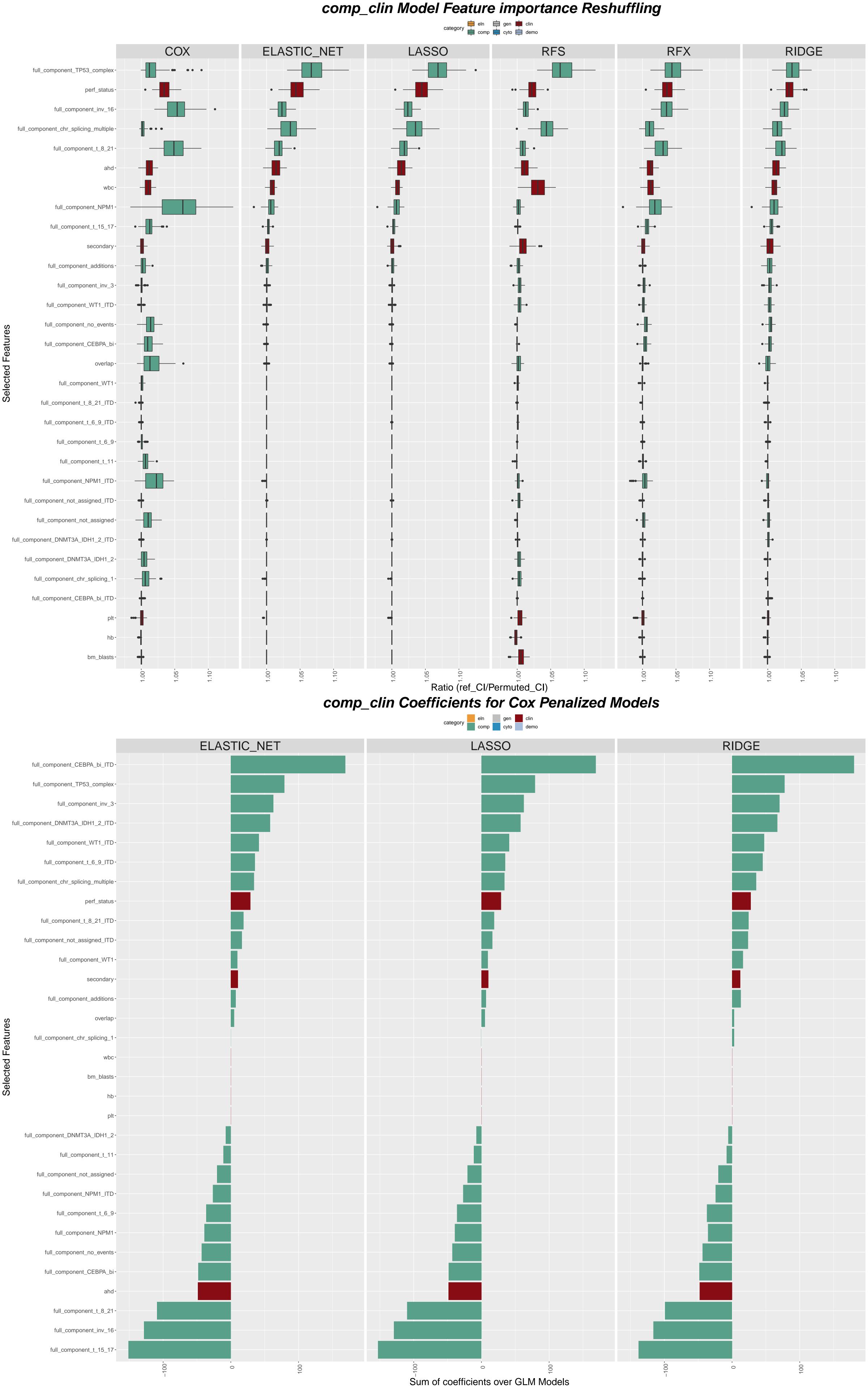
clin\_demo Model Feature importance Reshuffling COX ELASTIC\_NET RFS RIDGE RFX LASSO perf\_status ahdwbcgenderbm\_blasts -Ratio (ref\_Cl/Permuted\_Cl)

Clin\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE perf\_status secondary gender-Selected Features bm\_blasts-Sum of coefficients over GLM Models

clin Model Feature importance Reshuffling ELASTIC\_NET COX RFS RIDGE LASSO RFX perf\_status ahdsecondaryhbbm\_blasts-Ratio (ref\_CI/Permuted\_CI) clin Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE perf\_status secondary wbc-Selected Features bm\_blasts -Sum of coefficients over GLM Models -20

## comp\_clin\_demo Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RIDGE RFX full\_component\_TP53\_complexperf\_status full\_component\_inv\_16full\_component\_NPM1 full\_component\_t\_8\_21 full\_component\_chr\_splicing\_multiple full\_component\_inv\_3full\_component\_t\_15\_17full\_component\_no\_events full\_component\_WT1\_ITDfull\_component\_additions overlapfull\_component\_WT1full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9full\_component\_t\_11 full\_component\_NPM1\_ITDfull\_component\_not\_assigned\_ITDfull\_component\_not\_assignedfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_1 full\_component\_CEBPA\_bi\_ITDfull\_component\_CEBPA\_bisecondary genderbm\_blasts -Ratio (ref\_CI/Permuted\_CI) comp\_clin\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE full\_component\_CEBPA\_bi\_ITDfull\_component\_inv\_3full\_component\_t\_6\_9\_ITDfull\_component\_TP53\_complexfull\_component\_WT1\_ITD full\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_not\_assigned\_ITDfull\_component\_WT1 full\_component\_t\_8\_21\_ITDperf\_status full\_component\_chr\_splicing\_multiplefull\_component\_additions full\_component\_t\_11 secondary -Selected Features overlap genderagefull\_component\_t\_6\_9wbcbm\_blasts hbplt full\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_1 full\_component\_not\_assignedfull\_component\_NPM1\_ITDfull\_component\_CEBPA\_biahdfull\_component\_NPM1 full\_component\_no\_eventsfull\_component\_t\_8\_21 full\_component\_inv\_16full\_component\_t\_15\_17--20



### comp\_cyto Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RFX RIDGE full\_component\_chr\_splicing\_multiplefull\_component\_t\_8\_21 full\_component\_inv\_16full\_component\_TP53\_complexfull\_component\_NPM1del\_5 full\_component\_t\_15\_17 del\_7del\_17full\_component\_additions full\_component\_no\_eventsfull\_component\_WT1\_ITD add\_11 full\_component\_CEBPA\_biothers\_translocminusydel\_9 del\_3del\_20 del\_18del\_16del\_12complex add\_8add\_22 add\_21 add\_13overlap full\_component\_WT1 full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9full\_component\_t\_11 full\_component\_NPM1\_ITDfull\_component\_not\_assigned\_ITDfull\_component\_not\_assignedfull\_component\_inv\_3full\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_1 full\_component\_CEBPA\_bi\_ITD-Ratio (ref\_Cl/Permuted\_Cl) comp\_cyto Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE full\_component\_CEBPA\_bi\_ITDfull\_component\_WT1\_ITDfull\_component\_inv\_3full\_component\_TP53\_complexfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_chr\_splicing\_multipledel\_5 full\_component\_t\_6\_9\_ITDdel\_17full\_component\_not\_assigned\_ITDadd\_11 full\_component\_additions del\_7 full\_component\_t\_8\_21\_ITDdel\_16others\_translocdel\_20 minusy -Selected Features full\_component\_WT1del\_12overlapfull\_component\_chr\_splicing\_1 complex full\_component\_t\_11 del\_3add\_21 add\_13full\_component\_NPM1\_ITDadd\_8full\_component\_DNMT3A\_IDH1\_2full\_component\_not\_assignedfull\_component\_NPM1 add\_22full\_component\_t\_6\_9full\_component\_no\_eventsfull\_component\_CEBPA\_bifull\_component\_inv\_16full\_component\_t\_8\_21 full\_component\_t\_15\_17-100

comp\_demo Model Feature importance Reshuffling COX ELASTIC\_NET LASSO **RFS** RIDGE RFX agefull\_component\_TP53\_complexfull\_component\_inv\_16full\_component\_t\_8\_21 full\_component\_NPM1 full\_component\_chr\_splicing\_multiplefull\_component\_no\_eventsfull\_component\_t\_15\_17full\_component\_WT1\_ITD full\_component\_inv\_3full\_component\_additions full\_component\_DNMT3A\_IDH1\_2overlapfull\_component\_WT1full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9full\_component\_t\_11 full\_component\_NPM1\_ITDfull\_component\_not\_assigned\_ITDfull\_component\_not\_assignedfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_chr\_splicing\_1 full\_component\_CEBPA\_bi\_ITDfull\_component\_CEBPA\_bigender-Ratio (ref\_CI/Permuted\_CI) comp\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE full\_component\_CEBPA\_bi\_ITDfull\_component\_inv\_3full\_component\_WT1\_ITD full\_component\_t\_6\_9\_ITDfull\_component\_TP53\_complexfull\_component\_not\_assigned\_ITDfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_WT1full\_component\_t\_8\_21\_ITDfull\_component\_chr\_splicing\_multiplefull\_component\_additions -Selected Features full\_component\_t\_11genderoverlap agefull\_component\_t\_6\_9full\_component\_chr\_splicing\_1 full\_component\_DNMT3A\_IDH1\_2full\_component\_NPM1\_ITDfull\_component\_not\_assignedfull\_component\_CEBPA\_bifull\_component\_NPM1 full\_component\_no\_eventsfull\_component\_t\_8\_21full\_component\_inv\_16full\_component\_t\_15\_17-0 Sum of coefficients over GLM Models

150 --100

Sum of coefficients over GLM Models

20

full\_component\_inv\_16-full\_component\_t\_15\_17-

#### comp\_gen\_cyto Model Feature importance Reshuffling eln eln cin cyto demo COX ELASTIC\_NET **RFS** LASSO RIDGE RFX full\_component\_chr\_splicing\_multiple-------TP53---full\_component\_inv\_16 full\_component\_t\_8\_21 -•—— TET2full\_component\_NPM1 -+ -----•----full\_component\_TP53\_complex-•• del\_5-----SRSF2-••• + full\_component\_t\_15\_17 -•--• full\_component\_additions-•— -ASXL1----••-DNMT3Acomplex add\_11 -•-full\_component\_WT1\_ITD-•----SF3B1del\_17-•-||--||-•-||-•••• ITD--• full\_component\_inv\_3-••--PTPN11full\_component\_CEBPA\_bi-•|•• del\_20 -WT1 -• U2AF1\_p.S34-STAG2-SMC3-SMC1A-RUNX1-RAD21-PHF6-NRAS\_p.Q61\_62-Selected Features NRAS\_p.G12\_13-NF1-MYC-• MLL-KRAS-KIT-IDH2\_p.R172-IDH2\_p.R140-IDH1-GATA2-FLT3\_TKD-FLT3\_other-CEBPA\_mono-CBL-BCORothers\_translocminusy del\_9 del\_3del\_18del\_16del\_12add\_8add\_22 add\_21 add\_13overlapfull\_component\_WT1 -+ full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9----full\_component\_t\_11 full\_component\_NPM1\_ITDfull\_component\_not\_assigned\_ITD full\_component\_not\_assignedfull\_component\_no\_eventsfull\_component\_DNMT3A\_IDH1\_2\_ITD-••full\_component\_DNMT3A\_IDH1\_2-1.00full\_component\_chr\_splicing\_1full\_component\_CEBPA\_bi\_ITD-Ratio (ref\_CI/Permuted\_CI) comp\_gen\_cyto Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE full\_component\_CEBPA\_bi\_ITDfull\_component\_inv\_3full\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_WT1\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_not\_assigned\_ITDdel\_5full\_component\_chr\_splicing\_multiple-NRAS\_p.Q61\_62-SF3B1-ASXL1-TET2-EZH2full\_component\_TP53\_complex -U2AF1\_p.S34del\_17full\_component\_additions -KRASadd\_11 -SRSF2others\_translocfull\_component\_t\_8\_21\_ITD-WT1 -MLLdel\_7complex del\_16del\_20 del\_9 -DNMT3Adel\_12-SMC1A-Selected Features add\_13-ITD-CBLminusy full\_component\_WT1-NRAS\_p.G12\_13-FLT3\_other-IDH2\_p.R140-RUNX1full\_component\_t\_11-BCORadd\_21 -SMC3-NF1full\_component\_chr\_splicing\_1 -STAG2-PHF6-FLT3\_TKD-CEBPA\_monoadd\_8-KITfull\_component\_DNMT3A\_IDH1\_2-IDH1full\_component\_NPM1\_ITDdel\_3-PTPN11full\_component\_not\_assigned-GATA2-RAD21-MYCfull\_component\_NPM1 del\_18full\_component\_t\_6\_9full\_component\_no\_events -IDH2\_p.R172add\_22 full\_component\_CEBPA\_bi-

Sum of coefficients over GLM Models

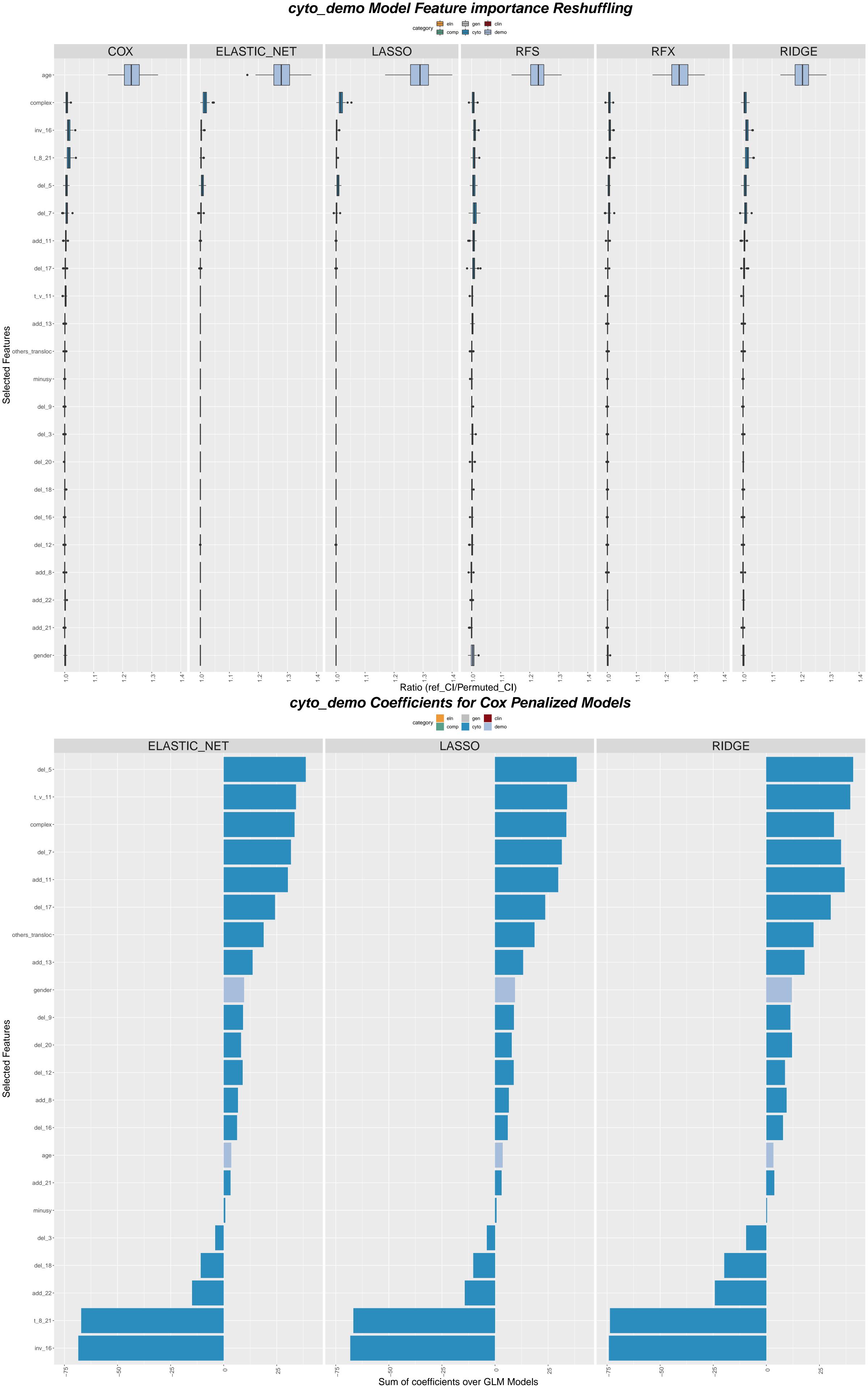
full\_component\_inv\_16full\_component\_t\_8\_21full\_component\_t\_15\_17-

### comp\_gen Model Feature importance Reshuffling comp cyto demo COX ELASTIC\_NET LASSO RFS RIDGE RFX TP53full\_component\_inv\_16full\_component\_chr\_splicing\_multiple full\_component\_t\_8\_21 full\_component\_TP53\_complexfull\_component\_NPM1-•—— TET2full\_component\_t\_15\_17 full\_component\_additions -----SRSF2-• ASXL1full\_component\_inv\_3-DNMT3Afull\_component\_CEBPA\_bifull\_component\_no\_events -••• SF3B1full\_component\_WT1\_ITD -••-PTPN11-•--NRAS\_p.Q61\_62-IDH2\_p.R172-EZH2----ITD-WT1-U2AF1\_p.S34-STAG2-SMC3-SMC1A-RUNX1-RAD21-PHF6-NRAS\_p.G12\_13-NF1-MYC-MLL-KRAS-KIT-IDH2\_p.R140-IDH1-GATA2-FLT3\_TKD-FLT3\_other-CEBPA\_mono -CBL-BCORoverlapfull\_component\_WT1 full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9full\_component\_t\_11 full\_component\_NPM1\_ITDfull\_component\_not\_assigned\_ITDfull\_component\_not\_assignedfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_1 full\_component\_CEBPA\_bi\_ITD-Ratio (ref\_CI/Permuted\_CI) comp\_gen Coefficients for Cox Penalized Models LASSO ELASTIC\_NET RIDGE full\_component\_CEBPA\_bi\_ITD-TP53full\_component\_inv\_3full\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_WT1\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_TP53\_complexfull\_component\_not\_assigned\_ITD-NRAS\_p.Q61\_62full\_component\_chr\_splicing\_multiple -EZH2-TET2-ASXL1-U2AF1\_p.S34-SRSF2full\_component\_additions full\_component\_t\_8\_21\_ITD -MLL-WT1 -DNMT3A-SMC1A-CBL-NRAS\_p.G12\_13-Selected Features ITD-RUNX1-FLT3\_otherfull\_component\_WT1 -IDH2\_p.R140-NF1-BCOR-SMC3full\_component\_t\_11full\_component\_chr\_splicing\_1 full\_component\_DNMT3A\_IDH1\_2-KIT-CEBPA\_monooverlap -PHF6-FLT3\_TKD-STAG2-IDH1full\_component\_NPM1\_ITD-PTPN11full\_component\_not\_assigned-GATA2-RAD21-MYCfull\_component\_t\_6\_9full\_component\_NPM1 full\_component\_no\_events IDH2\_p.R172full\_component\_CEBPA\_bifull\_component\_t\_8\_21 full\_component\_inv\_16 full\_component\_t\_15\_17-

comp Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RFX RIDGE full\_component\_TP53\_complexfull\_component\_chr\_splicing\_multiplefull\_component\_inv\_16full\_component\_t\_8\_21 full\_component\_NPM1 full\_component\_t\_15\_17 full\_component\_no\_events full\_component\_additions full\_component\_CEBPA\_bifull\_component\_WT1\_ITDfull\_component\_not\_assignedfull\_component\_inv\_3overlapfull\_component\_WT1 full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9full\_component\_t\_11full\_component\_NPM1\_ITDfull\_component\_not\_assigned\_ITDfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_1 full\_component\_CEBPA\_bi\_ITD-Ratio (ref\_CI/Permuted\_CI) comp Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE full\_component\_CEBPA\_bi\_ITDfull\_component\_TP53\_complexfull\_component\_inv\_3full\_component\_WT1\_ITDfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_chr\_splicing\_multiplefull\_component\_t\_6\_9\_ITDfull\_component\_not\_assigned\_ITDfull\_component\_additions full\_component\_t\_8\_21\_ITDoverlap -Selected Features full\_component\_WT1 full\_component\_chr\_splicing\_1 full\_component\_t\_11 full\_component\_NPM1\_ITDfull\_component\_DNMT3A\_IDH1\_2full\_component\_not\_assignedfull\_component\_NPM1 full\_component\_t\_6\_9full\_component\_no\_eventsfull\_component\_CEBPA\_bifull\_component\_t\_8\_21 full\_component\_inv\_16 full\_component\_t\_15\_17-0 Sum of coefficients over GLM Models

# cyto\_clin\_demo Model Feature importance Reshuffling ELASTIC\_NET COX LASSO RFS RFX RIDGE perf\_status complext\_v\_11 -Selected Features others\_translocdel\_20 del\_16del\_12add\_8add\_22 add\_21 add\_13secondarygenderbm\_blasts-Ratio (ref\_Cl/Permuted\_Cl) cyto\_clin\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE del\_5 add\_11 del\_7 t\_v\_11 del\_17 perf\_status others\_translocadd\_13del\_12genderdel\_9 secondary-Selected Features add\_8 del\_20 del\_16add\_21 agebm\_blastsminusydel\_18add\_22 t\_8\_21 inv\_16-Sum of coefficients over GLM Models

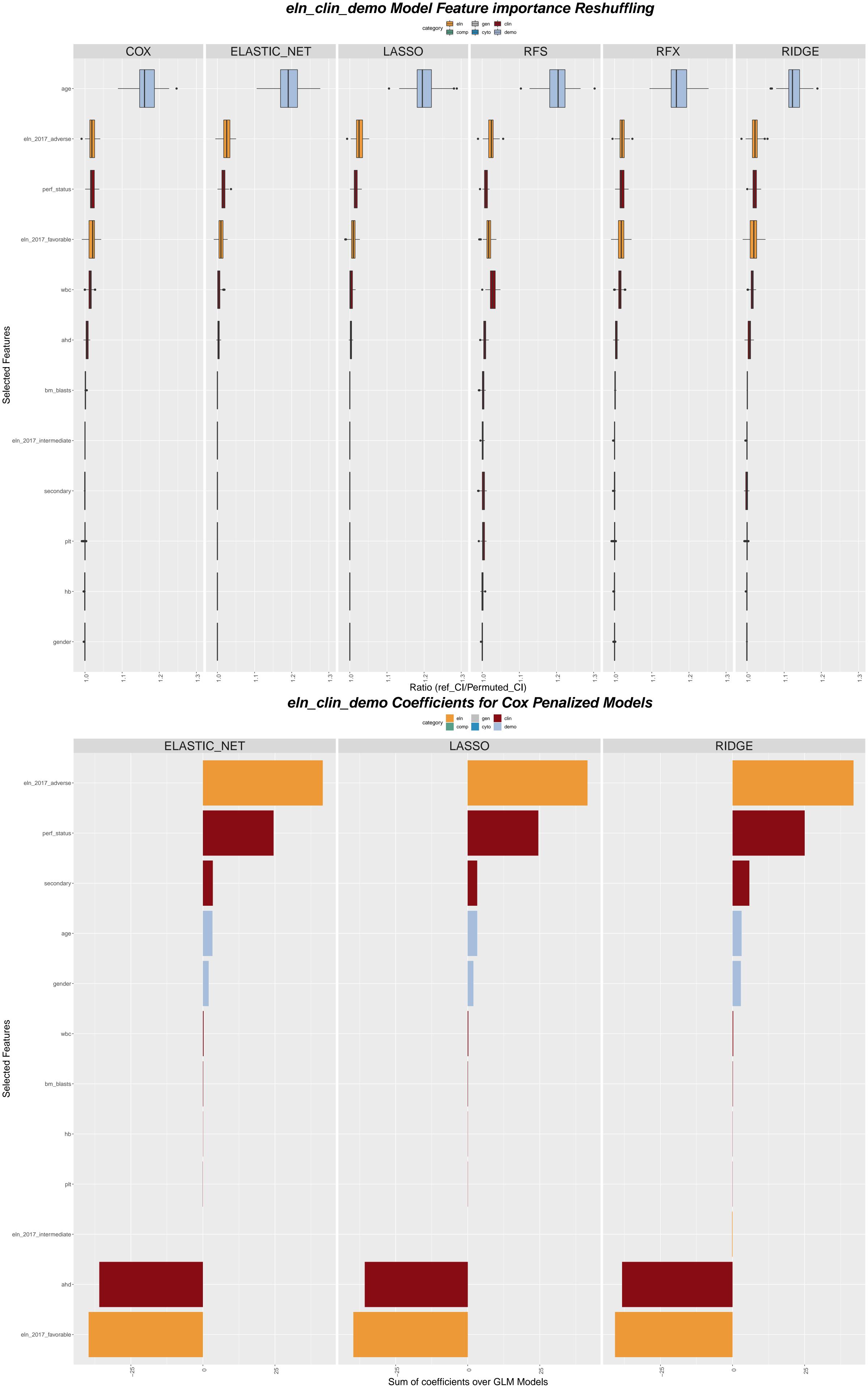
# cyto\_clin Model Feature importance Reshuffling COX ELASTIC\_NET LASSO **RFS** RFX RIDGE perf\_status inv\_16t\_8\_21 -Selection add\_13 Selection del\_20 t\_v\_11 others\_translocminusydel\_9 del\_3 add\_8add\_22 add\_21 bm\_blasts-1.08 Ratio (ref\_Cl/Permuted\_Cl) cyto\_clin Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE del\_17 del\_5add\_11 del\_7 perf\_status complexsecondary add\_13del\_20 add\_8add\_21 minusy-Section Section Sectin Section Section Section Section Section Section Section Section del\_16del\_9 wbcbm\_blastshbdel\_3 del\_18add\_22 t\_8\_21 inv\_16-90 Sum of coefficients over GLM Models

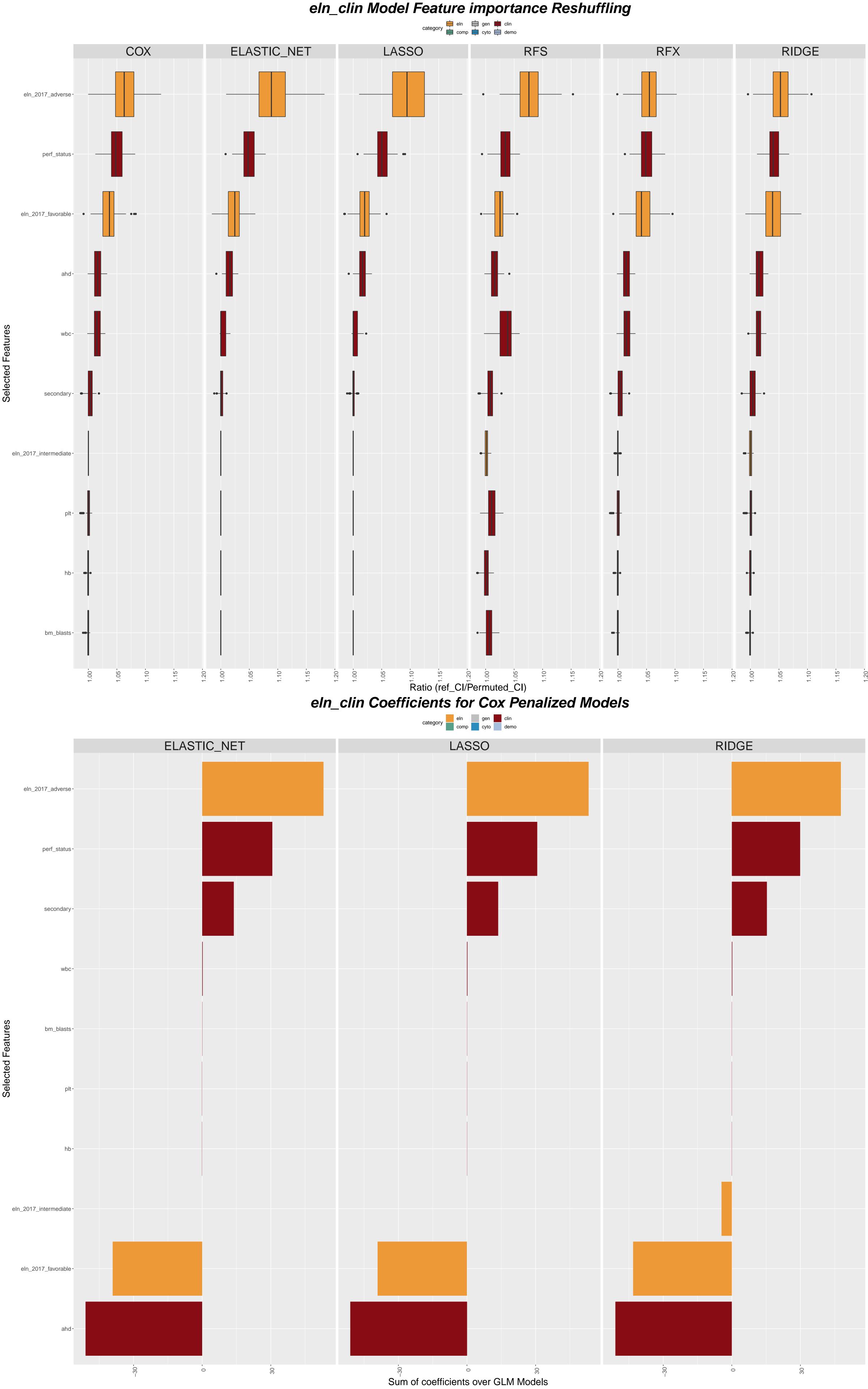


### cyto\_gen\_demo Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RFX RIDGE • •• age-TP53-ITD-ASXL1 complex del\_7 -WT1 DNMT3Adel\_5 -IDH2\_p.R172add\_11 del\_17 -CEBPA\_bit\_v\_11 -U2AF1\_p.S34-TET2-STAG2-SRSF2-SMC3-SMC1A-SF3B1-RAD21-PTPN11-PHF6-NRAS\_p.Q61\_62 NRAS\_p.G12\_13 NF1 MYC-KRAS-IDH2\_p.R140-IDH1 -GATA2-FLT3\_TKD-FLT3\_other-EZH2-CEBPA\_mono-CBL-BCORothers\_translocminusy del\_9 del\_20 del\_18del\_16del\_12add\_8 add\_22 add\_21 add\_13gender-RUNX1-Ratio (ref\_CI/Permuted\_CI) cyto\_gen\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE TP53-NRAS\_p.Q61\_62-WT1-ITD-ASXL1t\_v\_11 complex -KRASdel\_5 add\_11 others\_transloc-EZH2-SF3B1add\_13-NF1del\_9 -NRAS\_p.G12\_13-U2AF1\_p.S34del\_17 -DNMT3Adel\_12-SRSF2-BCOR-Selected Features TET2-SMC1A-CBL-FLT3\_other-KITdel\_16-PHF6del\_20 gender-RUNX1add\_21 ageadd\_8-SMC3minusy -STAG2-IDH2\_p.R140-IDH1 -FLT3\_TKD-CEBPA\_mono-PTPN11-RAD21-MYCdel\_3-GATA2-CEBPA\_bidel\_18add\_22 -NPM1-IDH2\_p.R172t\_8\_21 inv\_16-Sum of coefficients over GLM Models

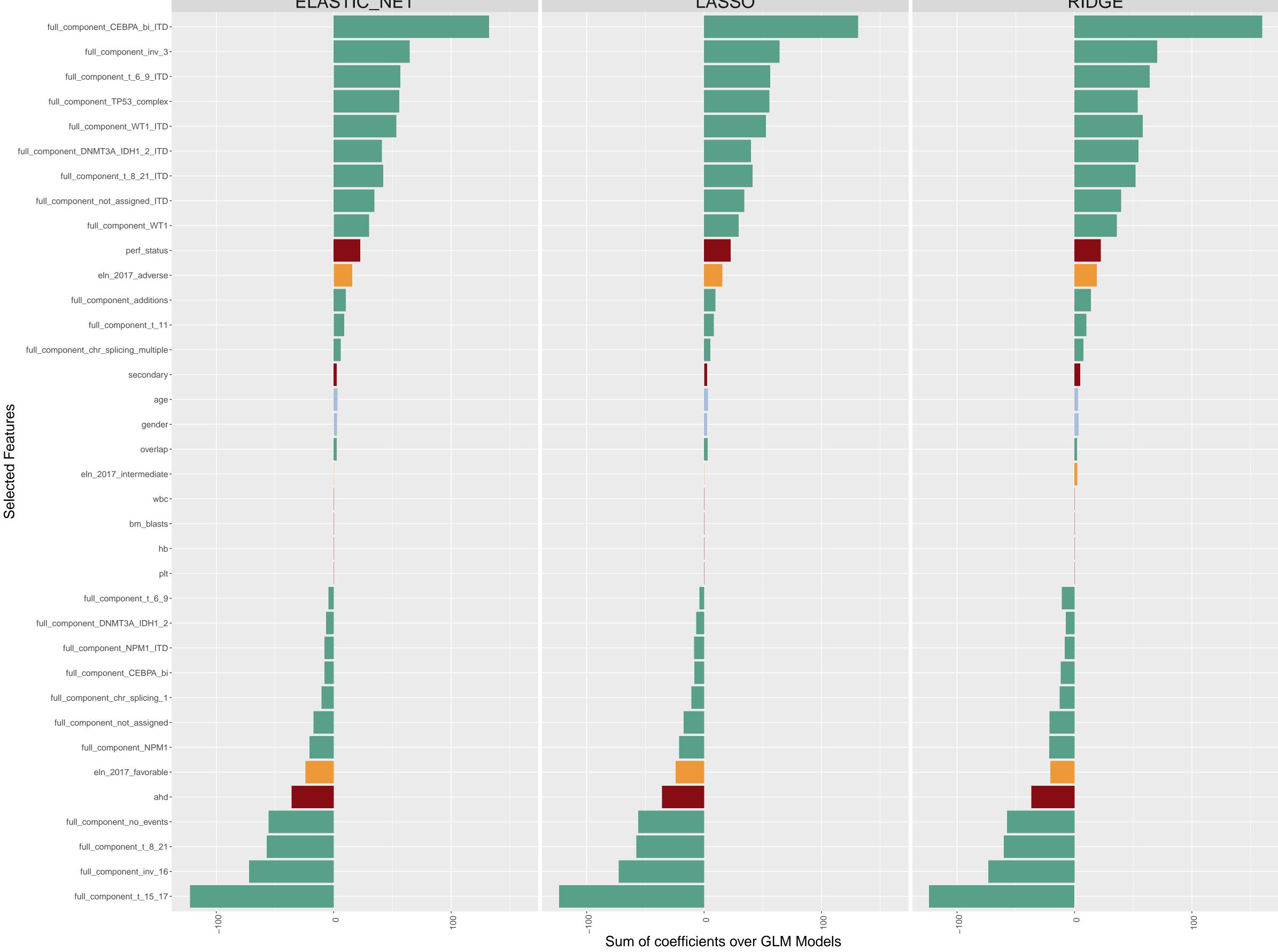
cyto Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RFX RIDGE t\_8\_21 inv\_16 del\_7 complex del\_5 add\_11 del\_17t\_v\_11 others\_translocminusydel\_9 del\_20 del\_18del\_16del\_12add\_8add\_22 add\_21 add\_13-0.95 0.95 Ratio (ref\_Cl/Permuted\_Cl) 1.05 cyto Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE del\_5 del\_7 del\_17 add\_11 complex add\_13del\_20 minusy del\_16-Selected Features add\_8add\_8others\_translocadd\_21 del\_12t\_v\_11 del\_9 del\_3 del\_18add\_22 t\_8\_21 inv\_16-- 20 20 Sum of coefficients over GLM Models

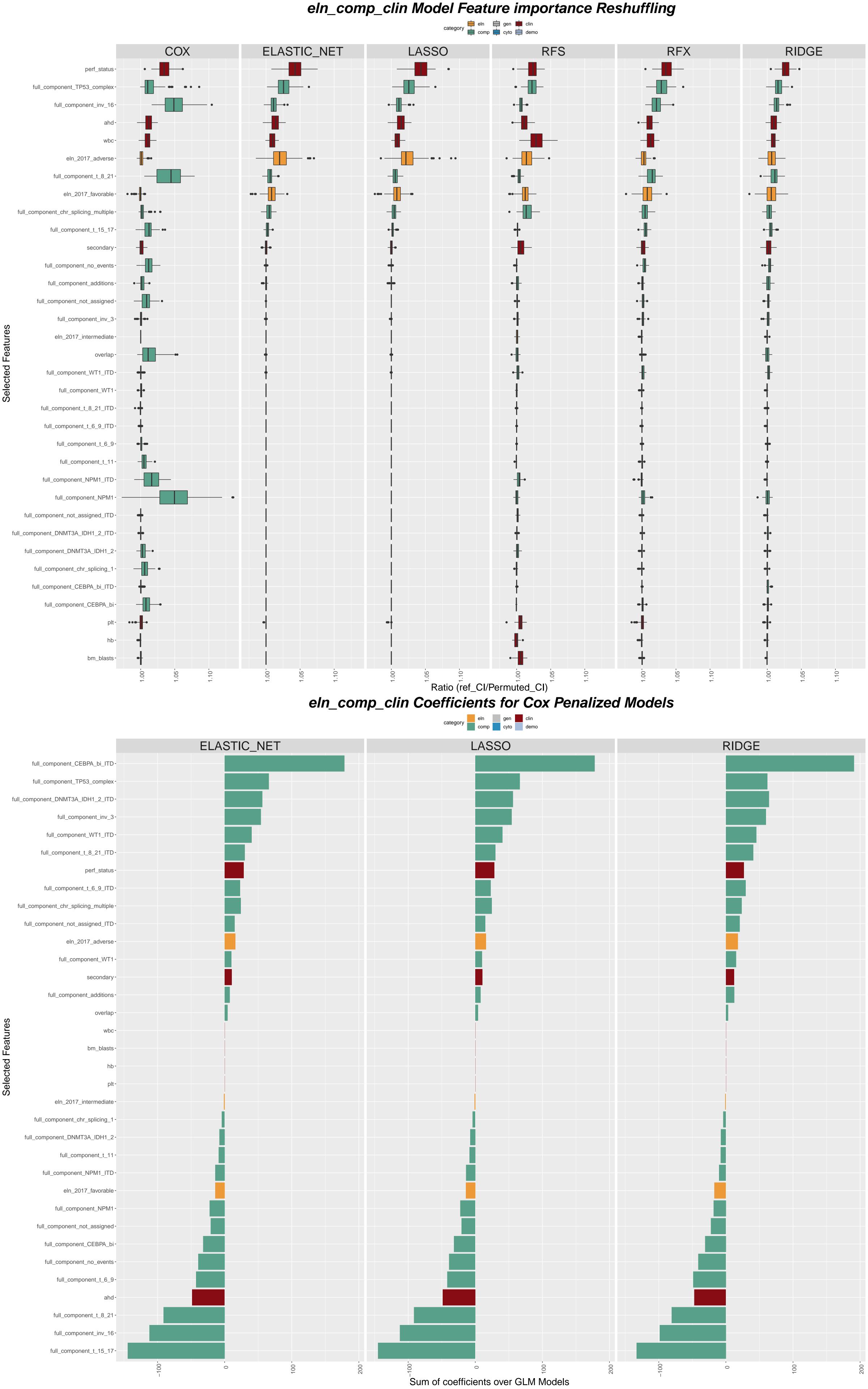
demo Model Feature importance Reshuffling ELASTIC\_NET RIDGE COX LASSO RFS RFX Selected Features Ratio (ref\_Cl/Permuted\_Cl) demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE Selected Features Sum of coefficients over GLM Models

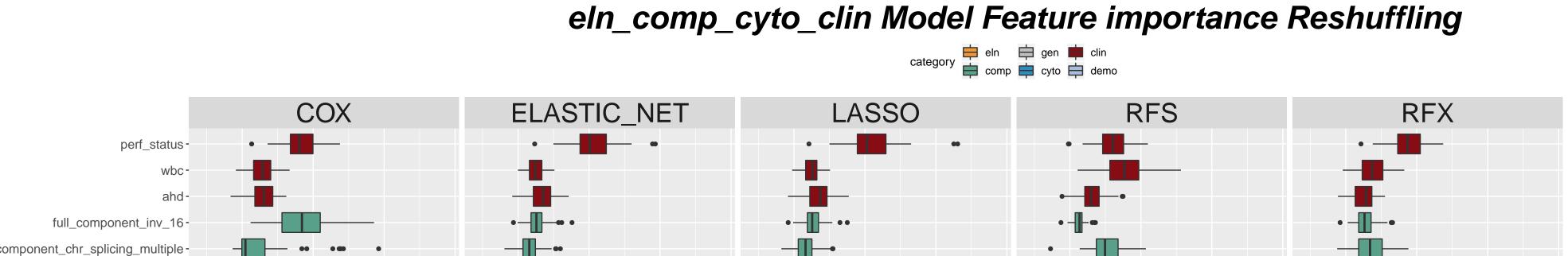


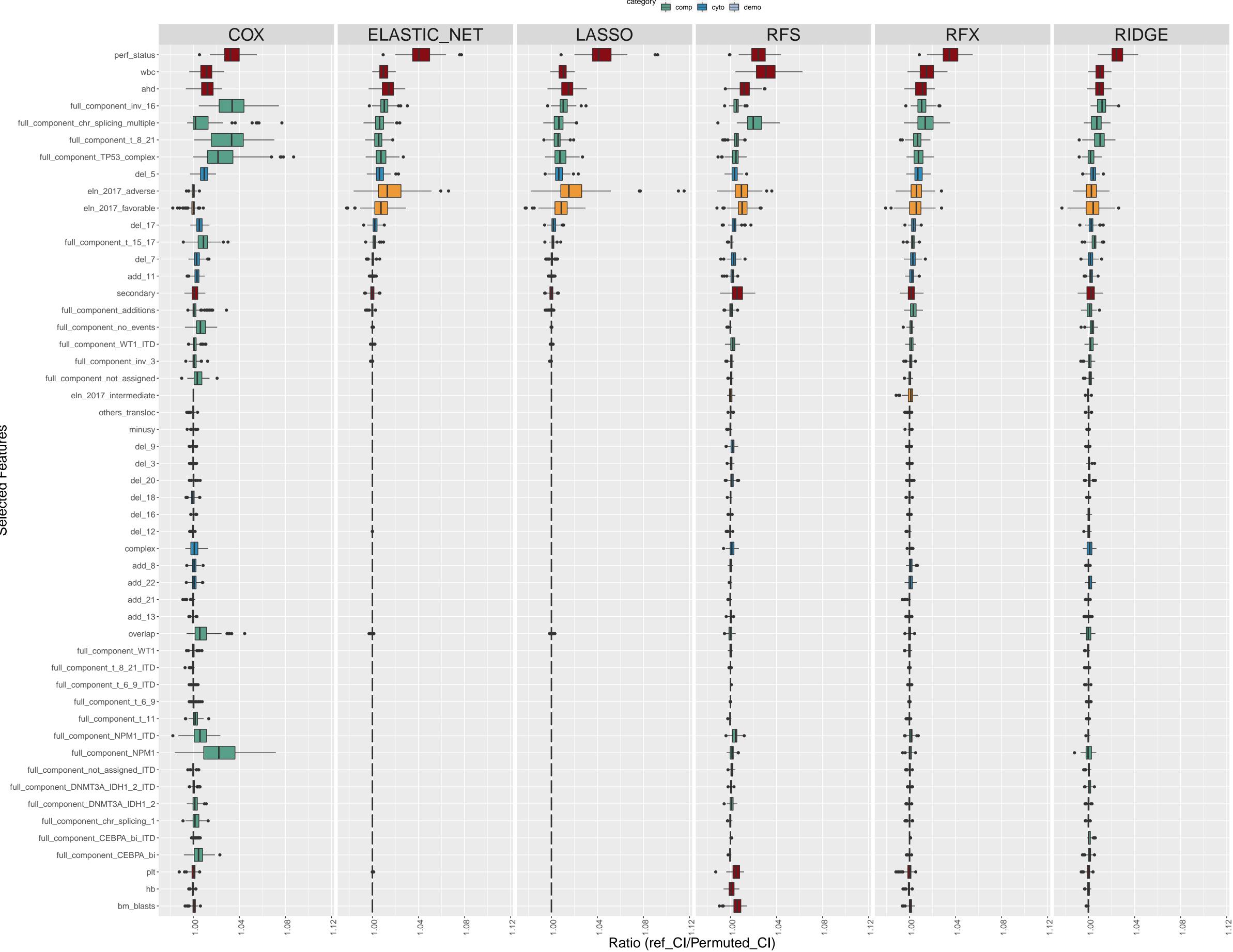


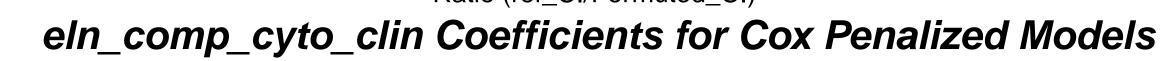
## eln\_comp\_clin\_demo Model Feature importance Reshuffling ELASTIC\_NET COX LASSO **RFS** RIDGE RFX perf\_status full\_component\_TP53\_complexeln\_2017\_favorable full\_component\_inv\_16eln\_2017\_adversefull\_component\_t\_15\_17full\_component\_t\_8\_21 full\_component\_no\_eventsfull\_component\_inv\_3full\_component\_WT1\_ITDfull\_component\_additions full\_component\_not\_assignedeln\_2017\_intermediate overlapfull\_component\_WT1 full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9full\_component\_t\_11full\_component\_NPM1\_ITD full\_component\_NPM1 full\_component\_not\_assigned\_ITDfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_multiplefull\_component\_chr\_splicing\_1full\_component\_CEBPA\_bi\_ITDfull\_component\_CEBPA\_bisecondary hbgenderbm\_blasts -Ratio (ref\_CI/Permuted\_CI) eln\_comp\_clin\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE full\_component\_CEBPA\_bi\_ITDfull\_component\_inv\_3full\_component\_t\_6\_9\_ITDfull\_component\_TP53\_complexfull\_component\_WT1\_ITDfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_t\_8\_21\_ITDfull\_component\_not\_assigned\_ITDfull\_component\_WT1perf\_status eln\_2017\_adversefull\_component\_additions full\_component\_t\_11full\_component\_chr\_splicing\_multiplesecondary agegenderoverlap -

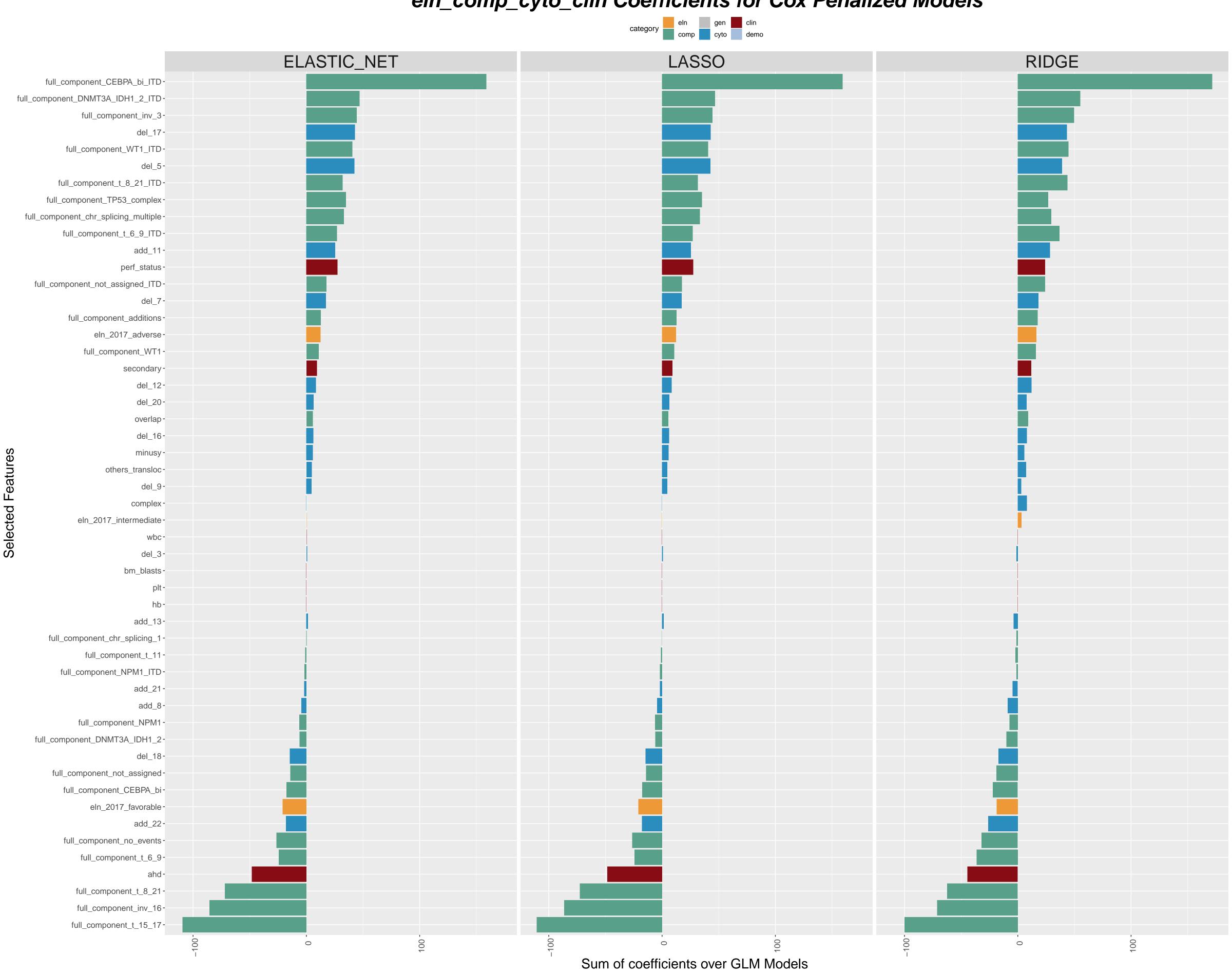


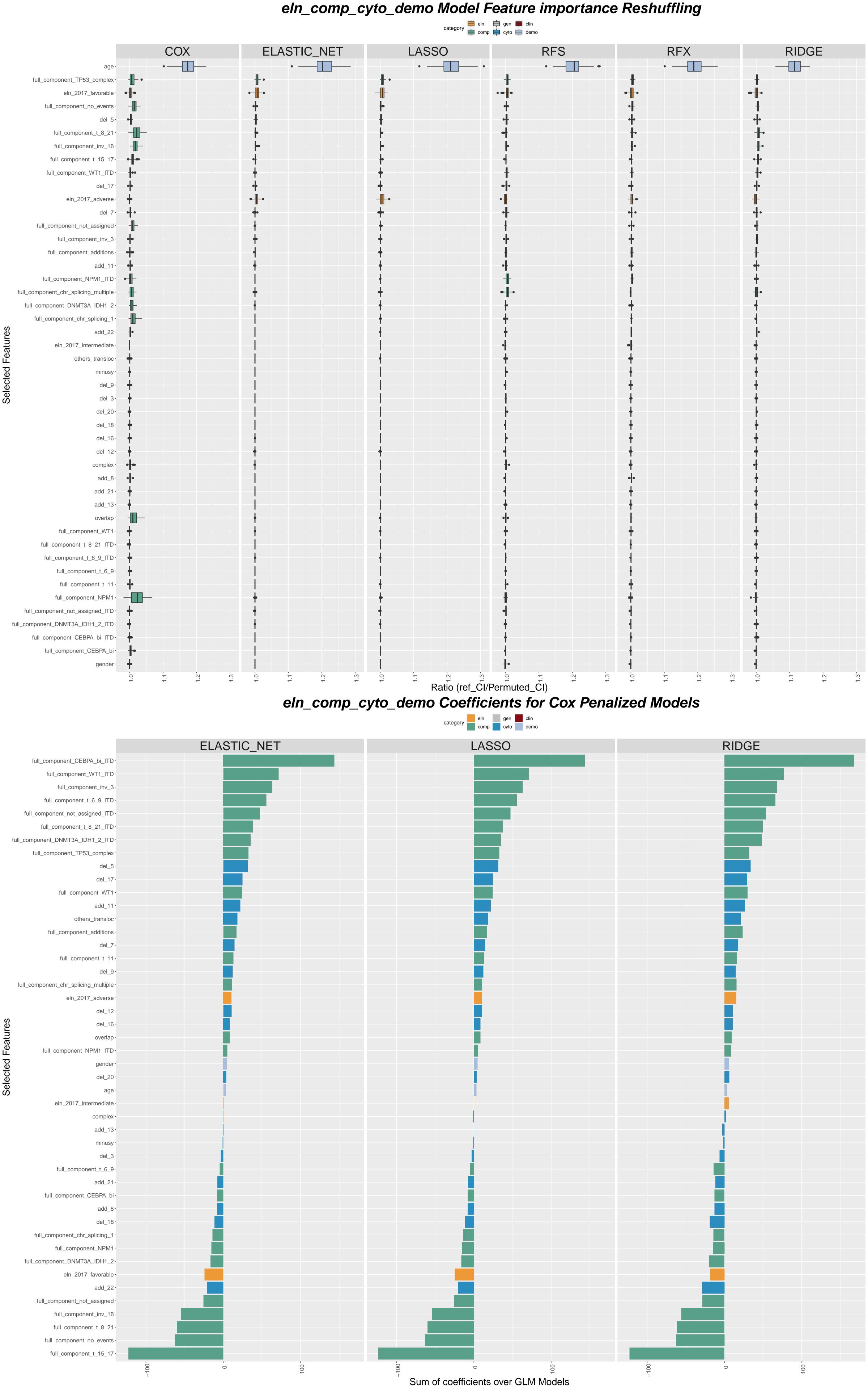




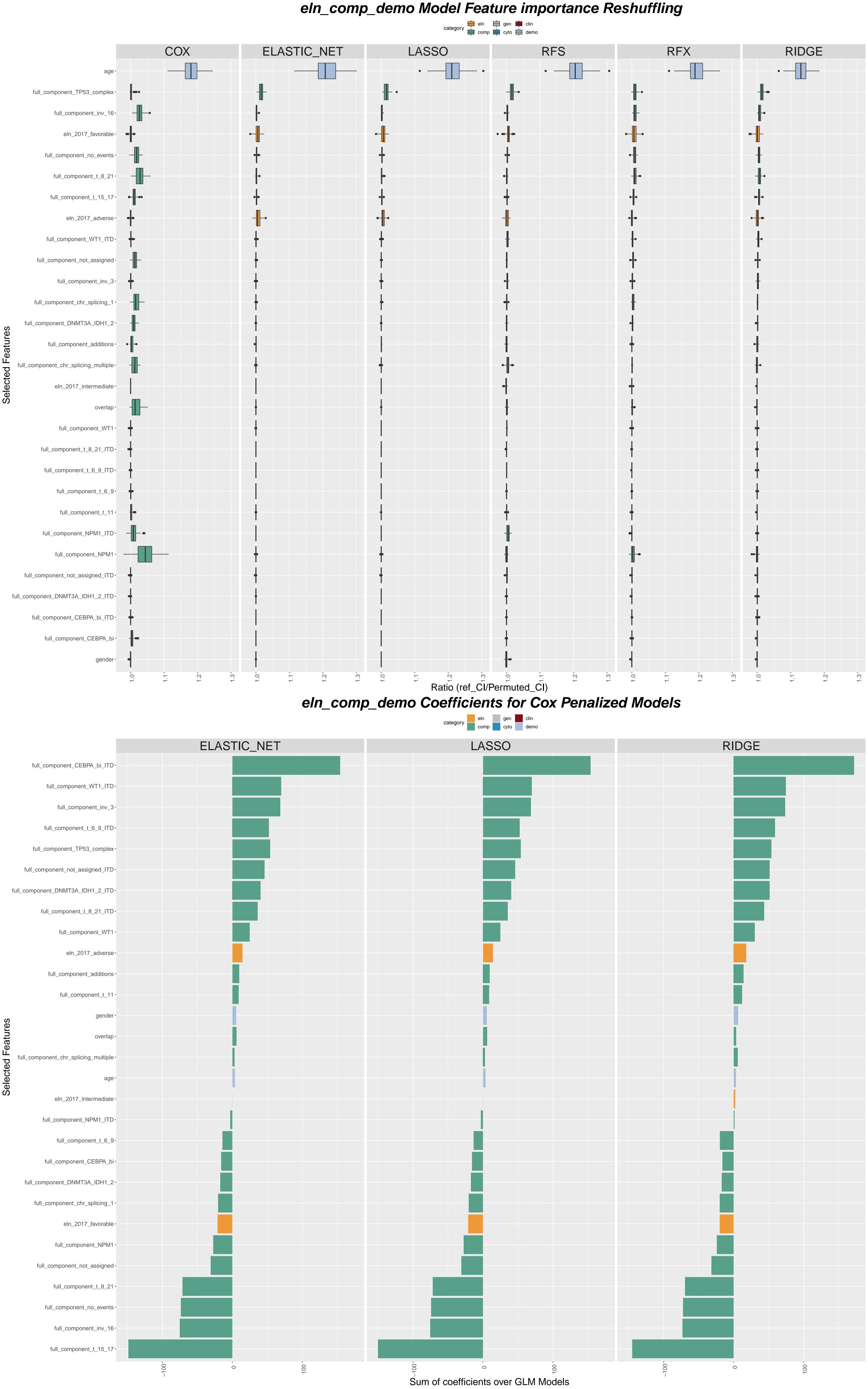


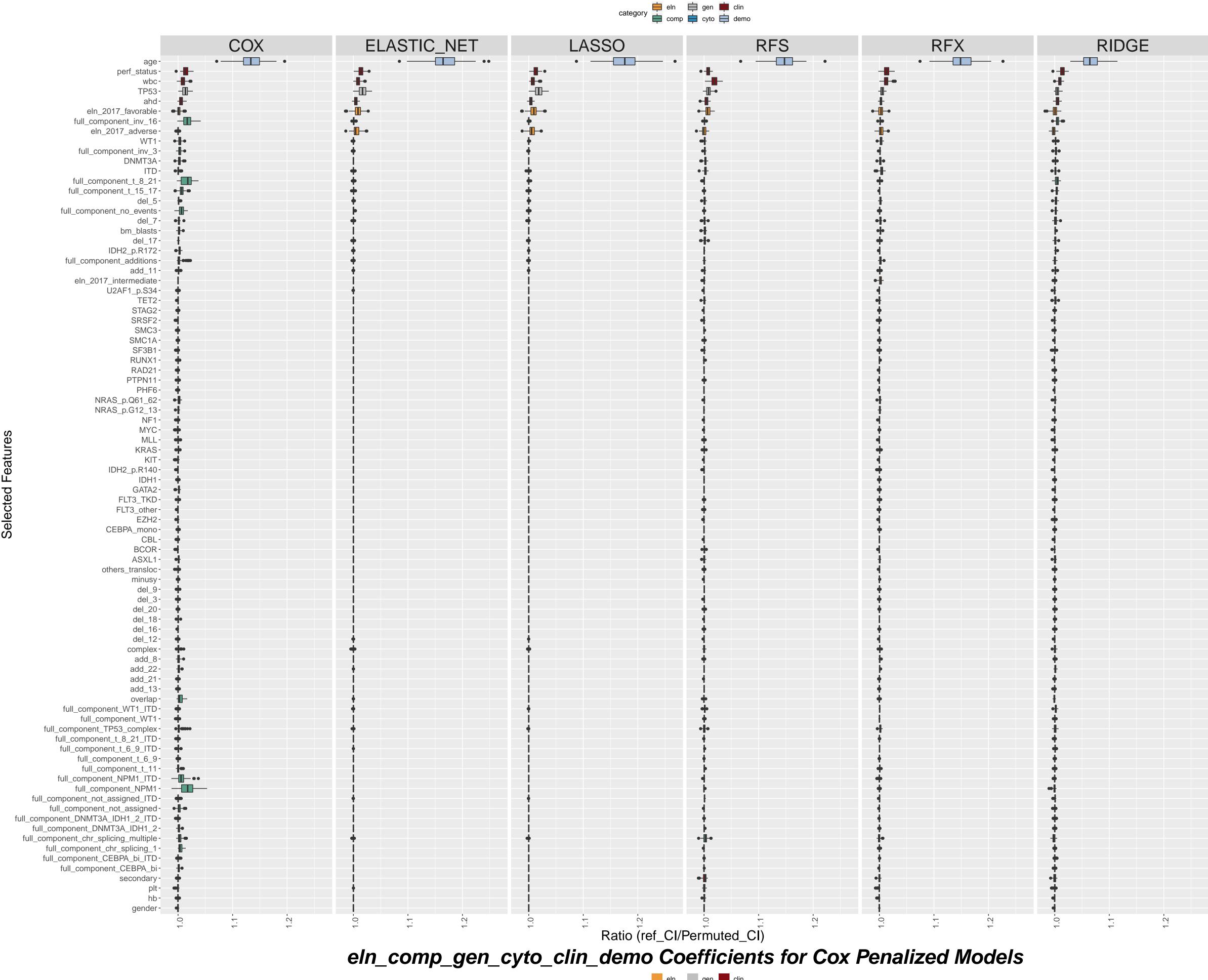


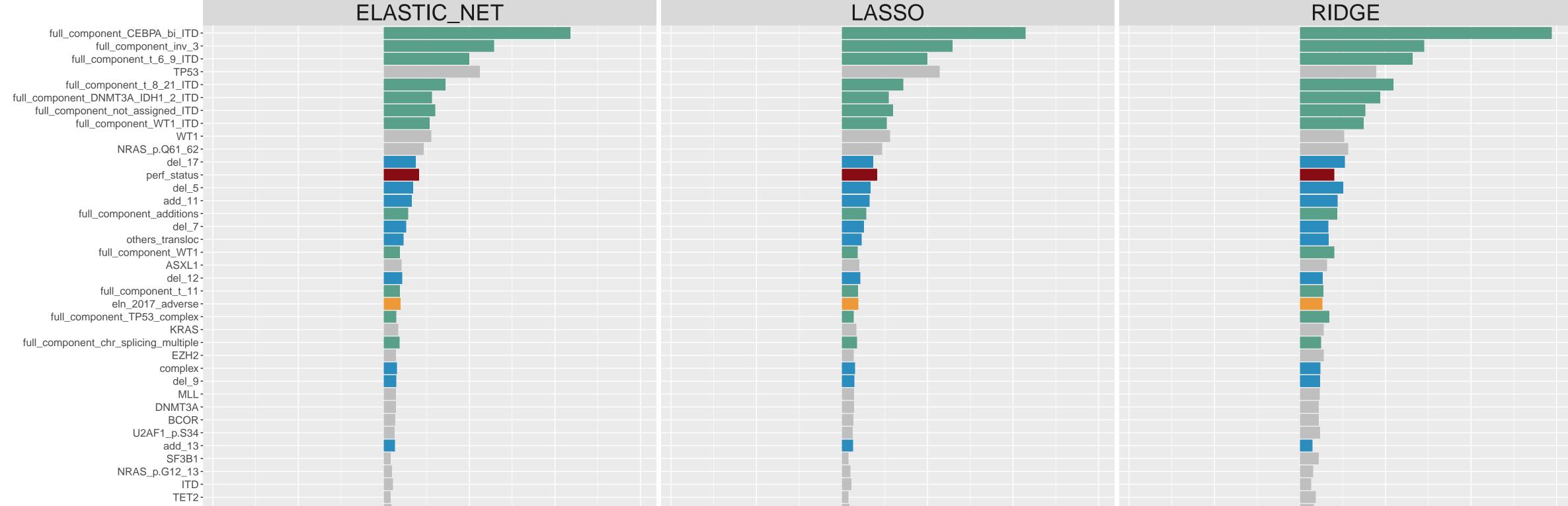




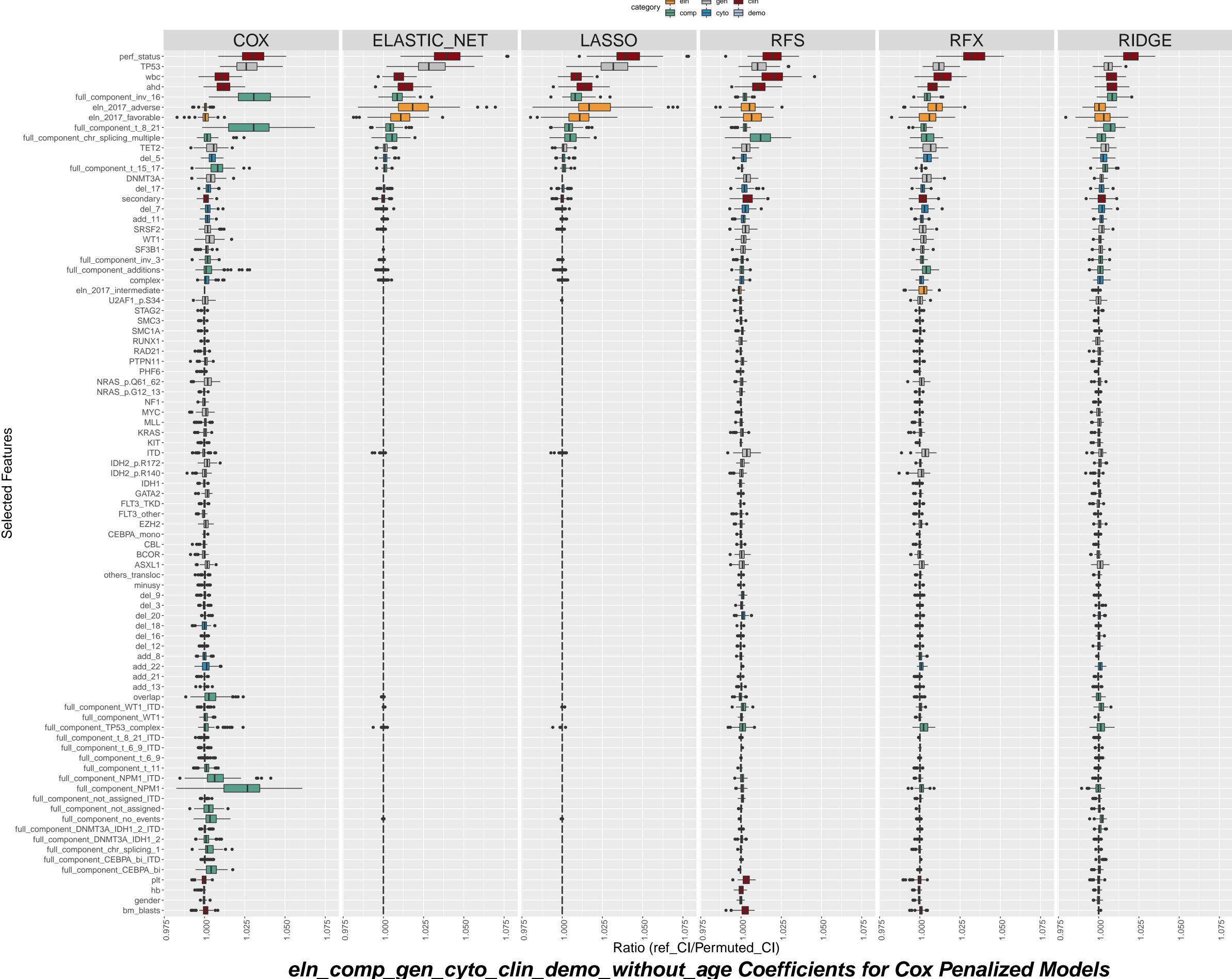
### eln\_comp\_cyto Model Feature importance Reshuffling ELASTIC\_NET COX LASSO RFS RIDGE RFX full\_component\_chr\_splicing\_multiplefull\_component\_t\_8\_21 full\_component\_inv\_16full\_component\_TP53\_complexeln\_2017\_adversedel\_5 eln\_2017\_favorable full\_component\_t\_15\_17 full\_component\_no\_events del\_17full\_component\_additions del\_7add\_11 full\_component\_WT1\_ITD eln\_2017\_intermediate others\_translocminusydel\_9 del\_3del\_20 del\_18del\_16del\_12complex add\_8add\_22add\_21 add\_13overlapfull\_component\_WT1 full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9full\_component\_t\_11full\_component\_NPM1\_ITDfull\_component\_NPM1 full\_component\_not\_assigned\_ITDfull\_component\_not\_assignedfull\_component\_inv\_3full\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_1 full\_component\_CEBPA\_bi\_ITDfull\_component\_CEBPA\_bi-Ratio (ref\_CI/Permuted\_CI) eln\_comp\_cyto Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE full\_component\_CEBPA\_bi\_ITDfull\_component\_WT1\_ITD full\_component\_inv\_3full\_component\_DNMT3A\_IDH1\_2\_ITDdel\_5 full\_component\_chr\_splicing\_multiplefull\_component\_TP53\_complexdel\_17full\_component\_t\_8\_21\_ITD full\_component\_t\_6\_9\_ITDfull\_component\_not\_assigned\_ITDadd\_11 full\_component\_additions del\_7del\_16others\_transloceln\_2017\_adversedel\_20 minusy -Selected Features del\_12overlap del\_9 full\_component\_WT1full\_component\_NPM1\_ITDcomplex eln\_2017\_intermediatedel\_3full\_component\_t\_11add\_13full\_component\_chr\_splicing\_1 add\_21 add\_8full\_component\_NPM1 full\_component\_DNMT3A\_IDH1\_2eln\_2017\_favorable add\_22full\_component\_not\_assignedfull\_component\_CEBPA\_bifull\_component\_t\_6\_9full\_component\_no\_events full\_component\_inv\_16 full\_component\_t\_8\_21 full\_component\_t\_15\_17-

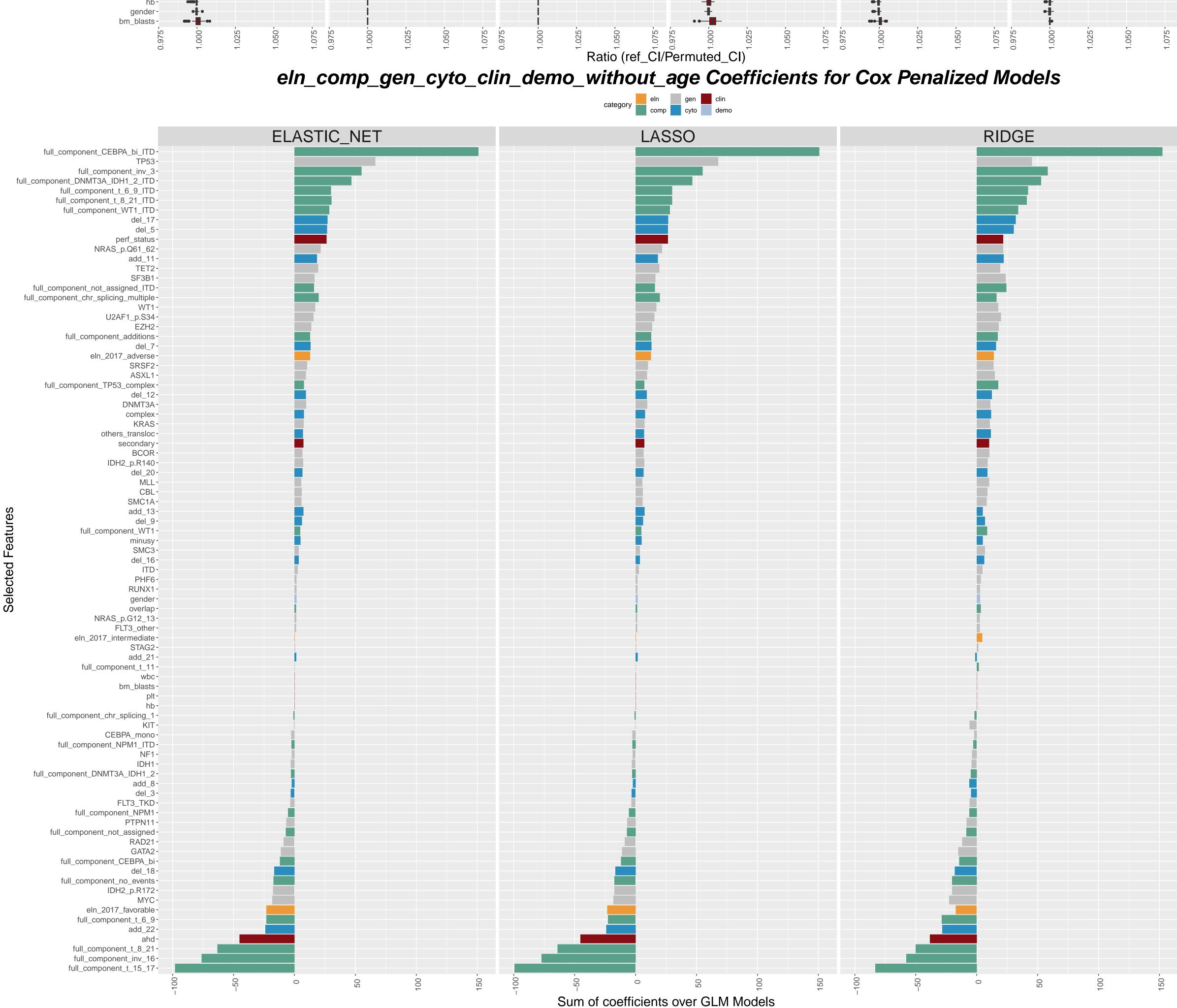






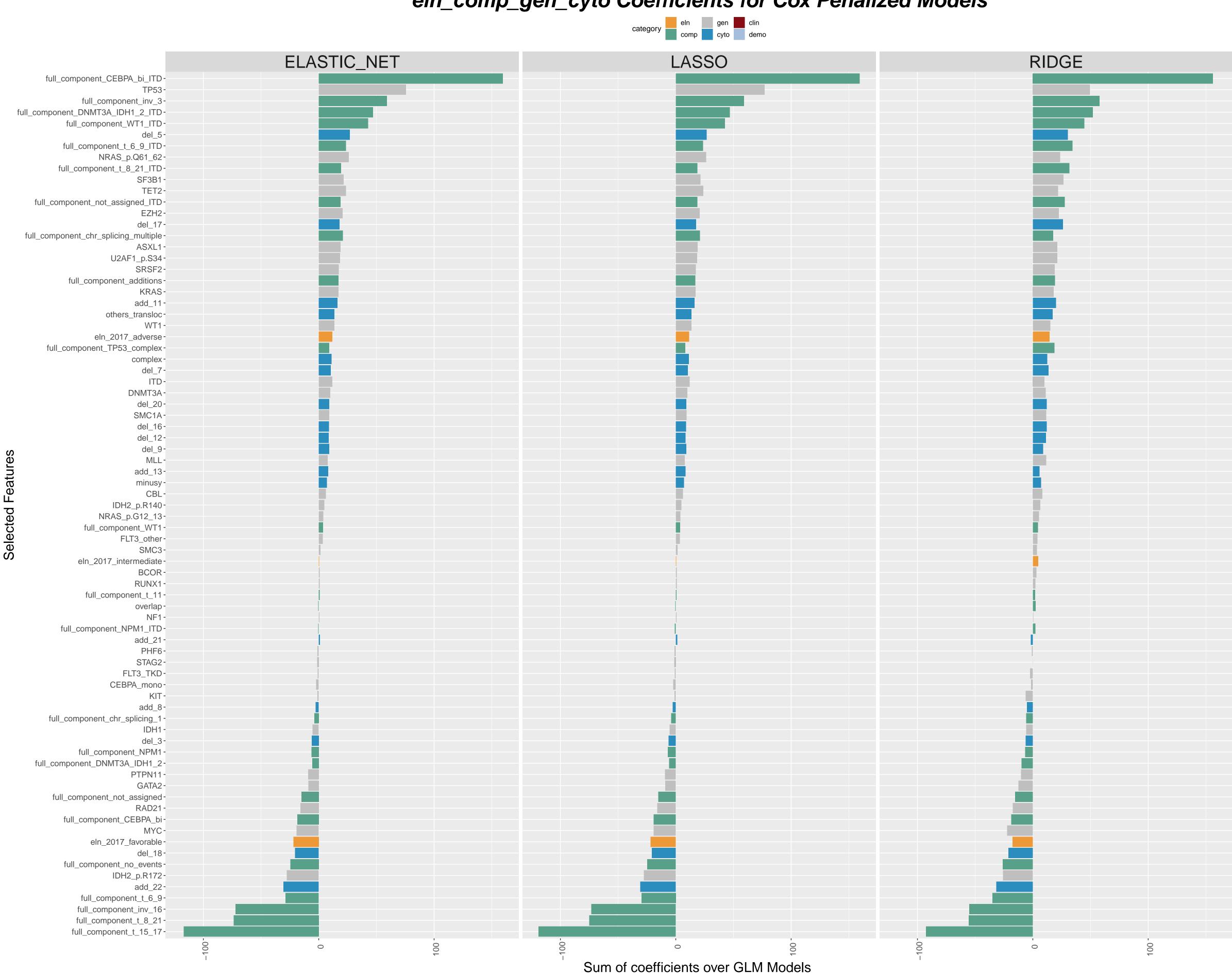
Selected Features



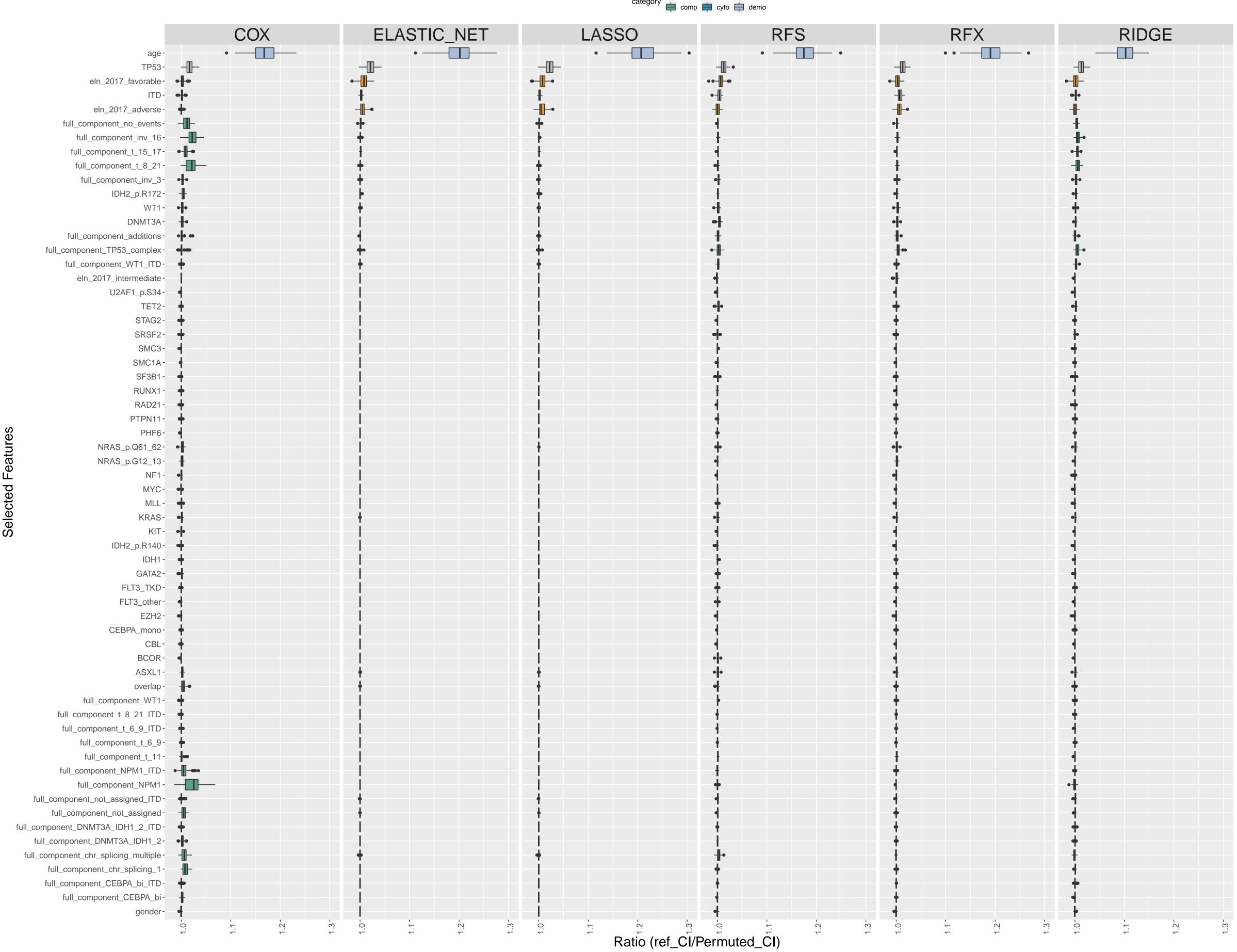


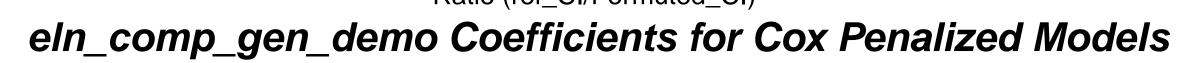
Features

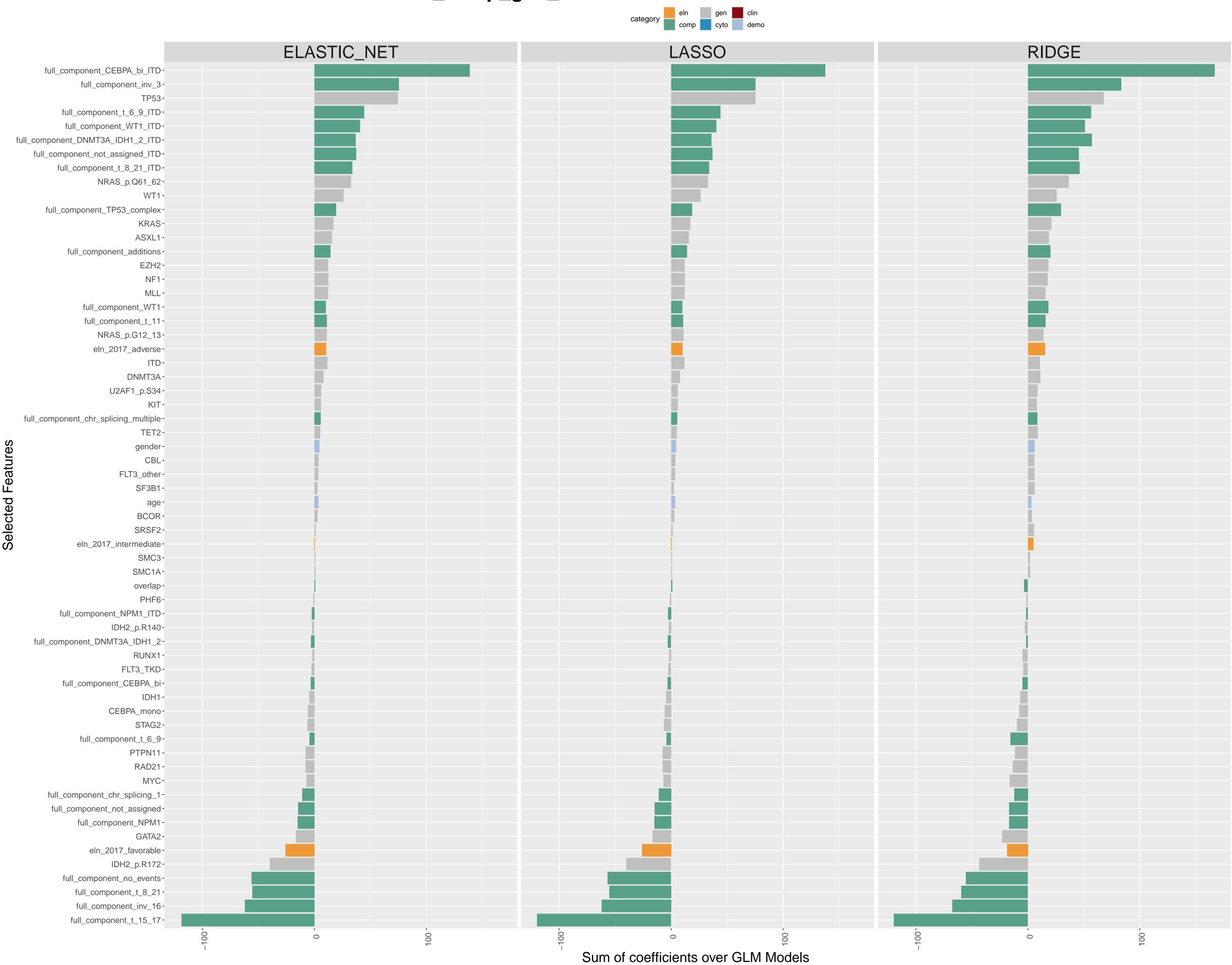
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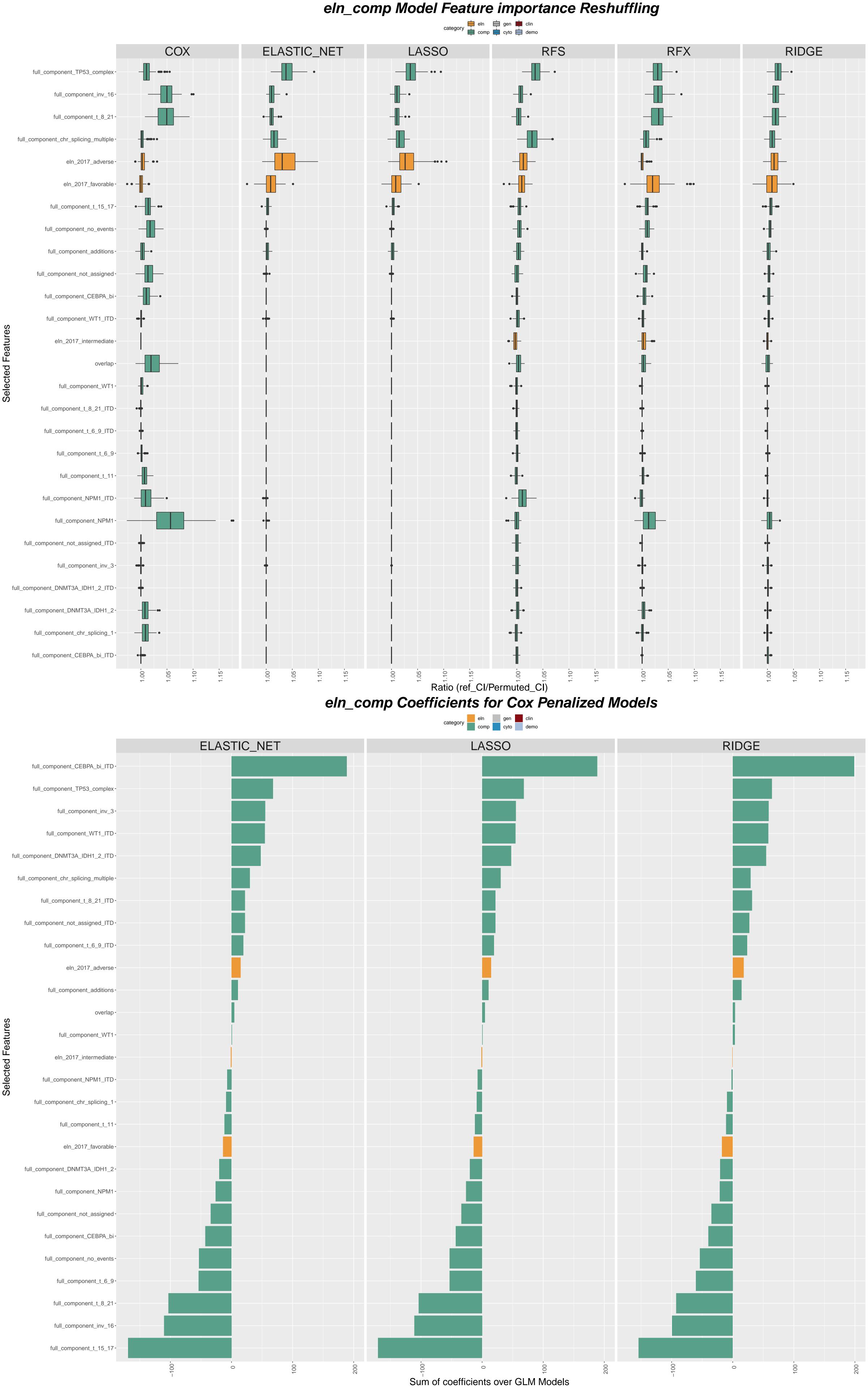
#### eln\_comp\_gen\_demo Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RFX age-TP53-

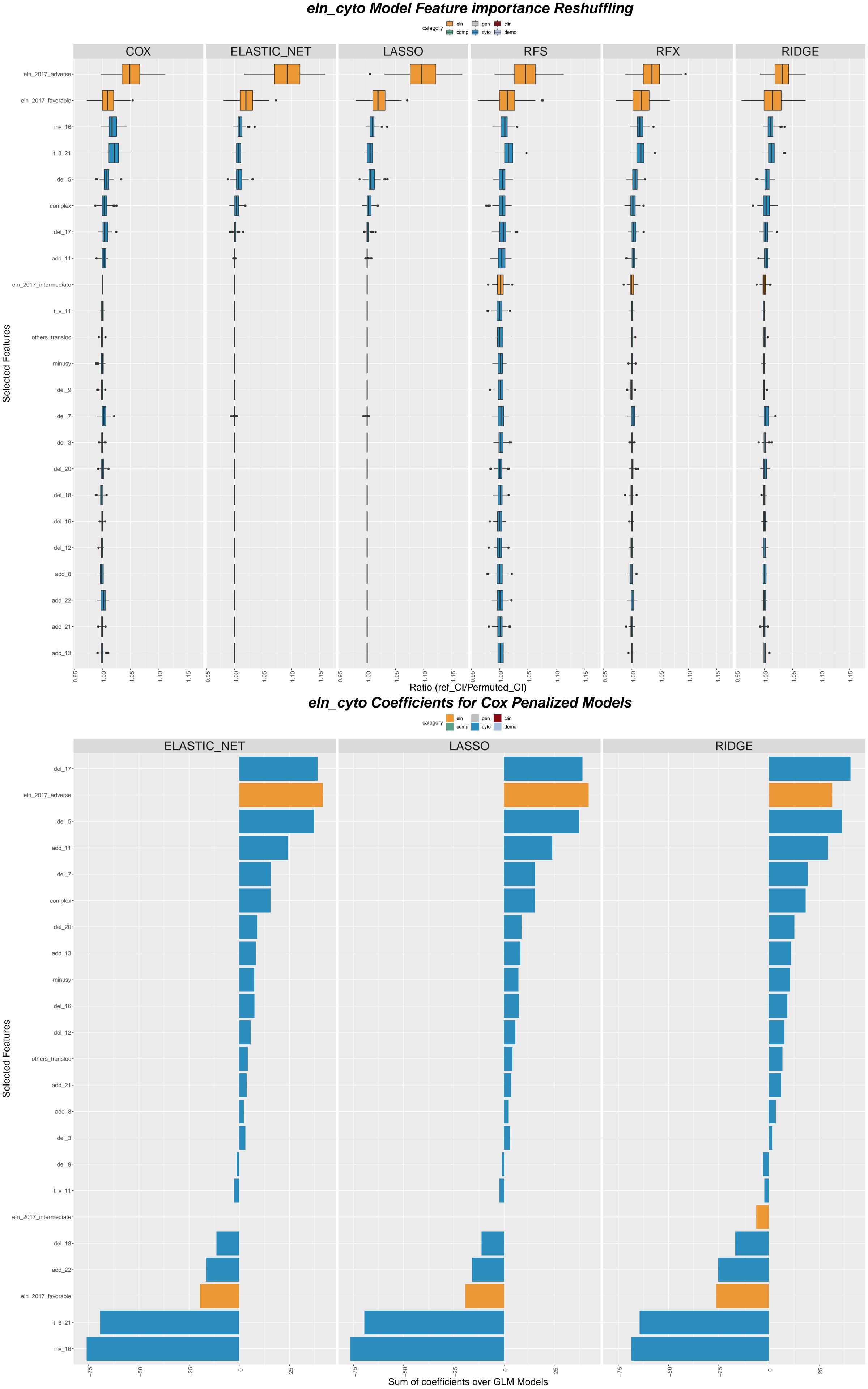


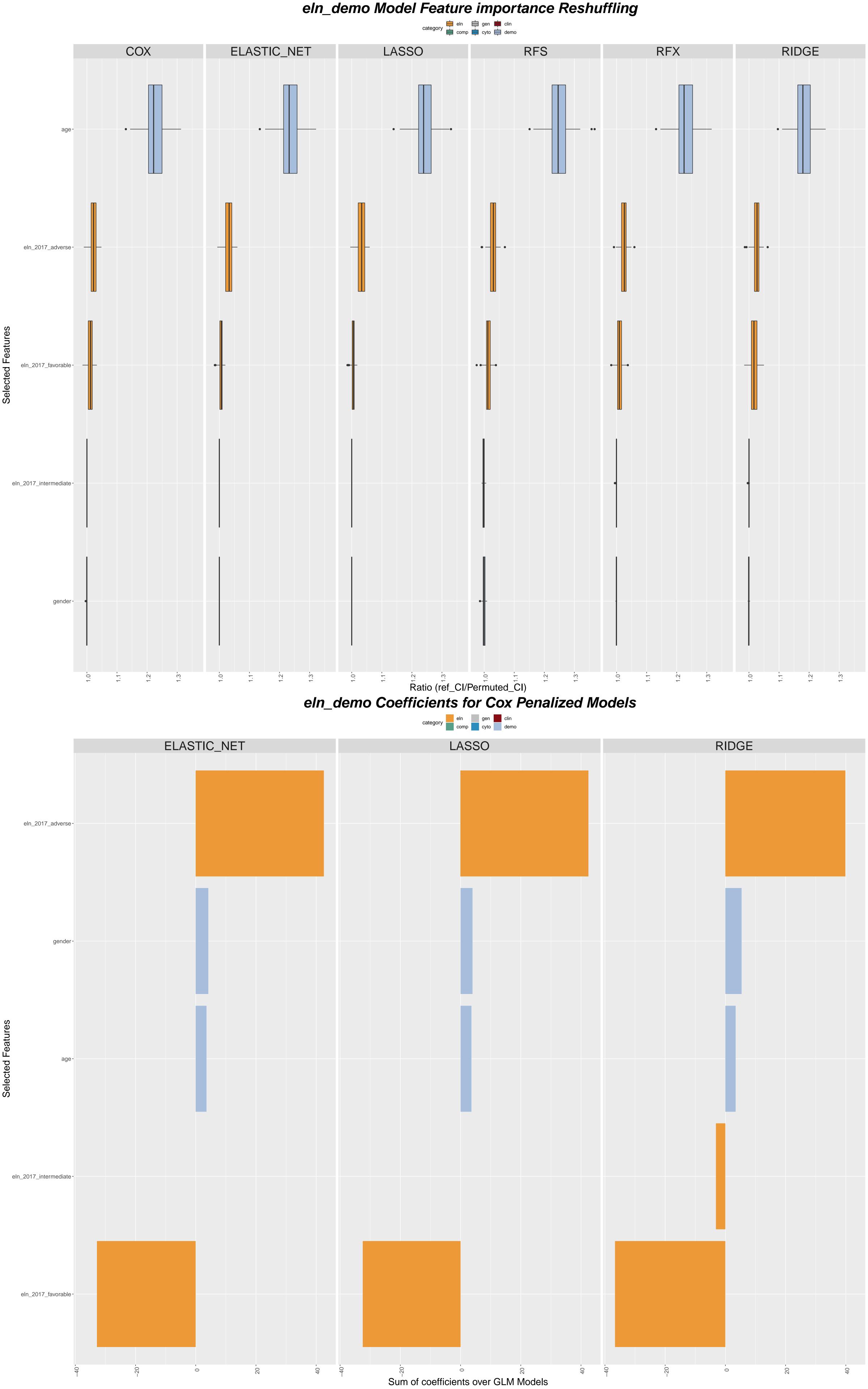




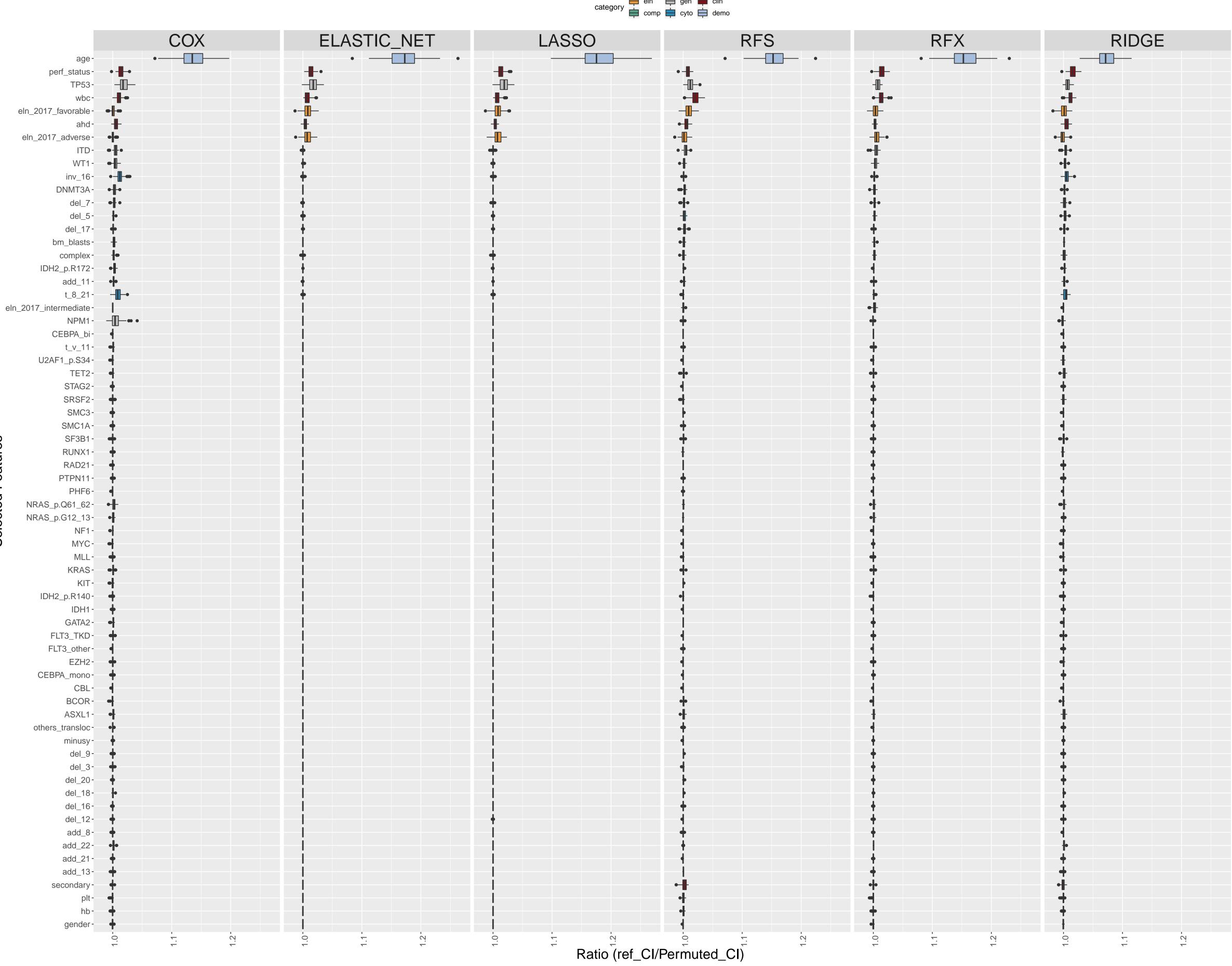
#### eln\_comp\_gen Model Feature importance Reshuffling comp cyto demo COX ELASTIC\_NET LASSO RFS RIDGE RFX TP53eln\_2017\_adversefull\_component\_chr\_splicing\_multiple full\_component\_inv\_16-•—— TET2full\_component\_t\_8\_21 eln\_2017\_favorable - • • • • • • • full\_component\_t\_15\_17 -SRSF2full\_component\_TP53\_complex full\_component\_additions -DNMT3A-•••• •••• ITDfull\_component\_no\_events -••-SF3B1-•---ASXL1-• full\_component\_inv\_3-full\_component\_WT1\_ITD -••• PTPN11eln\_2017\_intermediate -•--WT1 -U2AF1\_p.S34-STAG2-SMC3-SMC1A-RUNX1-RAD21-PHF6-•--NRAS\_p.Q61\_62---NRAS\_p.G12\_13-----Selected NF1-----MYC--MLL-**---**KRAS-KIT-IDH2\_p.R172-••• IDH2\_p.R140-IDH1-GATA2-FLT3\_TKD--FLT3\_other-EZH2-CEBPA\_mono-BCORoverlap full\_component\_WT1 full\_component\_t\_8\_21\_ITDfull\_component\_t\_6\_9\_ITDfull\_component\_t\_6\_9full\_component\_t\_11 full\_component\_NPM1\_ITDfull\_component\_NPM1 full\_component\_not\_assigned\_ITDfull\_component\_not\_assignedfull\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_1-• full\_component\_CEBPA\_bi\_ITDfull\_component\_CEBPA\_bi-1.08 Ratio (ref\_CI/Permuted\_CI) eln\_comp\_gen Coefficients for Cox Penalized Models **ELASTIC\_NET** LASSO RIDGE full\_component\_CEBPA\_bi\_ITD-TP53full\_component\_inv\_3full\_component\_DNMT3A\_IDH1\_2\_ITDfull\_component\_WT1\_ITD-NRAS\_p.Q61\_62full\_component\_t\_8\_21\_ITDfull\_component\_TP53\_complexfull\_component\_t\_6\_9\_ITD-EZH2-SF3B1full\_component\_not\_assigned\_ITD-U2AF1\_p.S34-SRSF2-KRAS-ASXL1eln\_2017\_adversefull\_component\_additions full\_component\_chr\_splicing\_multiple-WT1-DNMT3A-SMC1A-MLL-ITD-CBL-NRAS\_p.G12\_13-Selected Features IDH2\_p.R140-NF1-FLT3\_otherfull\_component\_WT1 -SMC3-BCOReln\_2017\_intermediate -RUNX1-KITfull\_component\_NPM1\_ITDoverlap full\_component\_t\_11 -CEBPA\_mono-FLT3\_TKD-STAG2full\_component\_DNMT3A\_IDH1\_2full\_component\_chr\_splicing\_1-PTPN11-GATA2full\_component\_NPM1 full\_component\_not\_assignedeln\_2017\_favorable -RAD21full\_component\_CEBPA\_bi-MYCfull\_component\_no\_events-IDH2\_p.R172full\_component\_t\_6\_9full\_component\_t\_8\_21 full\_component\_inv\_16 full\_component\_t\_15\_17-Sum of coefficients over GLM Models



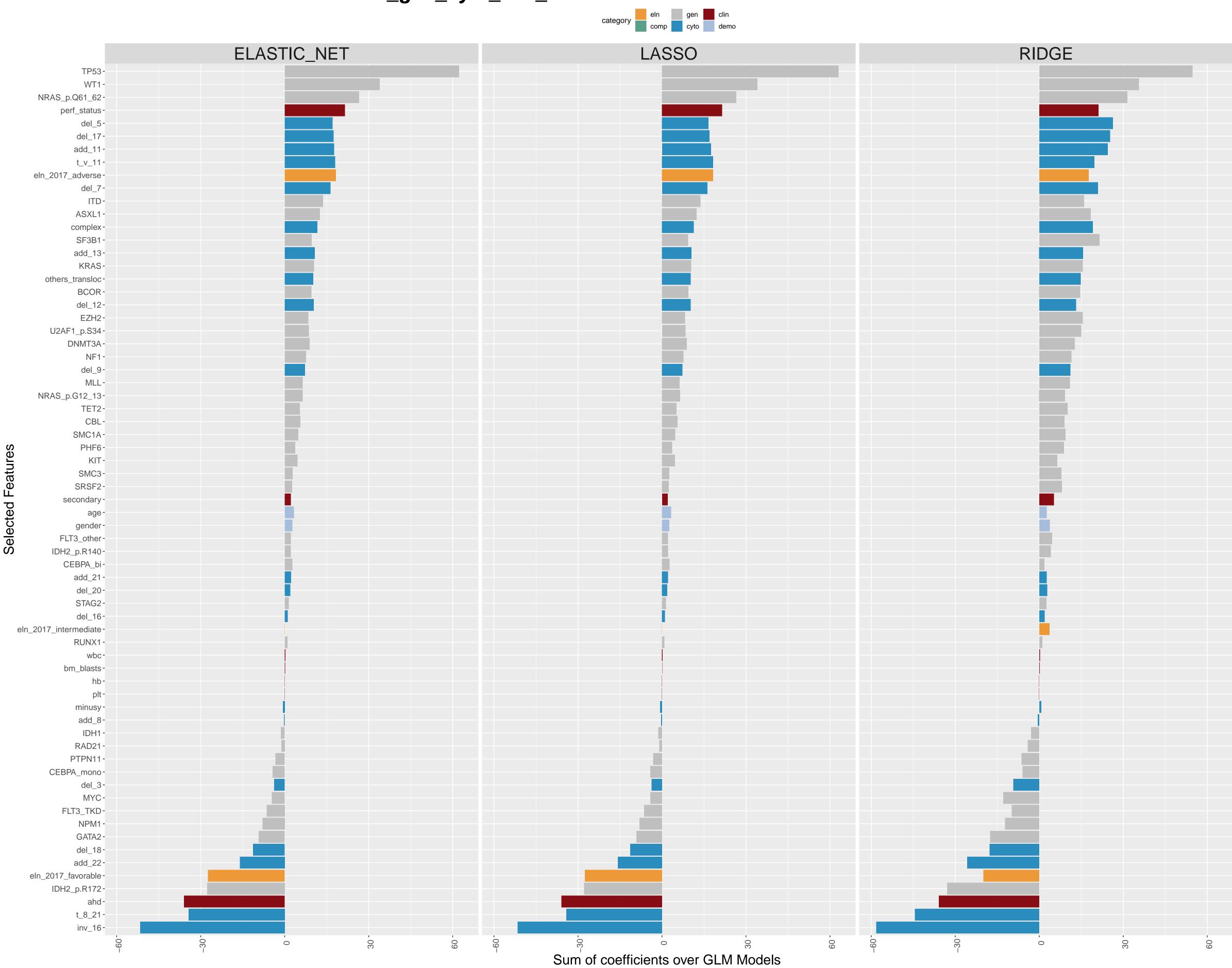




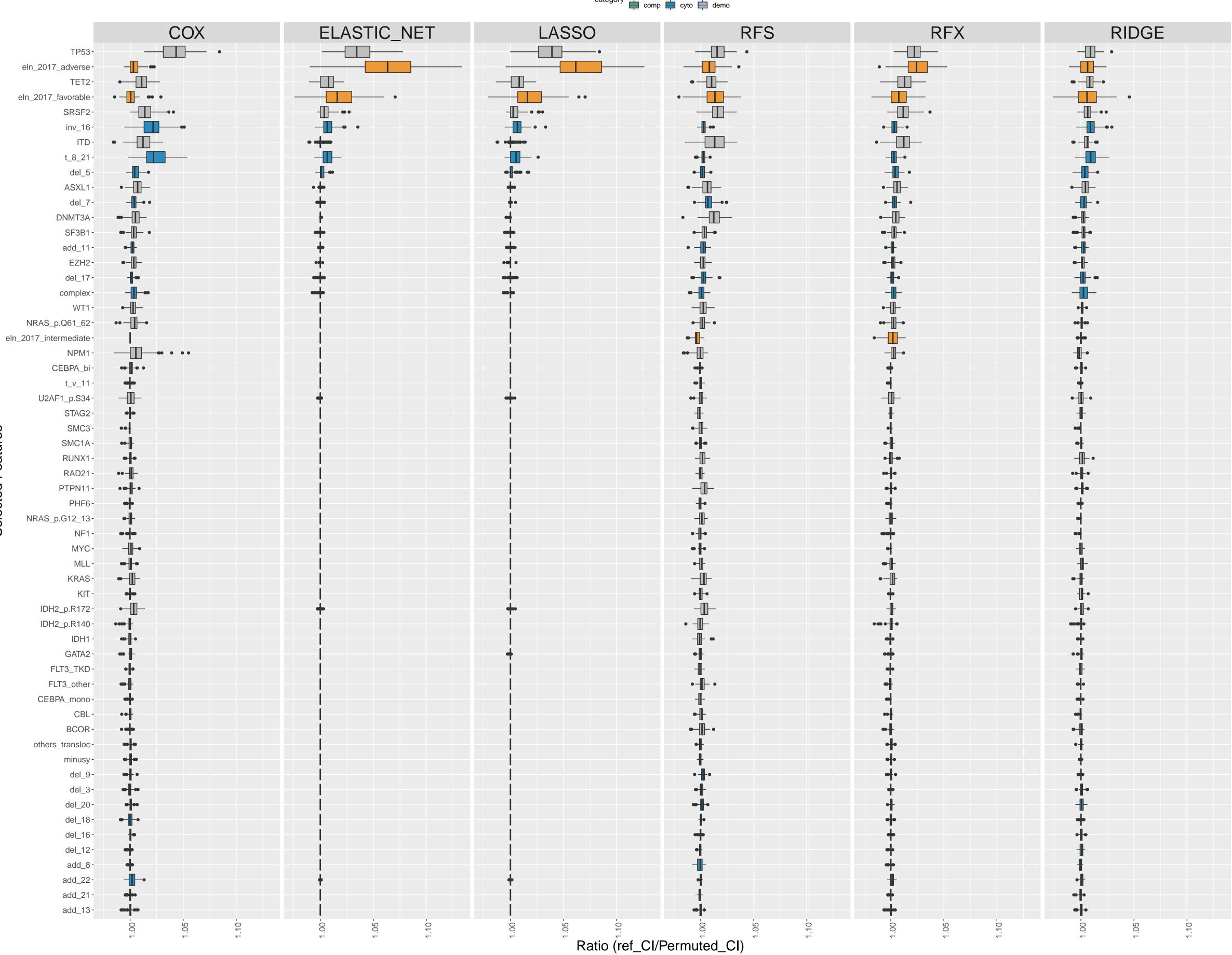
# eln\_gen\_cyto\_clin\_demo Model Feature importance Reshuffling



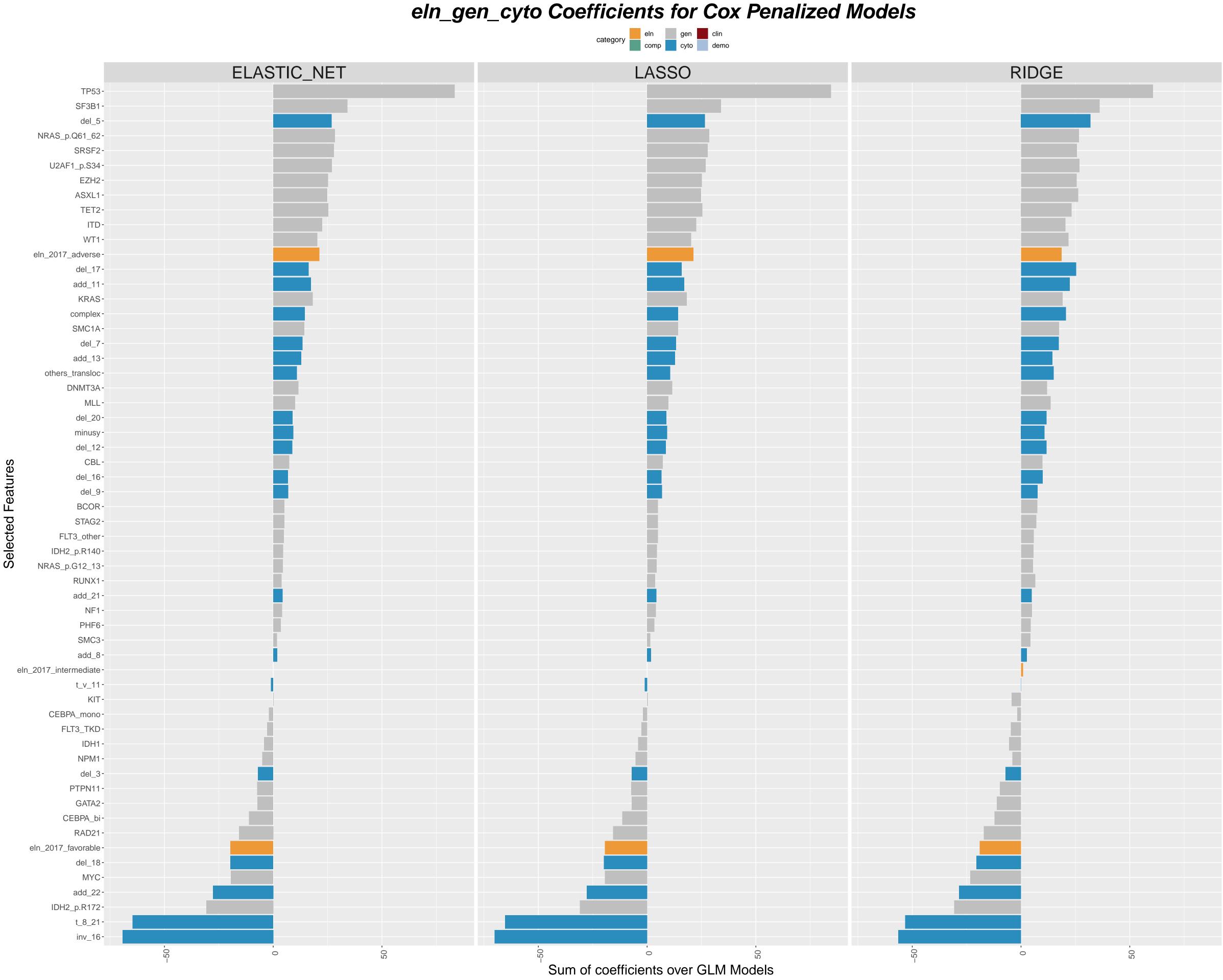




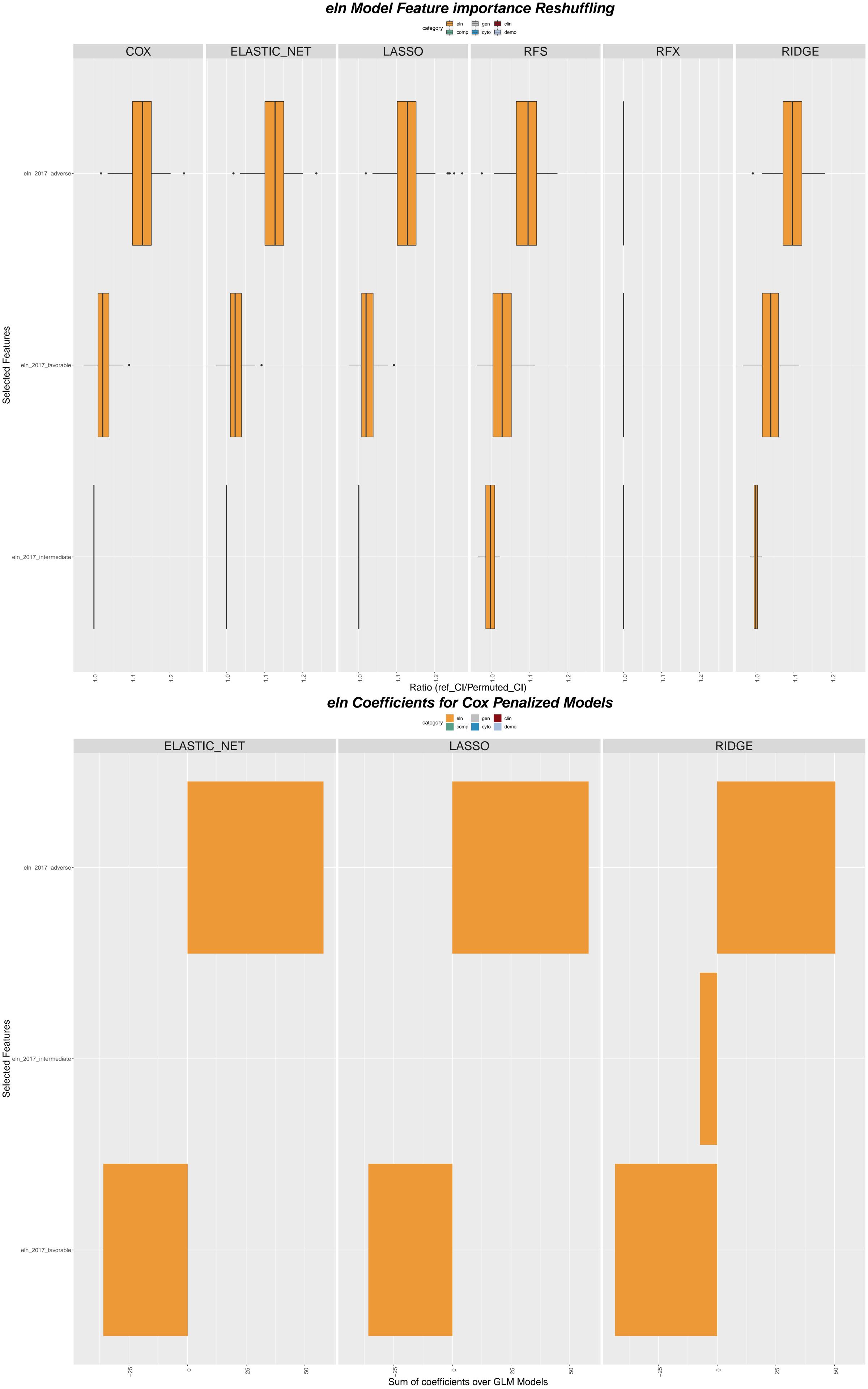
# eln\_gen\_cyto Model Feature importance Reshuffling



eln\_gen\_cyto Coefficients for Cox Penalized Models







gen\_clin\_demo Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RIDGE RFX perf\_status wbc-NPM1 - •-ITD-WT1 -DNMT3A-ASXL1bm\_blasts-RUNX1-IDH2\_p.R172-CEBPA\_bi-U2AF1\_p.S34-TET2-STAG2-SRSF2-SMC3-SMC1A-SF3B1-RAD21 PTPN11-PHF6-NRAS\_p.Q61\_62-NRAS\_p.G12\_13- • NF1-MYC-KRAS-KIT-IDH2\_p.R140-IDH1 GATA2-FLT3\_TKD-FLT3\_other-EZH2-CEBPA\_mono-CBL BCORsecondary gender-Ratio (ref\_CI/Permuted\_CI) gen\_clin\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE TP53-WT1 -ASXL1-ITD-MLLperf\_status -SF3B1-BCOR-EZH2-NRAS\_p.Q61\_62-U2AF1\_p.S34-DNMT3A-KRAS-NF1-RUNX1-TET2-NRAS\_p.G12\_13-SRSF2-PHF6-Selected Features secondary -CBL-IDH2\_p.R140gender-FLT3\_other-SMC1A-SMC3-STAG2wbcbm\_blasts-IDH1plthb-PTPN11-CEBPA\_mono-RAD21-MYC-CEBPA\_bi-FLT3\_TKD-KIT-IDH2\_p.R172-NPM1ahd-Sum of coefficients over GLM Models

## gen\_clin Model Feature importance Reshuffling COX **ELASTIC\_NET RFS** RIDGE LASSO RFX TP53perf\_status-TET2-SRSF2-RUNX1-ASXL1 ITD-DNMT3Asecondary-WT1-U2AF1\_p.S34-EZH2-BCOR-CEBPA\_bi-STAG2-SMC3-SMC1A-RAD21-PTPN11-NRAS\_p.Q61\_62-NRAS\_p.G12\_13-NF1 MYC-KRAS-IDH2\_p.R172-GATA2-FLT3\_TKD-FLT3\_other-CEBPA\_mono-CBLbm\_blasts-Ratio (ref\_Cl/Permuted\_Cl) gen\_clin Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE TP53-SF3B1-U2AF1\_p.S34-WT1-TET2perf\_status-EZH2-SRSF2-MLL-ASXL1-BCOR-RUNX1-DNMT3A-ITDsecondary-IDH2\_p.R140-KRAS-NRAS\_p.Q61\_62-PHF6-Selected Features SMC1A-CBL-STAG2-FLT3\_other-SMC3-IDH1 -NRAS\_p.G12\_13-NF1wbcbm\_blastsplt-CEBPA\_mono-PTPN11-GATA2-FLT3\_TKD-RAD21-IDH2\_p.R172-MYC-

Sum of coefficients over GLM Models

100

CEBPA\_bi-

NPM1-

KIT-

ahd-

gen\_cyto\_clin\_demo Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RFX RIDGE •——• -TP53perf\_status complex-ASXL1-DNMT3Aadd\_11 del\_17 bm\_blasts-IDH2\_p.R172-CEBPA\_bit\_v\_11 -U2AF1\_p.S34-TET2-STAG2-SRSF2-SMC3-SMC1A-SF3B1-RAD21 -PTPN11-PHF6-KRAS-IDH2\_p.R140-GATA2-FLT3\_TKD-FLT3\_other-EZH2-CEBPA\_mono-CBL-BCORothers\_translocminusydel\_9 del\_20 del\_18del\_16del\_12add\_8 add\_22 add\_21 add\_13secondaryhbgender-RUNX1-Ratio (ref\_CI/Permuted\_CI) gen\_cyto\_clin\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE TP53-WT1-NRAS\_p.Q61\_62del\_7 perf\_status del\_5 -ASXL1add\_11 complex t\_v\_11 del\_17-ITD-SF3B1 -MLL-BCOR-KRASadd\_13others\_transloc-U2AF1\_p.S34-EZH2del\_12 -DNMT3Adel\_9 -NF1-NRAS\_p.G12\_13-CBL-TET2-PHF6-Selected Features RUNX1-SRSF2-SMC1A-KIT-FLT3\_othersecondary -SMC3add\_21 genderagedel\_20 -STAG2del\_16-IDH2\_p.R140add\_8wbcbm\_blastshbplt minusy -IDH1-RAD21-PTPN11-CEBPA\_monodel\_3-

Sum of coefficients over GLM Models

40

FLT3\_TKD-

CEBPA\_bi-

MYC-

GATA2-

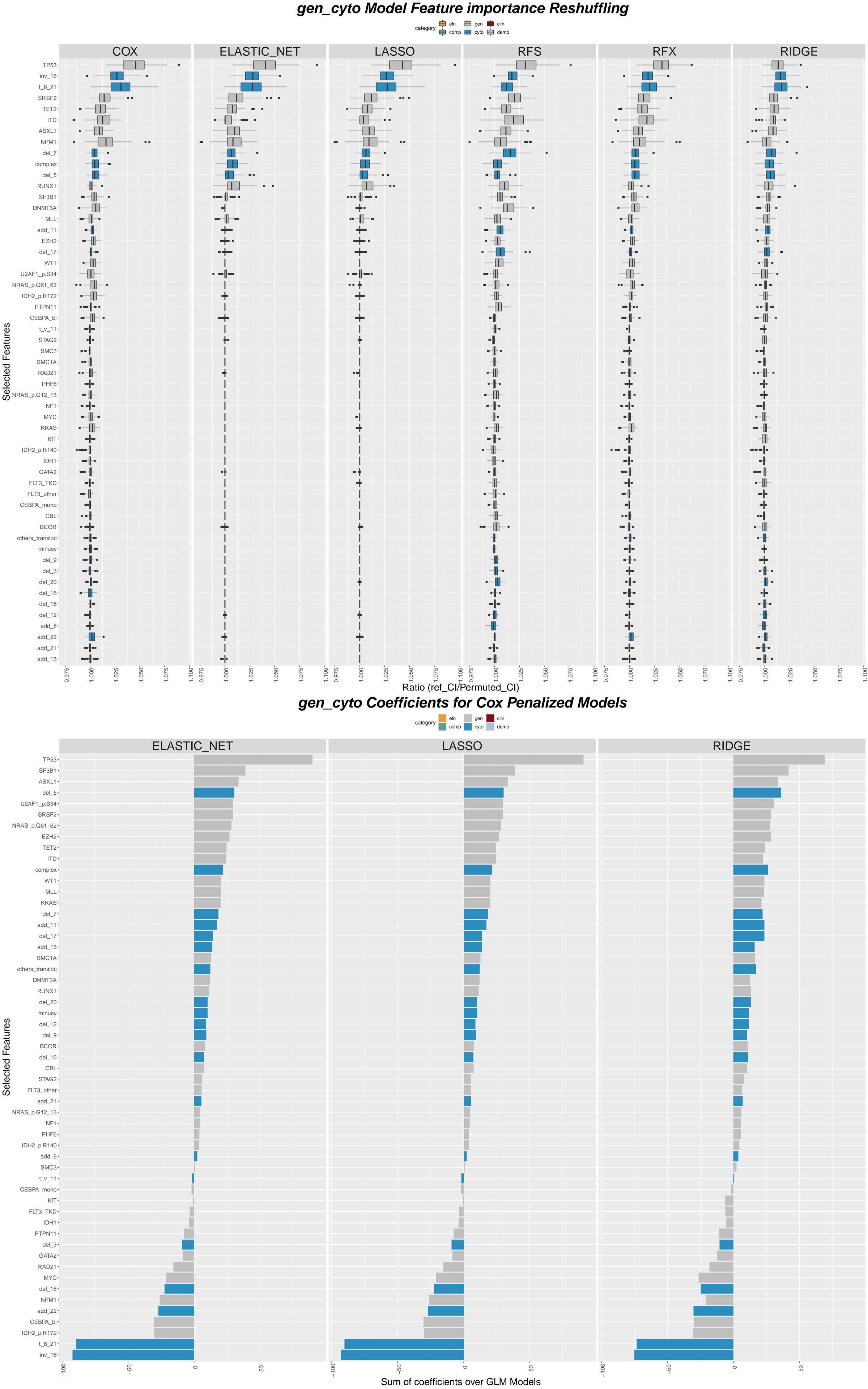
add\_22-

NPM1-

t\_8\_21 inv\_16 -

ahd-

IDH2\_p.R172-



## gen\_demo Model Feature importance Reshuffling ELASTIC\_NET COX LASSO RFS RFX RIDGE ITD-ASXL1-WT1-DNMT3A-RUNX1-IDH2\_p.R172 -CEBPA\_bi-U2AF1\_p.S34-TET2-STAG2-SRSF2-SMC3-SMC1A-SF3B1-RAD21-PTPN11-PHF6-NRAS\_p.Q61\_62-NRAS\_p.G12\_13- • NF1-MYC-KRAS-IDH2\_p.R140-IDH1 -GATA2-FLT3\_TKD-FLT3\_other-EZH2-CEBPA\_mono-CBL BCORgender-Ratio (ref\_Cl/Permuted\_Cl) gen\_demo Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE TP53-WT1-ITD-ASXL1-MLL-KRAS-NRAS\_p.Q61\_62-EZH2-SF3B1-NF1-U2AF1\_p.S34-DNMT3A-NRAS\_p.G12\_13-SRSF2-TET2-BCOR-Selected Features RUNX1-PHF6gender-FLT3\_other-CBLage-SMC1A-IDH2\_p.R140-IDH1 -STAG2-SMC3-CEBPA\_mono-PTPN11-MYC-FLT3\_TKD-RAD21 -GATA2-CEBPA\_bi-KIT-NPM1-IDH2\_p.R172-

gen Model Feature importance Reshuffling ELASTIC\_NET COX LASSO RFS RFX RIDGE TP53-SRSF2-TET2-ITD-ASXL1 RUNX1-SF3B1 NPM1-DNMT3A-U2AF1\_p.S34-EZH2-CEBPA\_bi-STAG2-SMC3-SMC1A-RAD21 -PTPN11-PHF6-NRAS\_p.Q61\_62-NRAS\_p.G12\_13-NF1-MYC-KRAS-IDH2\_p.R172-IDH2\_p.R140-IDH1 -GATA2-FLT3\_TKD-FLT3\_other-CEBPA\_mono-CBL-BCOR-Ratio (ref\_CI/Permuted\_CI) gen Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE TP53-SF3B1-U2AF1\_p.S34-SRSF2-ASXL1-EZH2-ITD-MLL-WT1 -KRAS-DNMT3A-RUNX1-BCOR-NRAS\_p.Q61\_62-Selected Features SMC1A-IDH2\_p.R140-NF1-STAG2-CBL-PHF6-FLT3\_other-NRAS\_p.G12\_13-CEBPA\_mono-SMC3-

IDH1 -

GATA2-

PTPN11-

FLT3\_TKD-

MYC-

RAD21-

CEBPA\_bi-

KIT-

IDH2\_p.R172-