**Supplementary File 5**: Identified molecular pathways underlying AD progression.

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| **Pathway** | **No of genes** |
| CCKR signaling map  | 8 |
| Inflammation mediated by chemokine and cytokine signaling pathway  | 6 |
| Apoptosis signaling pathway  | 5 |
| Gonadotropin-releasing hormone receptor pathway  | 5 |
| Heterotrimeric G-protein signaling pathway-Gi alpha and Gs alpha mediated pathway  | 3 |
| FAS signaling pathway  | 3 |
| p38 MAPK pathway  | 3 |
| Enkephalin release  | 3 |
| Beta3 adrenergic receptor signaling pathway  | 2 |
| Beta2 adrenergic receptor signaling pathway  | 2 |
| Beta1 adrenergic receptor signaling pathway  | 2 |
| 5HT4 type receptor mediated signaling pathway  | 2 |
| Angiogenesis  | 2 |
| Alzheimer disease-presenilin pathway  | 2 |
| Ubiquitin proteasome pathway  | 2 |
| Wnt signaling pathway  | 2 |
| N-acetylglucosamine metabolism  | 2 |
| Cytoskeletal regulation by Rho GTPase  | 2 |
| Histamine H2 receptor mediated signaling pathway  | 2 |
| Cell cycle  | 2 |
| B cell activation  | 2 |
| Cortocotropin releasing factor receptor signaling pathway  | 2 |
| Axon guidance mediated by netrin  | 1 |
| Axon guidance mediated by Slit/Robo  | 1 |
| Metabotropic glutamate receptor group III pathway  | 1 |
| JAK/STAT signaling pathway  | 1 |
| Interleukin signaling pathway  | 1 |
| Interferon-gamma signaling pathway  | 1 |
| 5HT2 type receptor mediated signaling pathway  | 1 |
| Coenzyme A biosynthesis  | 1 |
| 5HT1 type receptor mediated signaling pathway  | 1 |
| Insulin/IGF pathway-protein kinase B signaling cascade  | 1 |
| Insulin/IGF pathway-mitogen activated protein kinase kinase/MAP kinase cascade  | 1 |
| Huntington disease  | 1 |
| Heterotrimeric G-protein signaling pathway-rod outer segment phototransduction  | 1 |
| p53 pathway  | 1 |
| p53 pathway feedback loops 2  | 1 |
| Heterotrimeric G-protein signaling pathway-Gq alpha and Go alpha mediated pathway  | 1 |
| p53 pathway by glucose deprivation  | 1 |
| O-antigen biosynthesis  | 1 |
| Xanthine and guanine salvage pathway  | 1 |
| Transcription regulation by bZIP transcription factor  | 1 |
| Thyrotropin-releasing hormone receptor signaling pathway  | 1 |
| Toll receptor signaling pathway  | 1 |
| Ras Pathway  | 1 |
| Adenine and hypoxanthine salvage pathway  | 1 |
| T cell activation  | 1 |
| Oxytocin receptor mediated signaling pathway  | 1 |
| Endothelin signaling pathway  | 1 |
| EGF receptor signaling pathway  | 1 |
| Parkinson disease  | 1 |
| DNA replication  | 1 |
| PI3 kinase pathway  | 1 |
| Opioid proopiomelanocortin pathway  | 1 |
| PDGF signaling pathway  | 1 |
| Opioid prodynorphin pathway  | 1 |
| Oxidative stress response  | 1 |
| Opioid proenkephalin pathway  | 1 |
| Cholesterol biosynthesis  | 1 |