

Volcano plot showing the relationship between the standardized beta coefficient (x-axis) and the negative log₁₀ p-value (y-axis). The plot displays a large number of black points representing all genes. Several genes are highlighted with colored lines and labels: NRP2 (blue), FAM171B (blue), RMDN1 (blue), NFASC (black), PARP1 (black), GDI2 (black), CNTN2 (red), JAM3 (red), CETN3 (red), and GCA (red). A dashed horizontal line is drawn at y = 2.5, indicating a significance threshold.

Top upregulated pathways

Cell adhesion mediators

Top downregulated pathways

Double stranded DNA breaks

Frequency of proteins →

Primary biological function ↓

Protein Group	Frequency	Primary Biological Function
TNC, TBCB, RHOB, RDX, NFASC, NEO1, MARCKSL1, JAM3	8	Structural stabilization
XPNPEP1, CPM, CNDP1, ADAM23	4	Metalloprotease
PARP1, MORF4L1	2	Lipid metabolism
MRAS, GDI2	2	Synapse
ENPP6, ARSA	2	Immune
UBL4A, GNPAT1	2	PQC
DNM2, CNTN2	2	DNA repair
NUDT5	1	Uncharacterized
QDPR	1	Epigenetic
FAM177A1	1	Metabolism