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| **Supplementary Table 3.** **GO classification of the 181 DEPs according to PANTHER database** | |
| **PANTHER protein class** | **DEPs identified in vEDS dermal fibroblasts** |
| Metabolite interconversion enzyme | PCCB, NDUFB1, **DCXR**, B4GALT7,HACD2,HDHD5, **PPA2**, LPCAT2,MIF,EXT2,XXYLT1,GALNT5,GNPNAT1,MTMR9,CYP1B1, PTDSS1,GALNT10,TPMT,PIK3CA,GSTM3,GGPS1,LDAH,SCO1, **LDHAL6B**, FN3KRP,NNMT,GALE, **ENPP1**,FNTB,SMPD1 |
| RNA metabolism protein | SLC4A1AP,TRA2B,RNPS1,FUS,RPP25L, SMG5,SRSF10,DDX41,POP4,TRA2A, SRSF9,HABP4,NOP10,PNO1,NAA38,LYAR,MBNL2,LARP6,DNAAF10,HNRNPH3,ERI3 |
| Protein-binding activity modulator | RALGPS2, PROCR, RAP2A, **CAP2**, ARL6, RAB22A, **SERPINF1**, USP6NL, TIMP1, RABL3, LXN, **ARHGEF10L** |
| Scaffold/adaptor protein | CHD2, SPECC1L, ASB1, SNX9, ANKS1B, WDR45, AKAP10, CDC42EP2, PQBP1, SNX2 |
| Protein modifying enzyme | LONP2, ICMT, PTPRF, **CBX4**, TRAPPC12, CDK12, DAP, RNF13, VRK2, AKT3 |
| Transporter | SLC39A10, SLC4A7, ITPR2, **KCNMA1**, CALHM2, SLC39A6, XPO5, SRP19, SLC33A1 |
| Cytoskeletal protein | MYL6B,ACTN1, **LCP1**, **CAP2**, AFDN,GABARAP |
| Extracellular matrix protein | COL1A1, COL1A2, COL5A1, ELN, FBLN2 |
| Translational protein | GARS1, RPL37, MRPS36, YARS1 |
| Cell adhesion molecule | CNTN3, ITGB3, **ITGA1** |
| Gene-specific transcriptional regulator | SMAD4,NRBF2, TOX4 |
| Chromatin/chromatin-binding, or -regulatory protein | **CEP135**, HMGN2, CHD2 |
| Membrane traffic protein | DKK1, TMED3, CHMP1B |
| Intercellular signal molecule | ANGPTL4, DAP |
| Chaperone | COA3, NPM1 |
| Defense/immunity protein | **ICOSLG**, ANKHD1 |
| DNA metabolism protein | SMARCA4 |
| Calcium-binding protein | **S100A1** |
| Transfer/carrier protein | TTPAL |
| Structural protein | ELN |
| Transmembrane signal receptor | THBD |

Proteins with an increased expression are highlighted in bold.