**Supplementary Material**

**Exploring the Molecular Mechanism of Parkinson's Disease Triggered by Combined Atrazine and Simazine Exposure**

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**Table S1: Primers for RT-qPCR**

|  |  |  |
| --- | --- | --- |
| **Gene symbol** | **Forward primer** | **Reverse primer** |
| CDK2 | GCCTGATTACAAGCCAAGTTTCC | ATTTGCGATAACAAGCTCCGTC |
| PGR | CAATGGAAGGGCAGCACAAC | TGACAGCACTTTCTAAGGCGACA |
| CYCS | AGCCGCCAATAAGAACAAAGG | CTTCCTTCTTCTTAATGCCGACA |
| GAPDH | GGAAGCTTGTCATCAATGGAAATC | TGATGACCCTTTTGGCTCCC |

**Table S2. Information of PPI network**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **#node1** | **node2** | **neighborhood\_on\_chromosome** | **gene\_fusion** | **phylogenetic\_cooccurrence** | **homology** | **coexpression** | **experimentally\_determined\_interaction** | **database\_annotated** | **automated\_textmining** | **combined\_score** |
| ADH5 | CBR1 | 0 | 0 | 0 | 0 | 0.063 | 0.076 | 0 | 0.437 | 0.47 |
| ADH5 | NOS1 | 0 | 0 | 0 | 0 | 0.049 | 0 | 0 | 0.607 | 0.611 |
| ADH5 | GSTM4 | 0 | 0 | 0 | 0 | 0 | 0.166 | 0.65 | 0.143 | 0.728 |
| AGPAT3 | PLD2 | 0.049 | 0 | 0 | 0 | 0.052 | 0.059 | 0.65 | 0.317 | 0.76 |
| ALPI | ALPP | 0 | 0 | 0.449 | 0.983 | 0.077 | 0.678 | 0 | 0.819 | 0.696 |
| ALPL | CHIT1 | 0 | 0 | 0 | 0 | 0.062 | 0 | 0 | 0.571 | 0.58 |
| APRT | PDE6C | 0 | 0 | 0 | 0 | 0 | 0 | 0.65 | 0 | 0.65 |
| ATP5A1 | NDUFB5 | 0 | 0 | 0 | 0 | 0.549 | 0.346 | 0 | 0.42 | 0.814 |
| ATP5A1 | CYCS | 0 | 0 | 0 | 0 | 0.197 | 0.314 | 0 | 0.525 | 0.715 |
| ATP5A1 | CHCHD2 | 0 | 0 | 0 | 0 | 0.125 | 0.258 | 0 | 0.224 | 0.452 |
| BNIP3 | CYCS | 0 | 0 | 0 | 0 | 0.062 | 0 | 0 | 0.618 | 0.626 |
| BNIP3 | EGLN1 | 0 | 0 | 0 | 0 | 0.064 | 0 | 0 | 0.539 | 0.55 |
| BNIP3 | VEGFA | 0 | 0 | 0 | 0 | 0.08 | 0 | 0 | 0.518 | 0.537 |
| BNIP3 | CA9 | 0 | 0 | 0 | 0 | 0.088 | 0 | 0 | 0.619 | 0.637 |
| CA9 | PGR | 0 | 0 | 0 | 0 | 0 | 0.056 | 0 | 0.391 | 0.4 |
| CA9 | EGLN1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.59 | 0.59 |
| CA9 | VEGFA | 0 | 0 | 0 | 0 | 0.088 | 0 | 0 | 0.719 | 0.732 |
| CACNA1B | RGS9 | 0 | 0 | 0 | 0 | 0.062 | 0 | 0 | 0.731 | 0.737 |
| CACNA1B | RYR1 | 0 | 0 | 0 | 0 | 0.155 | 0.166 | 0.72 | 0.415 | 0.869 |
| CBX4 | MECOM | 0 | 0 | 0 | 0 | 0 | 0.061 | 0.6 | 0.058 | 0.615 |
| CBX4 | TFDP1 | 0 | 0 | 0 | 0 | 0.062 | 0 | 0.9 | 0.052 | 0.903 |
| CD9 | PDGFRB | 0 | 0 | 0 | 0 | 0.062 | 0.27 | 0 | 0.301 | 0.479 |
| CD9 | ITGA5 | 0 | 0 | 0 | 0 | 0 | 0.495 | 0 | 0.546 | 0.761 |
| CD9 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.456 | 0.456 |
| CDK2 | ORC2 | 0 | 0 | 0 | 0 | 0.168 | 0.888 | 0.9 | 0.463 | 0.994 |
| CDK2 | ESPL1 | 0 | 0 | 0 | 0 | 0.211 | 0.159 | 0 | 0.508 | 0.645 |
| CDK2 | HUS1 | 0 | 0 | 0 | 0 | 0.062 | 0 | 0 | 0.41 | 0.423 |
| CDK2 | CHD1L | 0 | 0 | 0 | 0 | 0.095 | 0.119 | 0 | 0.396 | 0.476 |
| CDK2 | FOS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.478 | 0.478 |
| CDK2 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0.105 | 0 | 0.522 | 0.554 |
| CDK2 | PTTG1 | 0 | 0 | 0 | 0 | 0.269 | 0 | 0 | 0.42 | 0.559 |
| CDK2 | FLI1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.587 | 0.587 |
| CDK2 | PPP2CA | 0 | 0 | 0 | 0 | 0.062 | 0.545 | 0 | 0.223 | 0.64 |
| CDK2 | CYCS | 0 | 0 | 0 | 0 | 0.062 | 0.064 | 0 | 0.723 | 0.736 |
| CDK2 | PGR | 0 | 0 | 0 | 0 | 0 | 0.494 | 0 | 0.677 | 0.83 |
| CDK2 | TFDP1 | 0 | 0 | 0 | 0 | 0.117 | 0.381 | 0.9 | 0.43 | 0.964 |
| CHCHD2 | FNTB | 0 | 0 | 0 | 0 | 0 | 0.418 | 0 | 0 | 0.418 |
| CLCN1 | RYR1 | 0 | 0 | 0 | 0 | 0.1 | 0 | 0 | 0.52 | 0.549 |
| CRHR2 | FOS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.599 | 0.599 |
| CRHR2 | RANBP3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.719 | 0.719 |
| CSK | TNS1 | 0 | 0 | 0 | 0 | 0.061 | 0.192 | 0.9 | 0.302 | 0.94 |
| CSK | PLD2 | 0.042 | 0 | 0 | 0 | 0.064 | 0.23 | 0 | 0.241 | 0.406 |
| CSK | PTPRA | 0 | 0 | 0 | 0 | 0.062 | 0.078 | 0 | 0.427 | 0.461 |
| CSK | PGR | 0 | 0 | 0 | 0 | 0 | 0.077 | 0 | 0.751 | 0.761 |
| CSK | LAIR1 | 0 | 0 | 0 | 0 | 0.052 | 0.192 | 0 | 0.767 | 0.806 |
| CSK | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0.9 | 0.36 | 0.933 |
| CSK | LCK | 0 | 0 | 0.399 | 0.874 | 0.062 | 0.476 | 0.9 | 0.94 | 0.955 |
| CXCR2 | SELPLG | 0 | 0 | 0 | 0 | 0.073 | 0 | 0 | 0.527 | 0.543 |
| CXCR2 | VASP | 0 | 0 | 0 | 0 | 0 | 0.27 | 0.9 | 0.923 | 0.993 |
| CXCR2 | IL18 | 0 | 0 | 0 | 0 | 0.062 | 0 | 0 | 0.459 | 0.47 |
| CXCR2 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.668 | 0.668 |
| CXCR2 | PPP2CA | 0 | 0 | 0 | 0 | 0 | 0.226 | 0.9 | 0.045 | 0.919 |
| CYCS | NDUFB5 | 0 | 0 | 0 | 0 | 0.256 | 0.337 | 0 | 0.375 | 0.665 |
| CYCS | IL18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.421 | 0.42 |
| CYCS | FOS | 0 | 0 | 0 | 0 | 0.062 | 0 | 0 | 0.459 | 0.47 |
| CYCS | STT3A | 0 | 0 | 0 | 0 | 0.063 | 0 | 0 | 0.451 | 0.464 |
| CYCS | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.634 | 0.634 |
| CYCS | NOS1 | 0 | 0 | 0 | 0 | 0.064 | 0 | 0 | 0.64 | 0.649 |
| CYCS | PPP2CA | 0 | 0 | 0 | 0 | 0.104 | 0 | 0.9 | 0.192 | 0.921 |
| DIAPH3 | VASP | 0 | 0 | 0 | 0 | 0 | 0.184 | 0 | 0.639 | 0.693 |
| DIAPH3 | TRIP10 | 0 | 0 | 0 | 0 | 0.049 | 0.152 | 0 | 0.319 | 0.403 |
| DMRT1 | LHCGR | 0 | 0 | 0 | 0 | 0.062 | 0 | 0 | 0.458 | 0.47 |
| DMRT1 | NR5A2 | 0 | 0 | 0 | 0 | 0.064 | 0 | 0 | 0.399 | 0.413 |
| DRD3 | FOS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.408 | 0.408 |
| EFNA4 | PDGFRB | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0.145 | 0.643 |
| EFNA4 | NTRK2 | 0 | 0 | 0 | 0 | 0.062 | 0.148 | 0.6 | 0.14 | 0.688 |
| EGLN1 | FOSL2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.61 | 0.61 |
| EGLN1 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.652 | 0.652 |
| EGLN1 | ING4 | 0 | 0 | 0 | 0 | 0 | 0.486 | 0 | 0.934 | 0.965 |
| ESPL1 | PPP2CA | 0 | 0 | 0 | 0 | 0.065 | 0.318 | 0 | 0.264 | 0.49 |
| ESPL1 | UBE2K | 0 | 0 | 0 | 0 | 0.063 | 0 | 0 | 0.506 | 0.518 |
| ESPL1 | PTTG1 | 0 | 0 | 0 | 0 | 0.41 | 0.87 | 0.8 | 0.994 | 0.999 |
| EXOSC7 | PABPN1 | 0 | 0 | 0 | 0 | 0.392 | 0 | 0 | 0.144 | 0.457 |
| FGF6 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.495 | 0.495 |
| FGF6 | NTRK2 | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0.146 | 0.643 |
| FGF6 | PDGFRB | 0 | 0 | 0 | 0 | 0 | 0.183 | 0.6 | 0.324 | 0.76 |
| FLI1 | LEF1 | 0 | 0 | 0 | 0 | 0.056 | 0 | 0.65 | 0.061 | 0.662 |
| FLI1 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.485 | 0.485 |
| FOS | MECOM | 0 | 0 | 0 | 0 | 0 | 0.345 | 0 | 0.156 | 0.424 |
| FOS | FOSL2 | 0 | 0 | 0 | 0.899 | 0.066 | 0 | 0.9 | 0.949 | 0.911 |
| FOS | LEF1 | 0 | 0 | 0 | 0 | 0 | 0.134 | 0 | 0.415 | 0.472 |
| FOS | NTRK2 | 0 | 0 | 0 | 0 | 0 | 0.064 | 0 | 0.594 | 0.604 |
| FOS | IL18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.414 | 0.414 |
| FOS | GLP1R | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.431 | 0.431 |
| FOS | TFDP1 | 0 | 0 | 0 | 0 | 0 | 0.366 | 0 | 0.142 | 0.433 |
| FOS | PGR | 0 | 0 | 0 | 0 | 0 | 0.082 | 0 | 0.497 | 0.519 |
| FOS | NOS1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.54 | 0.54 |
| FOS | GPER1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.568 | 0.568 |
| FOS | LCK | 0 | 0 | 0 | 0 | 0 | 0.064 | 0 | 0.685 | 0.694 |
| FOS | VEGFA | 0 | 0 | 0 | 0 | 0 | 0.273 | 0 | 0.602 | 0.698 |
| FOSL2 | SOX4 | 0 | 0 | 0 | 0 | 0 | 0.333 | 0 | 0.219 | 0.457 |
| FOSL2 | SOX12 | 0 | 0 | 0 | 0 | 0 | 0.124 | 0 | 0.419 | 0.47 |
| FOXC1 | LEF1 | 0 | 0 | 0 | 0 | 0 | 0.18 | 0 | 0.323 | 0.421 |
| FOXC1 | VEGFA | 0 | 0 | 0 | 0 | 0.065 | 0 | 0 | 0.478 | 0.491 |
| GDF15 | VEGFA | 0 | 0 | 0 | 0 | 0.088 | 0 | 0 | 0.417 | 0.445 |
| GFRA2 | NTRK2 | 0 | 0 | 0 | 0 | 0.14 | 0 | 0 | 0.399 | 0.461 |
| GFRA2 | SHC3 | 0 | 0 | 0 | 0 | 0.091 | 0 | 0.5 | 0.164 | 0.587 |
| GFRA2 | PIK3CD | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0 | 0.6 |
| GFRA2 | TFAP2B | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.477 | 0.477 |
| GLP1R | GPER1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.523 | 0.523 |
| GPER1 | RGS9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.432 | 0.432 |
| GPER1 | LHCGR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.457 | 0.457 |
| GPER1 | PGR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.667 | 0.667 |
| GPER1 | SHBG | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.41 | 0.41 |
| HAP1 | NTRK2 | 0 | 0 | 0 | 0 | 0.063 | 0.131 | 0 | 0.397 | 0.466 |
| HOXC13 | LEF1 | 0 | 0 | 0 | 0 | 0 | 0.158 | 0 | 0.472 | 0.537 |
| HUS1 | XRCC3 | 0 | 0 | 0 | 0 | 0.066 | 0.164 | 0 | 0.517 | 0.59 |
| IL18 | STAT6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.504 | 0.504 |
| IL18 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.654 | 0.654 |
| IL5RA | SOX4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.72 | 0.72 |
| IL5RA | PIK3CD | 0 | 0 | 0 | 0 | 0 | 0 | 0.5 | 0.049 | 0.504 |
| IRS4 | PIK3CD | 0 | 0 | 0 | 0 | 0 | 0.163 | 0.6 | 0.094 | 0.67 |
| ITGA5 | VASP | 0 | 0 | 0 | 0 | 0.096 | 0 | 0.6 | 0.454 | 0.786 |
| ITGA5 | VEGFA | 0 | 0 | 0 | 0 | 0.065 | 0 | 0 | 0.459 | 0.472 |
| LCK | SIT1 | 0 | 0 | 0 | 0 | 0.354 | 0.281 | 0 | 0.267 | 0.63 |
| LCK | PDGFRB | 0 | 0 | 0 | 0.685 | 0 | 0.122 | 0.9 | 0.406 | 0.919 |
| LCK | LEF1 | 0 | 0 | 0 | 0 | 0.131 | 0.071 | 0 | 0.328 | 0.41 |
| LCK | STAT6 | 0 | 0 | 0 | 0 | 0.065 | 0.14 | 0 | 0.5 | 0.563 |
| LCK | PIK3CD | 0 | 0 | 0 | 0 | 0.096 | 0.104 | 0 | 0.327 | 0.407 |
| LCK | PTPRA | 0 | 0 | 0 | 0 | 0.062 | 0.078 | 0 | 0.506 | 0.536 |
| LCK | SH2B3 | 0 | 0 | 0 | 0 | 0 | 0.47 | 0 | 0.304 | 0.615 |
| LCK | PPP2CA | 0 | 0 | 0 | 0 | 0.059 | 0.117 | 0.9 | 0.171 | 0.921 |
| LCK | VAV1 | 0 | 0 | 0 | 0 | 0.172 | 0.47 | 0.9 | 0.837 | 0.991 |
| LEF1 | SOX4 | 0 | 0 | 0 | 0 | 0.062 | 0.153 | 0.6 | 0.542 | 0.835 |
| LEF1 | TOB1 | 0 | 0 | 0 | 0 | 0 | 0.227 | 0 | 0.328 | 0.458 |
| LHCGR | SHBG | 0 | 0 | 0 | 0 | 0.063 | 0 | 0 | 0.425 | 0.438 |
| LHCGR | NR5A2 | 0 | 0 | 0 | 0 | 0.049 | 0 | 0 | 0.449 | 0.454 |
| LHCGR | PGR | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.532 | 0.532 |
| LRP1 | NTRK2 | 0 | 0 | 0 | 0 | 0.07 | 0.4 | 0 | 0.103 | 0.455 |
| LRP1 | SERPINI1 | 0 | 0 | 0 | 0 | 0.062 | 0.059 | 0 | 0.494 | 0.515 |
| LRP1 | SHC3 | 0 | 0 | 0 | 0 | 0.098 | 0 | 0 | 0.621 | 0.645 |
| LRP1 | PDGFRB | 0 | 0 | 0 | 0 | 0.23 | 0.057 | 0.9 | 0.808 | 0.984 |
| MC1R | TYRP1 | 0 | 0 | 0 | 0 | 0.084 | 0 | 0 | 0.848 | 0.855 |
| MCOLN1 | TRPC5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.555 | 0.555 |
| MCOLN1 | SLC17A5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.699 | 0.699 |
| MECOM | MLLT1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.401 | 0.4 |
| MLLT1 | RFX3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.456 | 0.456 |
| MMP15 | VEGFA | 0 | 0 | 0 | 0 | 0.069 | 0 | 0 | 0.506 | 0.521 |
| NEFL | PRPH | 0 | 0 | 0 | 0.891 | 0.062 | 0 | 0.8 | 0.126 | 0.806 |
| NEFL | NTRK2 | 0 | 0 | 0 | 0 | 0.229 | 0.056 | 0 | 0.261 | 0.415 |
| NEFL | TUBB3 | 0 | 0 | 0 | 0 | 0.122 | 0 | 0 | 0.54 | 0.578 |
| NOS1 | RYR1 | 0 | 0 | 0 | 0 | 0.062 | 0 | 0.8 | 0.532 | 0.904 |
| NOS1 | VEGFA | 0 | 0 | 0 | 0 | 0.064 | 0 | 0 | 0.517 | 0.529 |
| NTRK2 | TUBB3 | 0 | 0 | 0 | 0 | 0.063 | 0.058 | 0 | 0.397 | 0.421 |
| NTRK2 | TFDP1 | 0 | 0 | 0 | 0 | 0 | 0.057 | 0 | 0.435 | 0.444 |
| NTRK2 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0.6 | 0.499 | 0.791 |
| NTRK2 | SH2B3 | 0 | 0 | 0 | 0 | 0 | 0.142 | 0.8 | 0.048 | 0.822 |
| NTRK2 | SHC3 | 0 | 0 | 0 | 0 | 0.19 | 0.685 | 0.9 | 0.701 | 0.991 |
| ORAI3 | TRPC5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.643 | 0.643 |
| ORAI3 | RYR1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.416 | 0.416 |
| PABPN1 | THOC5 | 0 | 0 | 0 | 0 | 0.295 | 0.137 | 0.6 | 0.323 | 0.813 |
| PDE6C | RGS9 | 0 | 0 | 0 | 0 | 0 | 0 | 0.9 | 0.06 | 0.901 |
| PDGFRB | PTPRA | 0 | 0 | 0 | 0 | 0 | 0.06 | 0 | 0.442 | 0.453 |
| PDGFRB | THOC5 | 0 | 0 | 0 | 0 | 0 | 0.06 | 0 | 0.538 | 0.547 |
| PDGFRB | VAV1 | 0 | 0 | 0 | 0 | 0 | 0.556 | 0 | 0.202 | 0.631 |
| PDGFRB | STAT6 | 0 | 0 | 0 | 0 | 0.063 | 0.111 | 0.6 | 0.209 | 0.701 |
| PDGFRB | SHC3 | 0 | 0 | 0 | 0 | 0.088 | 0.174 | 0.8 | 0.124 | 0.85 |
| PDGFRB | PIK3CD | 0 | 0 | 0 | 0 | 0 | 0.097 | 0.8 | 0.257 | 0.854 |
| PDGFRB | VEGFA | 0 | 0 | 0 | 0 | 0.062 | 0.318 | 0.6 | 0.818 | 0.947 |
| PFDN2 | TUBB3 | 0 | 0 | 0 | 0 | 0.25 | 0.209 | 0 | 0.094 | 0.416 |
| PGR | TYRP1 | 0 | 0 | 0 | 0 | 0.07 | 0 | 0 | 0.442 | 0.459 |
| PGR | SHBG | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.559 | 0.559 |
| PGR | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.606 | 0.606 |
| PGR | PIK3CD | 0 | 0 | 0 | 0 | 0 | 0.061 | 0.8 | 0.102 | 0.816 |
| PIK3CD | TNS1 | 0 | 0 | 0 | 0 | 0.066 | 0.212 | 0 | 0.524 | 0.619 |
| PIK3CD | SIT1 | 0 | 0 | 0 | 0 | 0.107 | 0 | 0 | 0.46 | 0.497 |
| PIK3CD | VAV1 | 0 | 0 | 0 | 0 | 0.16 | 0 | 0.65 | 0.358 | 0.794 |
| PPP1R8 | SF3A2 | 0 | 0 | 0 | 0 | 0.113 | 0.602 | 0 | 0 | 0.632 |
| PSMC4 | TUBB3 | 0 | 0 | 0 | 0 | 0.106 | 0.09 | 0 | 0.322 | 0.401 |
| PSMC4 | UBE2K | 0.041 | 0 | 0 | 0 | 0.086 | 0.069 | 0 | 0.447 | 0.489 |
| PTGS1 | VASP | 0 | 0 | 0 | 0 | 0.07 | 0.173 | 0 | 0.324 | 0.434 |
| PTGS1 | VEGFA | 0 | 0 | 0 | 0 | 0.064 | 0 | 0 | 0.419 | 0.432 |
| PTTG1 | UBE2K | 0 | 0 | 0 | 0 | 0.062 | 0 | 0 | 0.466 | 0.477 |
| SHBG | STT3A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.406 | 0.406 |
| SLC17A5 | SLC35F6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.443 | 0.443 |
| SLC38A1 | SLC7A6 | 0 | 0 | 0 | 0 | 0.062 | 0.06 | 0 | 0.612 | 0.628 |
| STAT6 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0.056 | 0 | 0.425 | 0.433 |
| TFAP2B | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.447 | 0.447 |
| TNS1 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.468 | 0.468 |
| TRIM3 | UBE2K | 0 | 0 | 0 | 0 | 0.064 | 0.384 | 0 | 0.14 | 0.461 |
| VAV1 | VEGFA | 0 | 0 | 0 | 0 | 0 | 0 | 0.9 | 0.218 | 0.918 |

**Table S3. Top 10 targets calculated by six cytoHubba methods**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Rank** | **closeness** | **degree** | **EPC** | **MCC** | **MNC** | **radiality** |
| 1 | VEGFA (56.6) | VEGFA (25) | VEGFA (30.4) | VEGFA (63) | VEGFA (20) | VEGFA (9.1) |
| 2 | FOS (52.5) | FOS (16) | FOS (29.1) | FOS (40) | FOS (10) | FOS (9.0) |
| 3 | PGR (46.7) | NTRK2 (12) | LCK (26.6) | CYCS (25) | CDK2 (9) | PGR (8.8) |
| 4 | CDK2 (46.7) | PDGFRB (12) | PDGFRB (26.2) | CDK2 (25) | PGR (8) | CDK2 (8.7) |
| 5 | NTRK2 (46.1) | CDK2 (12) | CDK2 (26.2) | PDGFRB (22) | PDGFRB (8) | CYCS (8.7) |
| 6 | CYCS (45.3) | LCK (11) | PGR (25.8) | PGR (20) | CYCS (7) | NTRK2 (8.7) |
| 7 | LCK (44.8) | CYCS (10) | CYCS (25.2) | LCK (18) | LCK (7) | NOS1 (8.6) |
| 8 | PDGFRB (44.2) | PGR (10) | NTRK2 (24.4) | NTRK2 (15) | GPER1 (5) | LCK (8.6) |
| 9 | NOS1 (42.3) | PIK3CD (9) | PIK3CD (23.6) | PIK3CD (13) | IL18 (5) | PDGFRB (8.5) |
| 10 | CSK (41.6) | LEF1 (7) | IL18 (22.2) | GPER1 (11) | NTRK2 (4) | IL18 (8.5) |

**Table S4. Molecular docking**

|  |  |  |
| --- | --- | --- |
| **herbicide** | **target** | **docking score (kcal/mol)** |
| ATR | CDK2 | -7.38 |
| ATR | CYCS | -7.68 |
| ATR | FOS | -6.14 |
| ATR | LCK | -6.88 |
| ATR | NTRK2 | -6.91 |
| ATR | PDGFRB | -6.40 |
| ATR | PGR | -7.42 |
| ATR | VEGFA | -6.02 |
| SIM | CDK2 | -7.13 |
| SIM | CYCS | -7.56 |
| SIM | FOS | -6.18 |
| SIM | LCK | -6.72 |
| SIM | NTRK2 | -6.47 |
| SIM | PDGFRB | -6.64 |
| SIM | PGR | -7.26 |
| SIM | VEGFA | -6.03 |