motif pairs with lowest classification error in Mouse CD8TCells.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|-------------|------|--------|-------|-------|-------|
| M00025 | Elk-1 | | M00102 | CDP | | BG | 0.388 | 0.492 | 0.732 |
| M00526 | GCNF | | M00742 | HFH-4 | | BG | 0.390 | 0.686 | 0.534 |
| M00467 | Roaz | | M00720 | CAC-binding | | FG | 0.397 | 0.552 | 0.654 |
| M00128 | GATA-1 | | M00432 | TTF1 | | BG | 0.400 | 0.710 | 0.490 |
| M00423 | FOXJ2 | | M00478 | Cdc5 | | BG | 0.402 | 0.640 | 0.556 |

Table 13: Five TRANSFAC motif pairs with lowest classification error in Human Cerebellum.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00058 | HEN1 | | M00933 | Sp-1 | | FG | 0.395 | 0.482 | 0.728 |
| M00716 | ZF5 | | M00993 | TAL1 | | FG | 0.398 | 0.654 | 0.550 |
| M00152 | SRF | | M00258 | ISRE | | BG | 0.401 | 0.716 | 0.482 |
| M00146 | HSF1 | | M00478 | Cdc5 | | BG | 0.403 | 0.534 | 0.660 |
| M00162 | Oct-1 | | M00216 | TATA | | BG | 0.406 | 0.556 | 0.632 |

Table 14: Five TRANSFAC motif pairs with lowest classification error in Mouse Cerebellum.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------------|------|-----------|--------|------|--------|-------|-------|-------|
| M00651 | NF- μ E1 | | M00695 | ETF | | BG | 0.332 | 0.728 | 0.608 |
| M00539 | Arnt | | M00803 | E2F | | BG | 0.347 | 0.832 | 0.474 |
| M00128 | GATA-1 | | M00639 | HNF-6 | | FG | 0.368 | 0.476 | 0.788 |
| M00136 | Oct-1 | | M00630 | FOXM1 | | FG | 0.372 | 0.558 | 0.698 |
| M00250 | Gfi-1 | | M01017 | PBX1 | | FG | 0.373 | 0.468 | 0.786 |

Table 15: Five TRANSFAC motif pairs with lowest classification error in Human DorsalRootGanglia.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|------|-----------|--------|------|--------|-------|-------|-------|
| M00469 | AP-2alpha | | M00927 | AP-4 | | FG | 0.373 | 0.622 | 0.632 |
| M00105 | CDP | | M00716 | ZF5 | | FG | 0.383 | 0.666 | 0.568 |
| M00338 | ATF | | M00510 | Lhx3 | | BG | 0.395 | 0.670 | 0.540 |
| M00466 | HIF-1 | | M00644 | LBP-1 | | FG | 0.397 | 0.608 | 0.598 |
| M00231 | MEF-2 | | M00334 | D-Type | | BG | 0.401 | 0.484 | 0.714 |

Table 16: Five TRANSFAC motif pairs with lowest classification error in Mouse DorsalRootGanglia.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00241 | Nkx2-5 | | M00424 | NKX6-1 | | BG | 0.375 | 0.698 | 0.552 |
| M00729 | Cdx-2 | | M00744 | POU1F1 | | BG | 0.375 | 0.706 | 0.544 |
| M00042 | Sox-5 | | M00510 | Lhx3 | | BG | 0.379 | 0.672 | 0.570 |
| M00133 | Tst-1 | | M00248 | Oct-1 | | BG | 0.380 | 0.540 | 0.700 |
| M00311 | ATATA | | M00809 | FOX | | BG | 0.383 | 0.562 | 0.672 |

Table 17: Five TRANSFAC motif pairs with lowest classification error in Human Heart.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|------|-----------|---------|------|--------|-------|-------|-------|
| M00157 | RORalpha2 | | M00311 | ATATA | | FG | 0.417 | 0.654 | 0.512 |
| M00424 | NKX6-1 | | M00437 | CHX10 | | FG | 0.418 | 0.456 | 0.708 |
| M00448 | Zic1 | | M00743 | c-Ets-1 | | BG | 0.419 | 0.520 | 0.642 |
| M00489 | Nkx6-2 | | M00985 | Stra13 | | FG | 0.419 | 0.574 | 0.588 |
| M00766 | LXR | | M01004 | Helios | | FG | 0.424 | 0.704 | 0.448 |

Table 18: Five TRANSFAC motif pairs with lowest classification error in Mouse Heart.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|----------|------|--------|-------|-------|-------|
| M00243 | Egr-1 | | M00807 | EGR | | FG | 0.408 | 0.548 | 0.636 |
| M00196 | Sp1 | | M00941 | MEF-2 | | FG | 0.412 | 0.474 | 0.702 |
| M00332 | Whn | | M00976 | AHRHIF | | FG | 0.417 | 0.590 | 0.576 |
| M00413 | AREB6 | | M00670 | TCF-1(P) | | BG | 0.418 | 0.388 | 0.776 |
| M00526 | GCNF | | M00655 | PEA3 | | BG | 0.421 | 0.434 | 0.724 |

Table 19: Five TRANSFAC motif pairs with lowest classification error in Human Hypothalamus.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|----------------|------|--------|-------|-------|-------|
| M00695 | ETF | | M01013 | IPF1 | | FG | 0.399 | 0.734 | 0.468 |
| M00239 | v-ErbA | | M00492 | STAT1 | | BG | 0.409 | 0.524 | 0.658 |
| M00491 | MAZR | | M00980 | TBP | | FG | 0.411 | 0.622 | 0.556 |
| M00136 | Oct-1 | | M00333 | ZF5 | | FG | 0.421 | 0.396 | 0.762 |
| M00650 | MTF-1 | | M00947 | CP2/LBP-1c/LSF | | FG | 0.421 | 0.662 | 0.496 |

Table 20: Five TRANSFAC motif pairs with lowest classification error in Mouse Hypothalamus.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|------------|------|--------|-------|-------|-------|
| M00025 | Elk-1 | | M01010 | HMG1Y | | BG | 0.382 | 0.562 | 0.674 |
| M00083 | MZF1 | | M00646 | LF-A1 | | FG | 0.405 | 0.442 | 0.748 |
| M00101 | CdxA | | M00739 | E2F-4:DP-2 | | BG | 0.406 | 0.440 | 0.748 |
| M00223 | STATx | | M00991 | CDX | | BG | 0.406 | 0.618 | 0.570 |
| M00072 | CP2 | | M00319 | MEF-3 | | FG | 0.408 | 0.694 | 0.490 |

Table 21: Five TRANSFAC motif pairs with lowest classification error in Human Kidney.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|------|-----------|--------|------|--------|-------|-------|-------|
| M00469 | AP-2alpha | | M00684 | XPF-1 | | FG | 0.396 | 0.686 | 0.522 |
| M00134 | HNF-4 | | M00206 | HNF-1 | | FG | 0.406 | 0.448 | 0.740 |
| M00255 | GC | | M00796 | USF | | FG | 0.420 | 0.628 | 0.532 |
| M00428 | E2F-1 | | M00652 | Nrf-1 | | BG | 0.427 | 0.462 | 0.684 |
| M00181 | E2 | | M01002 | DEAF1 | | BG | 0.430 | 0.544 | 0.596 |

Table 22: Five TRANSFAC motif pairs with lowest classification error in Mouse Kidney.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00103 | Clox | | M00918 | E2F | | BG | 0.364 | 0.554 | 0.718 |
| M00465 | POU6F1 | | M00695 | ETF | | BG | 0.376 | 0.648 | 0.600 |
| M00071 | E47 | | M00646 | LF-A1 | | FG | 0.384 | 0.602 | 0.630 |
| M00129 | HFH-1 | | M00224 | STAT1 | | BG | 0.385 | 0.714 | 0.516 |
| M00025 | Elk-1 | | M00248 | Oct-1 | | BG | 0.389 | 0.496 | 0.726 |

Table 23: Five TRANSFAC motif pairs with lowest classification error in Human Liver.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------------|------|-----------|-----------|------|--------|-------|-------|-------|
| M00332 | Whn | | M00716 | ZF5 | | BG | 0.345 | 0.730 | 0.580 |
| M00322 | c-Myc:Max | | M00695 | ETF | | BG | 0.358 | 0.504 | 0.780 |
| M00162 | Oct-1 | | M00912 | C-EBP | | FG | 0.398 | 0.526 | 0.678 |
| M00124 | Pbx1b | | M00150 | Brachyury | | FG | 0.399 | 0.602 | 0.600 |
| M00722 | core-binding | | M00790 | HNF-1 | | FG | 0.406 | 0.498 | 0.690 |

Table 24: Five TRANSFAC motif pairs with lowest classification error in Mouse Liver.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00045 | E4BP4 | | M00162 | Oct-1 | | BG | 0.334 | 0.604 | 0.728 |
| M00510 | Lhx3 | | M00672 | TEF | | BG | 0.341 | 0.648 | 0.670 |
| M00132 | HNF-1 | | M00802 | Pit-1 | | BG | 0.342 | 0.630 | 0.686 |
| M00095 | CDP | | M00402 | MEF-2 | | BG | 0.346 | 0.678 | 0.630 |
| M00729 | Cdx-2 | | M00744 | POU1F1 | | BG | 0.347 | 0.610 | 0.696 |

Table 25: Five TRANSFAC motif pairs with lowest classification error in Human Lung.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-------------|------|-----------|---------|------|--------|-------|-------|-------|
| M00463 | POU3F2 | | M01000 | AIRE | | BG | 0.371 | 0.612 | 0.646 |
| M00138 | Oct-1 | | M00293 | Freac-7 | | BG | 0.374 | 0.508 | 0.744 |
| M00648 | MAF | | M00932 | Sp-1 | | FG | 0.375 | 0.608 | 0.642 |
| M00720 | CAC-binding | | M00800 | AP-2 | | FG | 0.377 | 0.718 | 0.528 |
| M00103 | Clox | | M00772 | IRF | | BG | 0.378 | 0.510 | 0.734 |

Table 26: Five TRANSFAC motif pairs with lowest classification error in Mouse Lung.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|----------|------|--------|-------|-------|-------|
| M00183 | c-Myb | | M00235 | AhR:Arnt | | FG | 0.410 | 0.560 | 0.620 |
| M00238 | Barbie | | M00419 | MEIS1 | | FG | 0.412 | 0.592 | 0.584 |
| M00658 | PU.1 | | M00806 | NF-1 | | FG | 0.414 | 0.508 | 0.664 |
| M00034 | p53 | | M00059 | YY1 | | FG | 0.419 | 0.574 | 0.588 |
| M00188 | AP-1 | | M00772 | IRF | | FG | 0.421 | 0.490 | 0.668 |

Table 27: Five TRANSFAC motif pairs with lowest classification error in Human LymphNode.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|---------|------|--------|-------|-------|-------|
| M00803 | E2F | | M01002 | DEAF1 | | BG | 0.395 | 0.448 | 0.762 |
| M00035 | v-Maf | | M00468 | AP-2rep | | FG | 0.395 | 0.646 | 0.564 |
| M00480 | LUN-1 | | M00532 | RP58 | | FG | 0.401 | 0.520 | 0.678 |
| M00658 | PU.1 | | M00761 | p53 | | FG | 0.402 | 0.440 | 0.756 |
| M00277 | Lmo2 | | M00984 | PEBP | | FG | 0.402 | 0.572 | 0.624 |

Table 28: Five TRANSFAC motif pairs with lowest classification error in Mouse LymphNode.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|-----------|------|--------|-------|-------|-------|
| M00025 | Elk-1 | | M00695 | ETF | | BG | 0.387 | 0.596 | 0.630 |
| M00145 | Brn-2 | | M00803 | E2F | | BG | 0.398 | 0.664 | 0.540 |
| M00800 | AP-2 | | M00801 | CREB | | BG | 0.410 | 0.538 | 0.642 |
| M00961 | VDR | | M00986 | Churchill | | BG | 0.410 | 0.734 | 0.446 |
| M00935 | NF-AT | | M00998 | PBX | | FG | 0.411 | 0.426 | 0.752 |

Table 29: Five TRANSFAC motif pairs with lowest classification error in Human OlfactoryBulb.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|---------------------|------|-----------|-------------|------|--------|-------|-------|-------|
| M00518 | PPARalpha:RXR-alpha | | M00720 | CAC-binding | | FG | 0.391 | 0.530 | 0.688 |
| M00422 | FOXJ2 | | M00773 | MYB | | BG | 0.397 | 0.684 | 0.522 |
| M00025 | Elk-1 | | M00124 | Pbx1b | | BG | 0.400 | 0.496 | 0.704 |
| M00152 | SRF | | M00482 | PITX2 | | BG | 0.401 | 0.430 | 0.768 |
| M00316 | Imperfect | | M00912 | C-EBP | | BG | 0.403 | 0.428 | 0.766 |

Table 30: Five TRANSFAC motif pairs with lowest classification error in Mouse OlfactoryBulb.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00695 | ETF | | M00976 | AHRHIF | | BG | 0.368 | 0.750 | 0.514 |
| M00136 | Oct-1 | | M00428 | E2F-1 | | BG | 0.384 | 0.608 | 0.624 |
| M00485 | Nkx2-2 | | M00960 | PR, | | FG | 0.391 | 0.550 | 0.668 |
| M00459 | STAT5B | | M00478 | Cdc5 | | FG | 0.396 | 0.592 | 0.616 |
| M00152 | SRF | | M00980 | TBP | | FG | 0.399 | 0.504 | 0.698 |

Table 31: Five TRANSFAC motif pairs with lowest classification error in Human Ovary.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00144 | BSAP | | M00716 | ZF5 | | FG | 0.300 | 0.780 | 0.620 |
| M00079 | Evi-1 | | M00802 | Pit-1 | | BG | 0.334 | 0.644 | 0.688 |
| M00138 | Oct-1 | | M00423 | FOXJ2 | | BG | 0.355 | 0.528 | 0.762 |
| M00451 | NKX3A | | M00640 | HOXA4 | | BG | 0.357 | 0.478 | 0.808 |
| M00310 | APOLYA | | M00744 | POU1F1 | | BG | 0.358 | 0.524 | 0.760 |

Table 32: Five TRANSFAC motif pairs with lowest classification error in Mouse Ovary.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00489 | Nkx6-2 | | M00976 | AHRHIF | | BG | 0.394 | 0.628 | 0.584 |
| M00272 | p53 | | M00444 | VDR | | FG | 0.406 | 0.522 | 0.666 |
| M00451 | NKX3A | | M00918 | E2F | | BG | 0.408 | 0.504 | 0.680 |
| M00105 | CDP | | M00185 | NF-Y | | BG | 0.409 | 0.510 | 0.672 |
| M00025 | Elk-1 | | M00695 | ETF | | BG | 0.413 | 0.584 | 0.590 |

Table 33: Five TRANSFAC motif pairs with lowest classification error in Human Pancreas.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00144 | BSAP | | M00803 | E2F | | BG | 0.311 | 0.794 | 0.584 |
| M00350 | GATA-3 | | M01017 | PBX1 | | FG | 0.380 | 0.550 | 0.690 |
| M00099 | S8 | | M00162 | Oct-1 | | FG | 0.393 | 0.506 | 0.708 |
| M00203 | GATA-X | | M00690 | AP-3 | | FG | 0.394 | 0.656 | 0.556 |
| M00199 | AP-1 | | M00209 | NF-Y | | FG | 0.401 | 0.656 | 0.542 |

Table 34: Five TRANSFAC motif pairs with lowest classification error in Mouse Pancreas.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|------|-----------|---------|------|--------|-------|-------|-------|
| M00251 | XBP-1 | | M00716 | ZF5 | | FG | 0.405 | 0.614 | 0.576 |
| M00257 | RREB-1 | | M00313 | GEN-1N1 | | FG | 0.405 | 0.664 | 0.526 |
| M00156 | RORalpha1 | | M00711 | Zta | | BG | 0.419 | 0.476 | 0.686 |
| M00245 | Egr-3 | | M00510 | Lhx3 | | FG | 0.423 | 0.434 | 0.720 |
| M00084 | MZF1 | | M00467 | Roaz | | FG | 0.425 | 0.452 | 0.698 |

Table 35: Five TRANSFAC motif pairs with lowest classification error in Human Pituitary.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------------|------|-----------|--------|------|--------|-------|-------|-------|
| M00249 | CHOP:C/EBPalpha | | M00448 | Zic1 | | FG | 0.403 | 0.714 | 0.480 |
| M00716 | ZF5 | | M00761 | p53 | | FG | 0.406 | 0.612 | 0.576 |
| M00460 | STAT5A | | M00727 | SF-1 | | BG | 0.407 | 0.734 | 0.452 |
| M00332 | Whn | | M00419 | MEIS1 | | FG | 0.414 | 0.714 | 0.458 |
| M00181 | E2 | | M00329 | Pax-9 | | FG | 0.415 | 0.540 | 0.630 |

Table 36: Five TRANSFAC motif pairs with lowest classification error in Mouse Pituitary.











| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|------------|---|-----------|--------|--|--------|-------|-------|-------|
| M00444 | VDR |  | M00491 | MAZR |  | FG | 0.362 | 0.670 | 0.606 |
| M00622 | C/EBPgamma |  | M00639 | HNF-6 |  | BG | 0.377 | 0.500 | 0.746 |
| M00451 | NKX3A |  | M00630 | FOXM1 |  | BG | 0.377 | 0.648 | 0.598 |
| M00040 | CRE-BP1 |  | M00402 | MEF-2 |  | BG | 0.379 | 0.608 | 0.634 |
| M00423 | FOXJ2 |  | M00465 | POU6F1 |  | BG | 0.381 | 0.660 | 0.578 |

Table 37: Five TRANSFAC motif pairs with lowest classification error in Human Placenta.











| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|---|-----------|----------|--|--------|-------|-------|-------|
| M00102 | CDP |  | M00920 | E2F |  | BG | 0.397 | 0.572 | 0.634 |
| M00332 | Whn |  | M00416 | Cart-1 |  | BG | 0.415 | 0.522 | 0.648 |
| M00024 | E2F |  | M00114 | Tax/CREB |  | BG | 0.417 | 0.540 | 0.626 |
| M00322 | c-Myc:Max |  | M00651 | NF-muE1 |  | BG | 0.420 | 0.424 | 0.736 |
| M00470 | AP-2gamma |  | M00632 | GATA-4 |  | FG | 0.422 | 0.508 | 0.648 |

Table 38: Five TRANSFAC motif pairs with lowest classification error in Mouse Placenta.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|---------|------|-----------|--------------|------|--------|-------|-------|-------|
| M00932 | Sp-1 | | M00977 | EBF | | FG | 0.392 | 0.616 | 0.600 |
| M00082 | Evi-1 | | M00421 | MEIS1B:HOXA9 | | BG | 0.398 | 0.578 | 0.626 |
| M00040 | CRE-BP1 | | M00410 | SOX-9 | | BG | 0.400 | 0.604 | 0.596 |
| M00418 | TGIF | | M00478 | Cdc5 | | BG | 0.400 | 0.634 | 0.566 |
| M00453 | IRF-7 | | M00538 | HTF | | BG | 0.403 | 0.596 | 0.598 |

Table 39: Five TRANSFAC motif pairs with lowest classification error in Human Prostate.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|-----------|------|--------|-------|-------|-------|
| M00099 | S8 | | M00803 | E2F | | FG | 0.384 | 0.730 | 0.502 |
| M00078 | Evi-1 | | M00695 | ETF | | FG | 0.400 | 0.522 | 0.678 |
| M00532 | RP58 | | M00986 | Churchill | | FG | 0.404 | 0.596 | 0.596 |
| M00321 | Muscle | | M00793 | YY1 | | FG | 0.405 | 0.480 | 0.710 |
| M00328 | Pax-8 | | M00351 | GATA-3 | | BG | 0.420 | 0.546 | 0.614 |

Table 40: Five TRANSFAC motif pairs with lowest classification error in Mouse Prostate.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------------|------|-----------|--------|------|--------|-------|-------|-------|
| M00651 | NF- μ E1 | | M00695 | ETF | | BG | 0.325 | 0.736 | 0.614 |
| M00100 | CdxA | | M00770 | C/EBP | | FG | 0.336 | 0.536 | 0.792 |
| M00332 | Whn | | M00939 | E2F-1 | | BG | 0.336 | 0.742 | 0.586 |
| M00145 | Brn-2 | | M00624 | DBP | | FG | 0.349 | 0.608 | 0.694 |
| M00136 | Oct-1 | | M00477 | FOXO3 | | FG | 0.350 | 0.534 | 0.766 |

Table 41: Five TRANSFAC motif pairs with lowest classification error in Human SalivaryGland.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------|------|-----------|---------|------|--------|-------|-------|-------|
| M00346 | GATA-1 | | M00918 | E2F | | BG | 0.378 | 0.522 | 0.722 |
| M00332 | Whn | | M00652 | Nrf-1 | | BG | 0.381 | 0.684 | 0.554 |
| M00189 | AP-2 | | M00743 | c-Ets-1 | | BG | 0.386 | 0.594 | 0.634 |
| M00109 | C/EBPbeta | | M01017 | PBX1 | | FG | 0.398 | 0.562 | 0.642 |
| M00126 | GATA-1 | | M00419 | MEIS1 | | FG | 0.399 | 0.558 | 0.644 |

Table 42: Five TRANSFAC motif pairs with lowest classification error in Mouse SalivaryGland.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|----------------|------|-----------|---------|------|--------|-------|-------|-------|
| M00227 | v-Myb | | M00939 | E2F-1 | | BG | 0.337 | 0.700 | 0.626 |
| M00695 | ETF | | M00743 | c-Ets-1 | | BG | 0.340 | 0.616 | 0.704 |
| M00310 | APOLYA | | M00802 | Pit-1 | | FG | 0.401 | 0.408 | 0.790 |
| M00066 | Tal-1alpha:E47 | | M00962 | AR | | FG | 0.402 | 0.568 | 0.628 |
| M00477 | FOXO3 | | M00517 | AP-1 | | FG | 0.404 | 0.518 | 0.674 |

Table 43: Five TRANSFAC motif pairs with lowest classification error in Human SkeletalMuscle.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00474 | FOXO1 | | M00940 | E2F-1 | | BG | 0.415 | 0.482 | 0.688 |
| M00224 | STAT1 | | M00773 | MYB | | BG | 0.417 | 0.454 | 0.712 |
| M00330 | Major | | M00959 | ER | | FG | 0.418 | 0.520 | 0.644 |
| M00045 | E4BP4 | | M00410 | SOX-9 | | BG | 0.420 | 0.454 | 0.706 |
| M00231 | MEF-2 | | M00800 | AP-2 | | FG | 0.422 | 0.508 | 0.648 |

Table 44: Five TRANSFAC motif pairs with lowest classification error in Mouse SkeletalMuscle.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|---------------|------|--------|-------|-------|-------|
| M00255 | GC | | M00979 | PAX6 | | FG | 0.393 | 0.702 | 0.512 |
| M00690 | AP-3 | | M00795 | Octamer | | BG | 0.394 | 0.478 | 0.734 |
| M00498 | STAT4 | | M00631 | FXR/RXR-alpha | | BG | 0.395 | 0.644 | 0.566 |
| M00121 | USF | | M00939 | E2F-1 | | FG | 0.400 | 0.546 | 0.654 |
| M00203 | GATA-X | | M00941 | MEF-2 | | BG | 0.401 | 0.416 | 0.782 |

Table 45: Five TRANSFAC motif pairs with lowest classification error in Human Testis.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00332 | Whn | | M00497 | STAT3 | | BG | 0.408 | 0.572 | 0.612 |
| M00189 | AP-2 | | M00341 | GABP | | BG | 0.410 | 0.600 | 0.580 |
| M00228 | VBP | | M00975 | RFX | | FG | 0.412 | 0.376 | 0.800 |
| M00227 | v-Myb | | M00254 | CCAAT | | FG | 0.412 | 0.600 | 0.576 |
| M00639 | HNF-6 | | M01009 | HES1 | | FG | 0.413 | 0.614 | 0.560 |

Table 46: Five TRANSFAC motif pairs with lowest classification error in Mouse Testis.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00045 | E4BP4 | | M00101 | CdxA | | BG | 0.380 | 0.580 | 0.660 |
| M00080 | Evi-1 | | M00802 | Pit-1 | | BG | 0.388 | 0.638 | 0.586 |
| M00350 | GATA-3 | | M00477 | FOXO3 | | BG | 0.391 | 0.576 | 0.642 |
| M00145 | Brn-2 | | M00478 | Cdc5 | | BG | 0.393 | 0.602 | 0.612 |
| M00133 | Tst-1 | | M01007 | SRF | | BG | 0.398 | 0.464 | 0.740 |

Table 47: Five TRANSFAC motif pairs with lowest classification error in Human Thymus.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------------|------|-----------|--------|------|--------|-------|-------|-------|
| M00476 | FOXO4 | | M00918 | E2F | | FG | 0.360 | 0.578 | 0.702 |
| M00025 | Elk-1 | | M00332 | Whn | | FG | 0.383 | 0.626 | 0.608 |
| M00349 | GATA-2 | | M00704 | TEF-1 | | BG | 0.407 | 0.544 | 0.642 |
| M00082 | Evi-1 | | M00285 | TCF11 | | BG | 0.422 | 0.522 | 0.634 |
| M00070 | Tal-1beta:ITF-2 | | M00326 | Pax-1 | | BG | 0.424 | 0.466 | 0.686 |

Table 48: Five TRANSFAC motif pairs with lowest classification error in Mouse Thymus.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|--------|------|--------|-------|-------|-------|
| M00695 | ETF | | M01017 | PBX1 | | FG | 0.403 | 0.672 | 0.522 |
| M00034 | p53 | | M00652 | Nrf-1 | | FG | 0.407 | 0.626 | 0.560 |
| M00189 | AP-2 | | M00463 | POU3F2 | | FG | 0.414 | 0.572 | 0.600 |
| M00126 | GATA-1 | | M00794 | TTF-1 | | BG | 0.414 | 0.590 | 0.582 |
| M00084 | MZF1 | | M00928 | E2 | | BG | 0.417 | 0.590 | 0.576 |

Table 49: Five TRANSFAC motif pairs with lowest classification error in Human Thyroid.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|----------|------|-----------|-----------|------|--------|-------|-------|-------|
| M00114 | Tax/CREB | | M00695 | ETF | | BG | 0.343 | 0.688 | 0.626 |
| M00803 | E2F | | M00986 | Churchill | | BG | 0.345 | 0.706 | 0.604 |
| M00045 | E4BP4 | | M00199 | AP-1 | | FG | 0.381 | 0.634 | 0.604 |
| M00161 | Oct-1 | | M00639 | HNF-6 | | FG | 0.386 | 0.610 | 0.618 |
| M00079 | Evi-1 | | M00351 | GATA-3 | | FG | 0.389 | 0.556 | 0.666 |

Table 50: Five TRANSFAC motif pairs with lowest classification error in Mouse Thyroid.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|-----------------|------|-----------|--------|------|--------|-------|-------|-------|
| M00005 | AP-4 | | M00808 | Pax | | FG | 0.416 | 0.646 | 0.522 |
| M00238 | Barbie | | M00444 | VDR | | FG | 0.418 | 0.498 | 0.666 |
| M00249 | CHOP:C/EBPalpha | | M00652 | Nrf-1 | | BG | 0.418 | 0.650 | 0.514 |
| M00155 | ARP-1 | | M00801 | CREB | | BG | 0.421 | 0.472 | 0.686 |
| M00701 | SMAD-3 | | M00775 | NF-Y | | FG | 0.421 | 0.542 | 0.616 |

Table 51: Five TRANSFAC motif pairs with lowest classification error in Human Trachea.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|-------------|------|--------|-------|-------|-------|
| M00729 | Cdx-2 | | M00931 | Sp-1 | | FG | 0.403 | 0.656 | 0.538 |
| M00187 | USF | | M00646 | LF-A1 | | FG | 0.404 | 0.720 | 0.472 |
| M00130 | FOXD3 | | M00665 | Sp3 | | FG | 0.408 | 0.528 | 0.656 |
| M00500 | STAT6 | | M00761 | p53 | | FG | 0.412 | 0.528 | 0.648 |
| M00526 | GCNF | | M00720 | CAC-binding | | FG | 0.414 | 0.648 | 0.524 |

Table 52: Five TRANSFAC motif pairs with lowest classification error in Mouse Trachea.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------------|------|-----------|--------|------|--------|-------|-------|-------|
| M00651 | NF- μ E1 | | M00918 | E2F | | BG | 0.326 | 0.700 | 0.648 |
| M00652 | Nrf-1 | | M00695 | ETF | | BG | 0.351 | 0.808 | 0.490 |
| M00342 | Oct-1 | | M00802 | Pit-1 | | FG | 0.379 | 0.552 | 0.690 |
| M00212 | Retroviral | | M00311 | ATATA | | FG | 0.381 | 0.520 | 0.718 |
| M00250 | Gfi-1 | | M01014 | SOX | | FG | 0.382 | 0.478 | 0.758 |

Table 53: Five TRANSFAC motif pairs with lowest classification error in Human TrigeminalGanglion.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------|------|-----------|------------|------|--------|-------|-------|-------|
| M00432 | TTF1 | | M00764 | HNF-4 | | FG | 0.415 | 0.558 | 0.612 |
| M00133 | Tst-1 | | M00767 | FXR | | FG | 0.420 | 0.450 | 0.710 |
| M00406 | MEF-2 | | M00621 | C/EBPdelta | | FG | 0.421 | 0.642 | 0.516 |
| M00639 | HNF-6 | | M00707 | TFIIA | | FG | 0.422 | 0.562 | 0.594 |
| M00082 | Evi-1 | | M00127 | GATA-1 | | FG | 0.424 | 0.466 | 0.686 |

Table 54: Five TRANSFAC motif pairs with lowest classification error in Mouse TrigeminalGanglion.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|--------------|------|-----------|-----------|------|--------|-------|-------|-------|
| M00277 | Lmo2 | | M00665 | Sp3 | | BG | 0.401 | 0.550 | 0.648 |
| M00406 | MEF-2 | | M00978 | LEF1/TCF1 | | FG | 0.403 | 0.612 | 0.582 |
| M00237 | AhR:Arnt | | M00478 | Cdc5 | | FG | 0.408 | 0.608 | 0.576 |
| M00069 | YY1 | | M00211 | Poly | | BG | 0.408 | 0.680 | 0.504 |
| M00420 | MEIS1A:HOXA9 | | M00436 | IPF1 | | FG | 0.409 | 0.620 | 0.562 |

Table 55: Five TRANSFAC motif pairs with lowest classification error in Human Uterus.

| Accession | Factor | Logo | Accession | Factor | Logo | Enrich | Error | Sens | Spec |
|-----------|---------------|------|-----------|--------|------|--------|-------|-------|-------|
| M00721 | CACCC-binding | | M00803 | E2F | | FG | 0.359 | 0.786 | 0.496 |
| M00078 | Evi-1 | | M00915 | AP-2 | | FG | 0.363 | 0.664 | 0.610 |
| M00132 | HNF-1 | | M00672 | TEF | | BG | 0.364 | 0.512 | 0.760 |
| M00639 | HNF-6 | | M00744 | POU1F1 | | BG | 0.364 | 0.540 | 0.732 |
| M00644 | LBP-1 | | M00665 | Sp3 | | FG | 0.369 | 0.752 | 0.510 |

Table 56: Five TRANSFAC motif pairs with lowest classification error in Mouse Uterus.