

Figure 1: A plot showing the distribution of the number of genes in the clus4 cluster. The x-axis is 'Gene List Index' (0 to 17824) and the y-axis is 'Number of genes' (-1.0 to 0.5). A red line shows the distribution, peaking at 6819. A green vertical line marks the zero crossing at 9125. A green shaded area represents the distribution of the number of genes in the clus4 cluster, with a peak at 6819. The plot is labeled 'clus4' and 'NON.clus4'.

A density plot showing the distribution of ES values. The x-axis is labeled 'ES' and ranges from -0.6 to 0.6. The y-axis is labeled 'P(ES)' and ranges from 0.0 to 2.5. A red curve represents the 'Gene Set Null Density', which is bimodal with peaks at approximately -0.25 and 0.25. A vertical black line represents the 'Observed Gene Set ES value' at approximately 0.493. The area under the red curve to the right of this line is shaded in light blue. Text labels on the x-axis indicate 'Neg. ES "NON.clus4"' on the left and 'Pos. ES: "clus4"' on the right. At the bottom, summary statistics are provided: ES = 0.493, NES = 1.58, Nom. p-val= 0.0676, FWER= 0.694, and FDR= 1.

**Heatmap Data Summary:**

- Genes (Y-axis):** Class, PTPN13, FAS, CASP10, DFFB, RB1, LMNA, MAP3K7, MAP2K4, PARP1, CASP8, PRKDC, DFFA, PAK2, ARHGDIB, CFLAR, DAXX, LMNB2, FAF1, MAPK8, CASP7, RIPK2, JUN, FASLG, FADD, MAP3K1, PAK1, CASP3, SPTAN1, CASP6.
- Samples (X-axis):** 100 samples, grouped into two clusters:
  - clus4 (Red):** Samples 1-50 (e.g., TCGA\_KL\_S133\_01, TCGA\_KL\_S343\_01, TCGA\_KL\_S344\_01, TCGA\_KL\_S345\_01, TCGA\_KL\_S346\_01, TCGA\_KL\_S347\_01, TCGA\_KL\_S348\_01, TCGA\_KL\_S349\_01, TCGA\_KL\_S350\_01, TCGA\_KL\_S351\_01, TCGA\_KL\_S352\_01, TCGA\_KL\_S353\_01, TCGA\_KL\_S354\_01, TCGA\_KL\_S355\_01, TCGA\_KL\_S356\_01, TCGA\_KL\_S357\_01, TCGA\_KL\_S358\_01, TCGA\_KL\_S359\_01, TCGA\_KL\_S360\_01, TCGA\_KL\_S361\_01, TCGA\_KL\_S362\_01, TCGA\_KL\_S363\_01, TCGA\_KL\_S364\_01, TCGA\_KL\_S365\_01, TCGA\_KL\_S366\_01, TCGA\_KL\_S367\_01, TCGA\_KL\_S368\_01, TCGA\_KL\_S369\_01, TCGA\_KL\_S370\_01, TCGA\_KL\_S371\_01, TCGA\_KL\_S372\_01, TCGA\_KL\_S373\_01, TCGA\_KL\_S374\_01, TCGA\_KL\_S375\_01, TCGA\_KL\_S376\_01, TCGA\_KL\_S377\_01, TCGA\_KL\_S378\_01, TCGA\_KL\_S379\_01, TCGA\_KL\_S380\_01, TCGA\_KL\_S381\_01, TCGA\_KL\_S382\_01, TCGA\_KL\_S383\_01, TCGA\_KL\_S384\_01, TCGA\_KL\_S385\_01, TCGA\_KL\_S386\_01, TCGA\_KL\_S387\_01, TCGA\_KL\_S388\_01, TCGA\_KL\_S389\_01, TCGA\_KL\_S390\_01, TCGA\_KL\_S391\_01, TCGA\_KL\_S392\_01, TCGA\_KL\_S393\_01, TCGA\_KL\_S394\_01, TCGA\_KL\_S395\_01, TCGA\_KL\_S396\_01, TCGA\_KL\_S397\_01, TCGA\_KL\_S398\_01, TCGA\_KL\_S399\_01, TCGA\_KL\_S400\_01, TCGA\_KL\_S401\_01, TCGA\_KL\_S402\_01, TCGA\_KL\_S403\_01, TCGA\_KL\_S404\_01, TCGA\_KL\_S405\_01, TCGA\_KL\_S406\_01, TCGA\_KL\_S407\_01, TCGA\_KL\_S408\_01, TCGA\_KL\_S409\_01, TCGA\_KL\_S410\_01, TCGA\_KL\_S411\_01, TCGA\_KL\_S412\_01, TCGA\_KL\_S413\_01, TCGA\_KL\_S414\_01, TCGA\_KL\_S415\_01, TCGA\_KL\_S416\_01, TCGA\_KL\_S417\_01, TCGA\_KL\_S418\_01, TCGA\_KL\_S419\_01, TCGA\_KL\_S420\_01, TCGA\_KL\_S421\_01, TCGA\_KL\_S422\_01, TCGA\_KL\_S423\_01, TCGA\_KL\_S424\_01, TCGA\_KL\_S425\_01, TCGA\_KL\_S426\_01, TCGA\_KL\_S427\_01, TCGA\_KL\_S428\_01, TCGA\_KL\_S429\_01, TCGA\_KL\_S430\_01, TCGA\_KL\_S431\_01, TCGA\_KL\_S432\_01, TCGA\_KL\_S433\_01, TCGA\_KL\_S434\_01, TCGA\_KL\_S435\_01, TCGA\_KL\_S436\_01, TCGA\_KL\_S437\_01, TCGA\_KL\_S438\_01, TCGA\_KL\_S439\_01, TCGA\_KL\_S440\_01, TCGA\_KL\_S441\_01, TCGA\_KL\_S442\_01, TCGA\_KL\_S443\_01, TCGA\_KL\_S444\_01, TCGA\_KL\_S445\_01, TCGA\_KL\_S446\_01, TCGA\_KL\_S447\_01, TCGA\_KL\_S448\_01, TCGA\_KL\_S449\_01, TCGA\_KL\_S450\_01, TCGA\_KL\_S451\_01, TCGA\_KL\_S452\_01, TCGA\_KL\_S453\_01, TCGA\_KL\_S454\_01, TCGA\_KL\_S455\_01, TCGA\_KL\_S456\_01, TCGA\_KL\_S457\_01, TCGA\_KL\_S458\_01, TCGA\_KL\_S459\_01, TCGA\_KL\_S460\_01, TCGA\_KL\_S461\_01, TCGA\_KL\_S462\_01, TCGA\_KL\_S463\_01, TCGA\_KL\_S464\_01, TCGA\_KL\_S465\_01, TCGA\_KL\_S466\_01, TCGA\_KL\_S467\_01, TCGA\_KL\_S468\_01, TCGA\_KL\_S469\_01, TCGA\_KL\_S470\_01, TCGA\_KL\_S471\_01, TCGA\_KL\_S472\_01, TCGA\_KL\_S473\_01, TCGA\_KL\_S474\_01, TCGA\_KL\_S475\_01, TCGA\_KL\_S476\_01, TCGA\_KL\_S477\_01, TCGA\_KL\_S478\_01, TCGA\_KL\_S479\_01, TCGA\_KL\_S480\_01, TCGA\_KL\_S481\_01, TCGA\_KL\_S482\_01, TCGA\_KL\_S483\_01, TCGA\_KL\_S484\_01, TCGA\_KL\_S485\_01, TCGA\_KL\_S486\_01, TCGA\_KL\_S487\_01, TCGA\_KL\_S488\_01, TCGA\_KL\_S489\_01, TCGA\_KL\_S490\_01, TCGA\_KL\_S491\_01, TCGA\_KL\_S492\_01, TCGA\_KL\_S493\_01, TCGA\_KL\_S494\_01, TCGA\_KL\_S495\_01, TCGA\_KL\_S496\_01, TCGA\_KL\_S497\_01, TCGA\_KL\_S498\_01, TCGA\_KL\_S499\_01, TCGA\_KL\_S500\_01).
  - NON.clus4 (Blue):** Samples 51-100 (e.g., TCGA\_KL\_S501\_01, TCGA\_KL\_S502\_01, TCGA\_KL\_S503\_01, TCGA\_KL\_S504\_01, TCGA\_KL\_S505\_01, TCGA\_KL\_S506\_01, TCGA\_KL\_S507\_01, TCGA\_KL\_S508\_01, TCGA\_KL\_S509\_01, TCGA\_KL\_S510\_01, TCGA\_KL\_S511\_01, TCGA\_KL\_S512\_01, TCGA\_KL\_S513\_01, TCGA\_KL\_S514\_01, TCGA\_KL\_S515\_01, TCGA\_KL\_S516\_01, TCGA\_KL\_S517\_01, TCGA\_KL\_S518\_01, TCGA\_KL\_S519\_01, TCGA\_KL\_S520\_01, TCGA\_KL\_S521\_01, TCGA\_KL\_S522\_01, TCGA\_KL\_S523\_01, TCGA\_KL\_S524\_01, TCGA\_KL\_S525\_01, TCGA\_KL\_S526\_01, TCGA\_KL\_S527\_01, TCGA\_KL\_S528\_01, TCGA\_KL\_S529\_01, TCGA\_KL\_S530\_01, TCGA\_KL\_S531\_01, TCGA\_KL\_S532\_01, TCGA\_KL\_S533\_01, TCGA\_KL\_S534\_01, TCGA\_KL\_S535\_01, TCGA\_KL\_S536\_01, TCGA\_KL\_S537\_01, TCGA\_KL\_S538\_01, TCGA\_KL\_S539\_01, TCGA\_KL\_S540\_01, TCGA\_KL\_S541\_01, TCGA\_KL\_S542\_01, TCGA\_KL\_S543\_01, TCGA\_KL\_S544\_01, TCGA\_KL\_S545\_01, TCGA\_KL\_S546\_01, TCGA\_KL\_S547\_01, TCGA\_KL\_S548\_01, TCGA\_KL\_S549\_01, TCGA\_KL\_S550\_01, TCGA\_KL\_S551\_01, TCGA\_KL\_S552\_01, TCGA\_KL\_S553\_01, TCGA\_KL\_S554\_01, TCGA\_KL\_S555\_01, TCGA\_KL\_S556\_01, TCGA\_KL\_S557\_01, TCGA\_KL\_S558\_01, TCGA\_KL\_S559\_01, TCGA\_KL\_S560\_01, TCGA\_KL\_S561\_01, TCGA\_KL\_S562\_01, TCGA\_KL\_S563\_01, TCGA\_KL\_S564\_01, TCGA\_KL\_S565\_01, TCGA\_KL\_S566\_01, TCGA\_KL\_S567\_01, TCGA\_KL\_S568\_01, TCGA\_KL\_S569\_01, TCGA\_KL\_S570\_01, TCGA\_KL\_S571\_01, TCGA\_KL\_S572\_01, TCGA\_KL\_S573\_01, TCGA\_KL\_S574\_01, TCGA\_KL\_S575\_01, TCGA\_KL\_S576\_01, TCGA\_KL\_S577\_01, TCGA\_KL\_S578\_01, TCGA\_KL\_S579\_01, TCGA\_KL\_S580\_01, TCGA\_KL\_S581\_01, TCGA\_KL\_S582\_01, TCGA\_KL\_S583\_01, TCGA\_KL\_S584\_01, TCGA\_KL\_S585\_01, TCGA\_KL\_S586\_01, TCGA\_KL\_S587\_01, TCGA\_KL\_S588\_01, TCGA\_KL\_S589\_01, TCGA\_KL\_S590\_01, TCGA\_KL\_S591\_01, TCGA\_KL\_S592\_01, TCGA\_KL\_S593\_01, TCGA\_KL\_S594\_01, TCGA\_KL\_S595\_01, TCGA\_KL\_S596\_01, TCGA\_KL\_S597\_01, TCGA\_KL\_S598\_01, TCGA\_KL\_S599\_01, TCGA\_KL\_S600\_01).