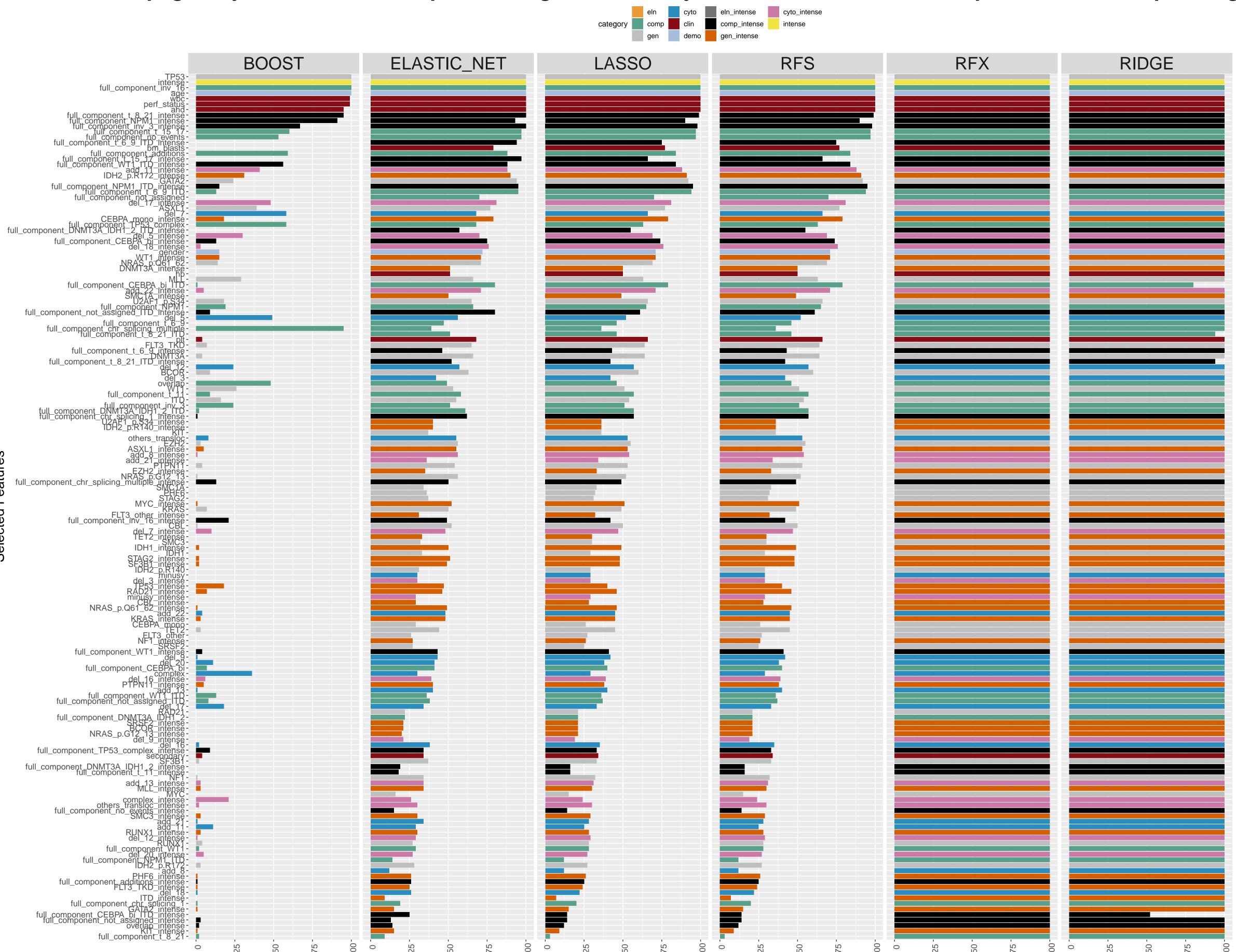
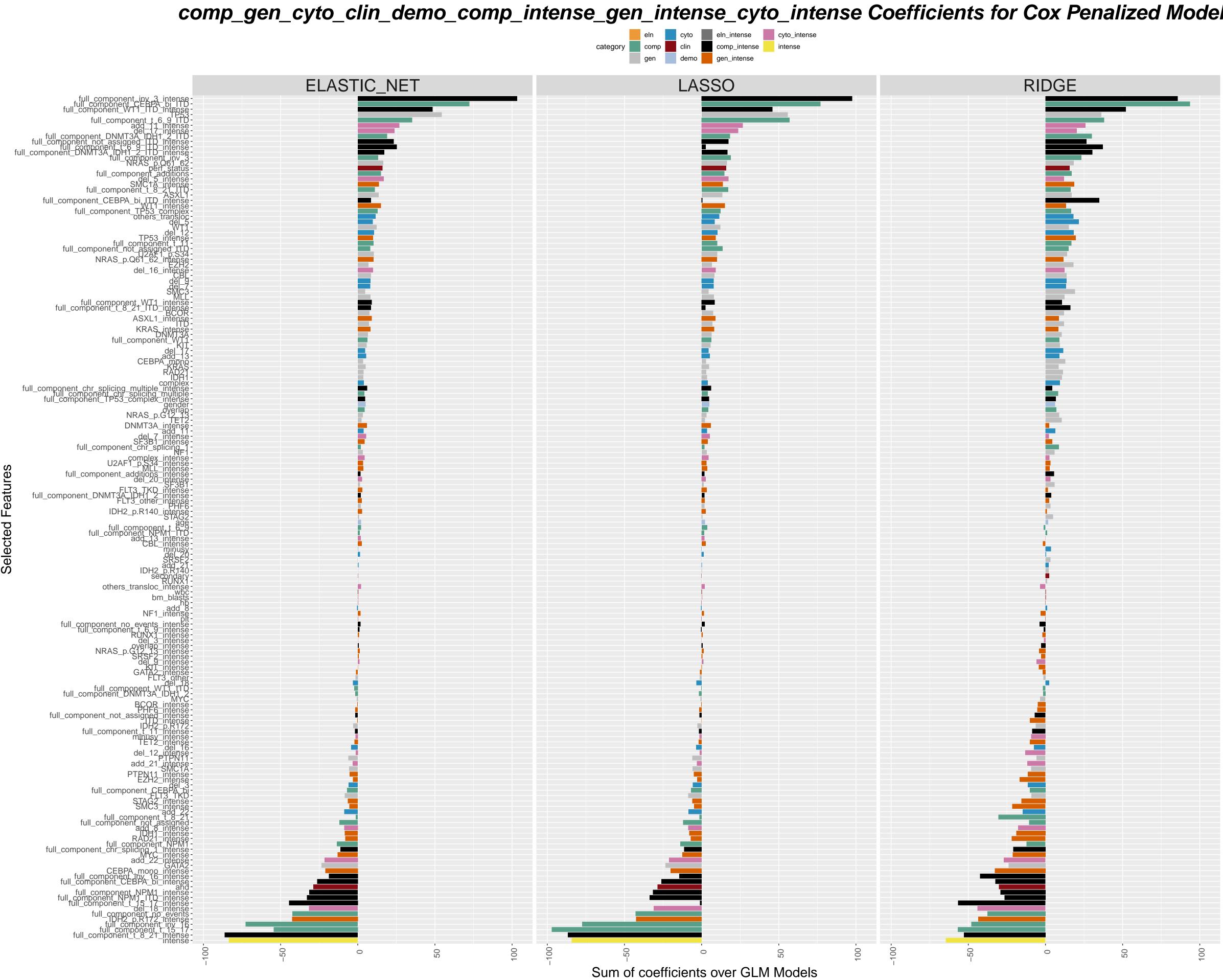


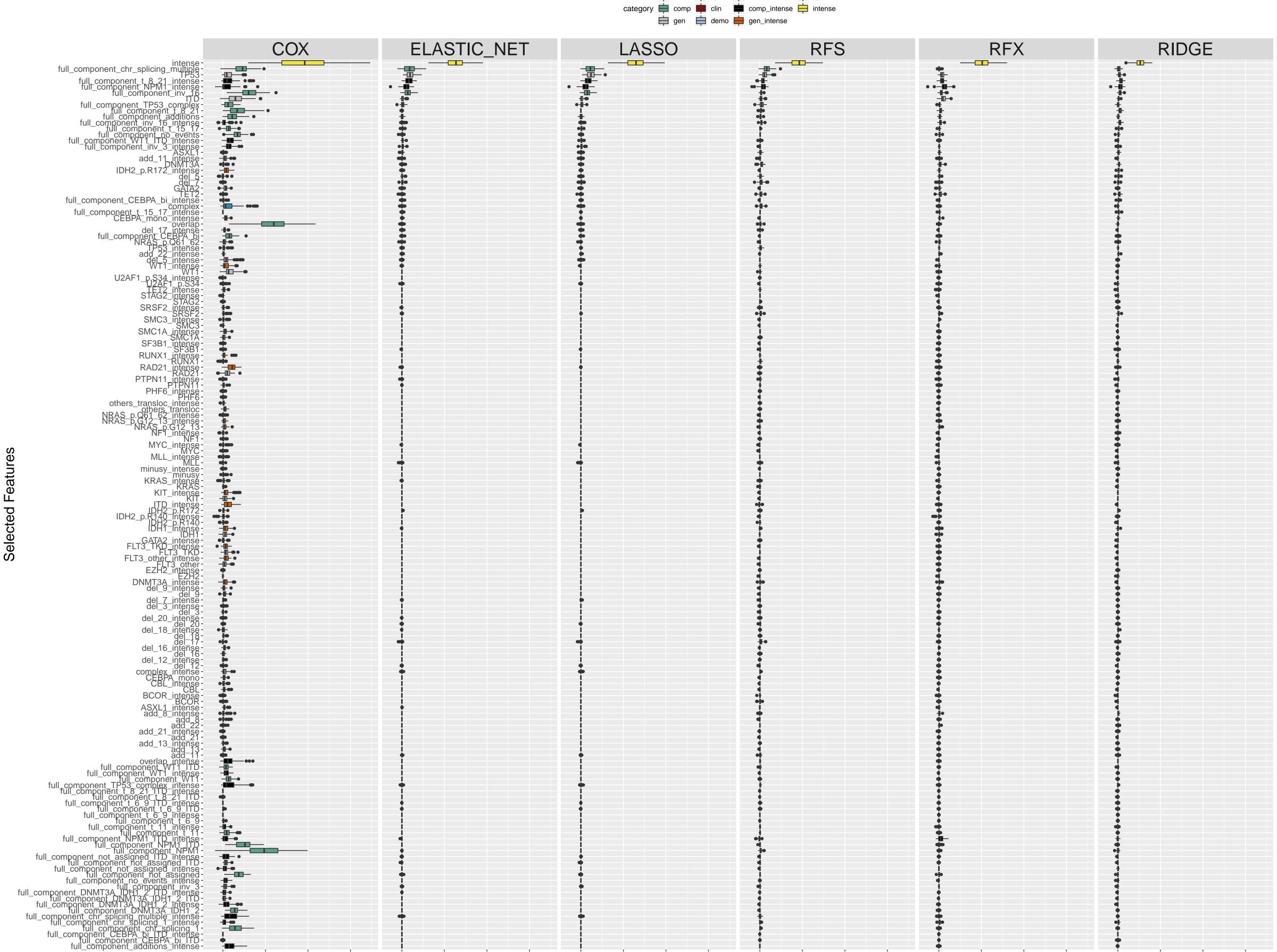
Ratio (ref\_Cl/Permuted\_Cl)

comp\_gen\_cyto\_clin\_demo\_comp\_intense\_gen\_intense\_cyto\_intense Model Feature importance Bootstrap for Alg



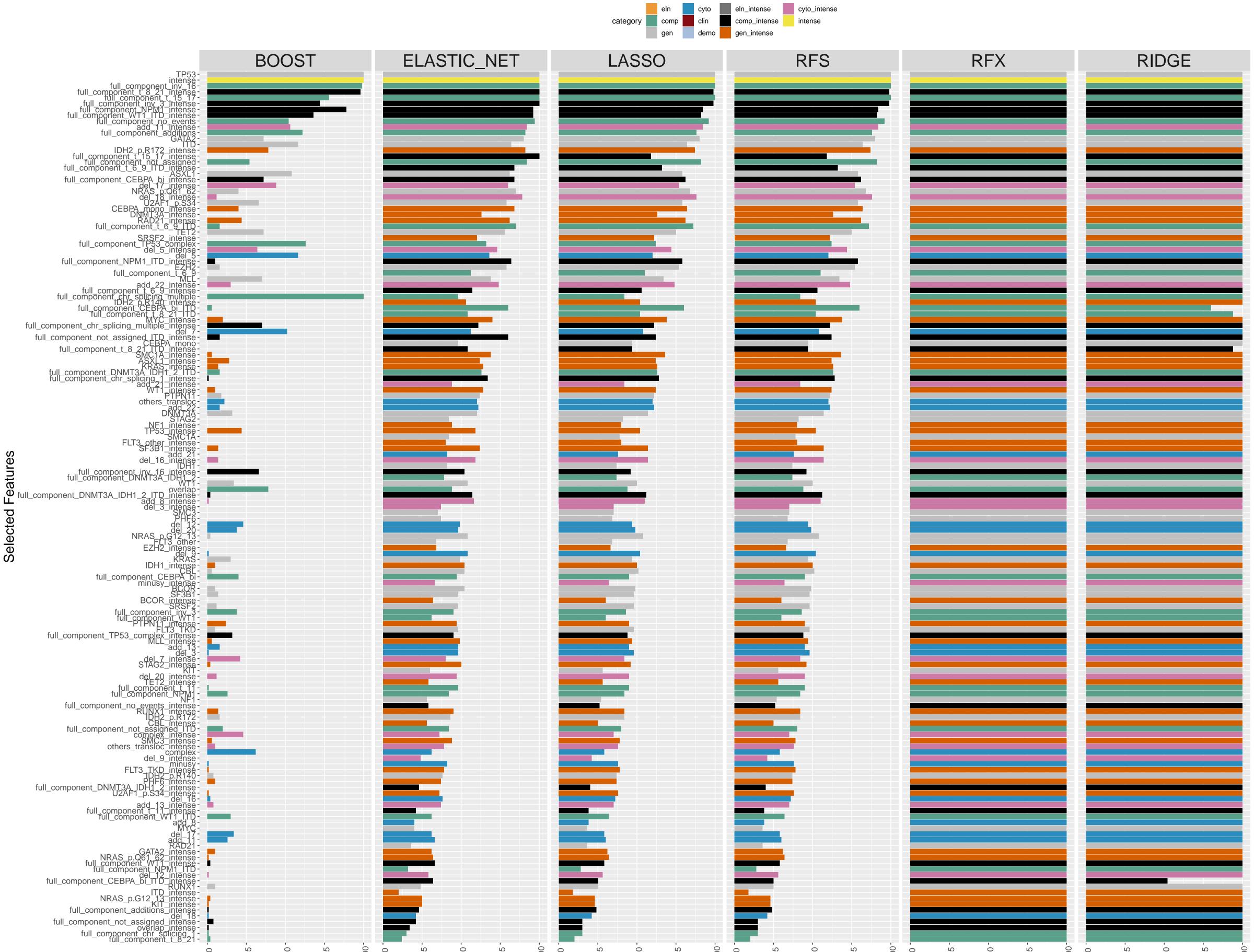
Proportion of selection count overall models and algorithms





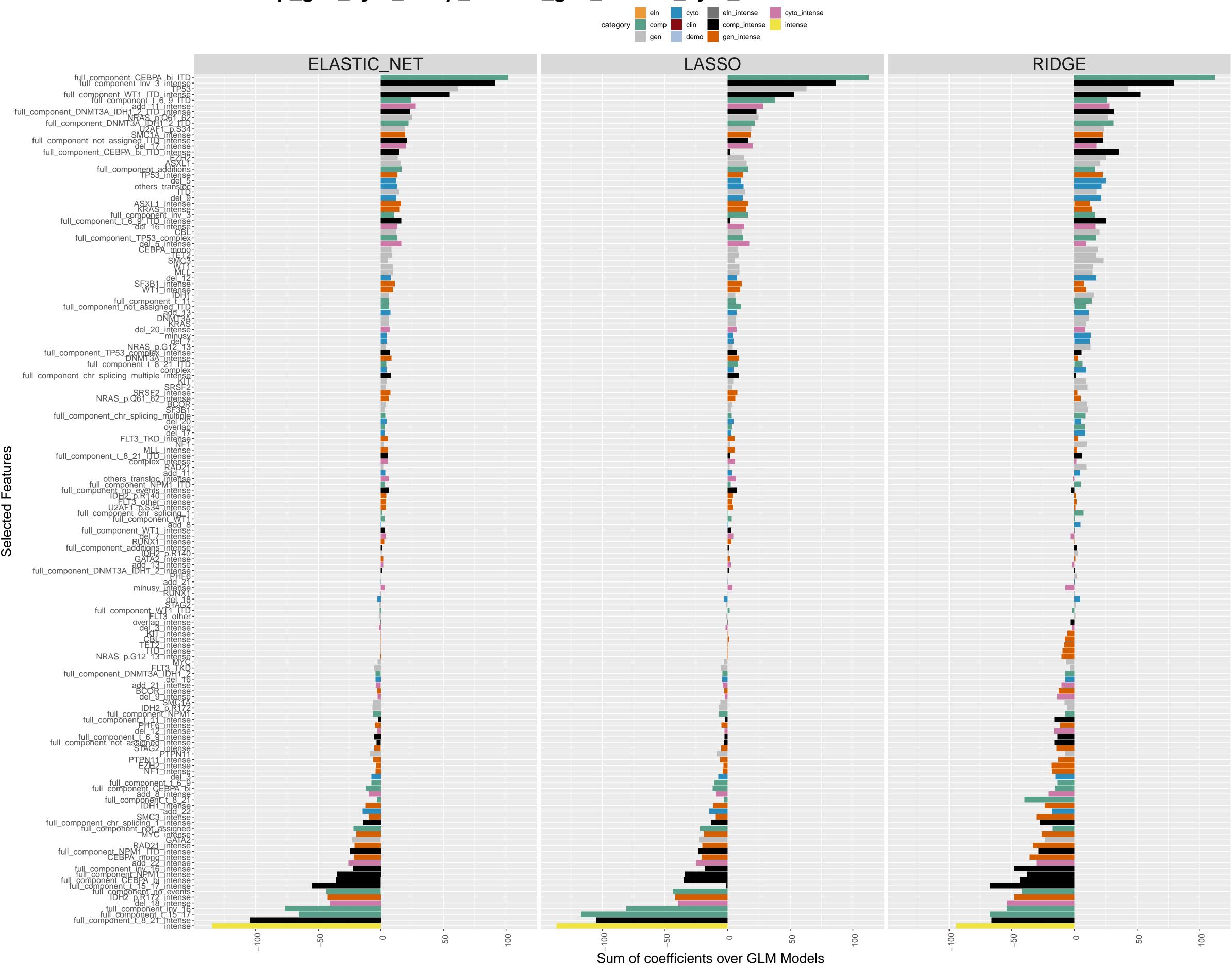
Ratio (ref\_Cl/Permuted\_Cl)

comp\_gen\_cyto\_comp\_intense\_gen\_intense\_cyto\_intense Model Feature importance Bootstrap for Algorithi



comp\_gen\_cyto\_comp\_intense\_gen\_intense\_cyto\_intense Coefficients for Cox Penalized Models

Proportion of selection count overall models and algorithms

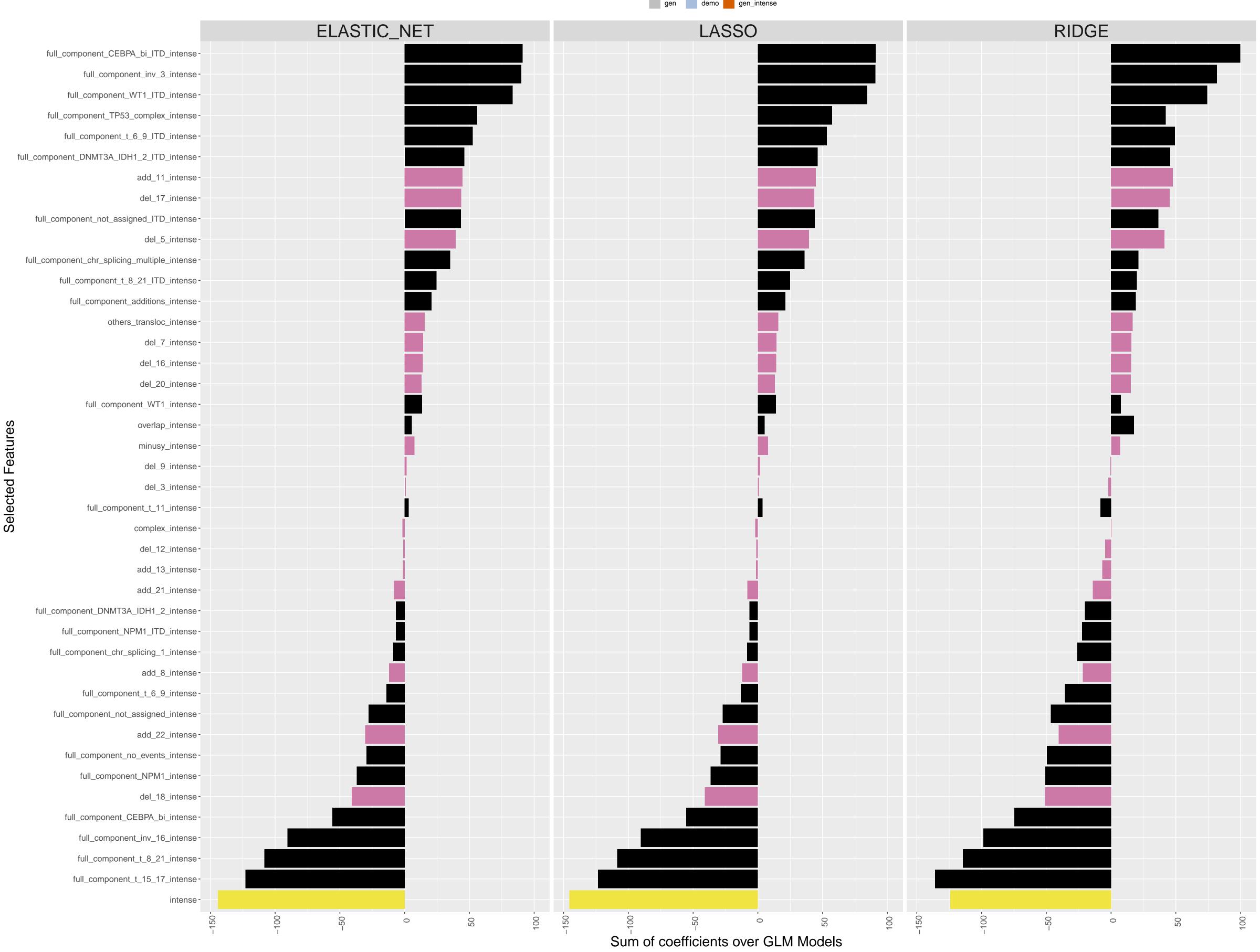


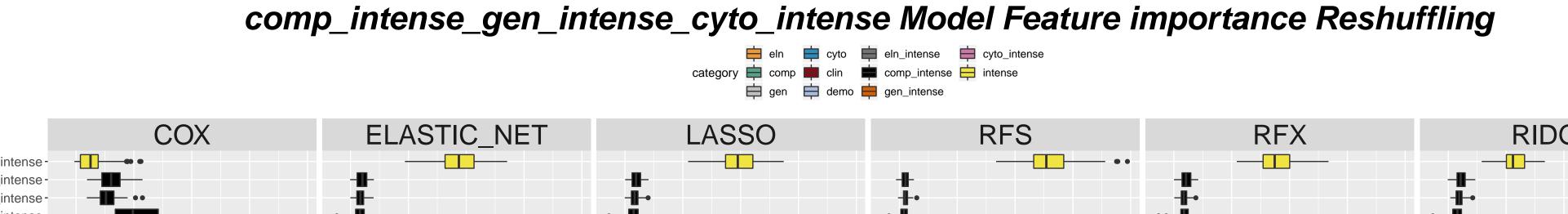
comp\_intense\_cyto\_intense Model Feature importance Reshuffling COX ELASTIC\_NET LASSO RFS RFX RIDGE intensefull\_component\_t\_8\_21\_intense full\_component\_NPM1\_intensefull\_component\_inv\_16\_intensefull\_component\_chr\_splicing\_multiple\_intense full\_component\_TP53\_complex\_intensefull\_component\_t\_15\_17\_intensefull\_component\_CEBPA\_bi\_intenseadd\_11\_intensedel\_5\_intense full\_component\_WT1\_ITD\_intensedel\_17\_intensefull\_component\_not\_assigned\_intensefull\_component\_no\_events\_intensedel\_7\_intensefull\_component\_inv\_3\_intenseoverlap\_intensefull\_component\_chr\_splicing\_1\_intenseadd\_22\_intenseothers\_transloc\_intenseminusy\_intense del\_9\_intensedel\_3\_intense del\_20\_intensedel\_18\_intensedel\_16\_intense del\_12\_intense complex\_intense add\_8\_intenseadd\_21\_intense add\_13\_intense full\_component\_WT1\_intensefull\_component\_t\_8\_21\_ITD\_intensefull\_component\_t\_6\_9\_ITD\_intensefull\_component\_t\_6\_9\_intensefull\_component\_t\_11\_intensefull\_component\_NPM1\_ITD\_intensefull\_component\_not\_assigned\_ITD\_intensefull\_component\_DNMT3A\_IDH1\_2\_ITD\_intensefull\_component\_DNMT3A\_IDH1\_2\_intensefull\_component\_CEBPA\_bi\_ITD\_intensefull\_component\_additions\_intense-Ratio (ref\_Cl/Permuted\_Cl) comp\_intense\_cyto\_intense Model Feature importance Bootstrap for Algorithms BOOST ELASTIC\_NET LASSO RFS RFX RIDGE intense full\_component\_TP53\_complex\_intensefull\_component\_t\_8\_21\_intensefull\_component\_inv\_16\_intensefull\_component\_chr\_splicing\_multiple\_intensefull\_component\_NPM1\_intensefull\_component\_inv\_3\_intensedel\_5\_intense full\_component\_t\_15\_17\_intensefull\_component\_WT1\_ITD\_intensedel\_17\_intenseadd\_11\_intensefull\_component\_CEBPA\_bi\_intensedel\_7\_intensefull\_component\_not\_assigned\_ITD\_intense-

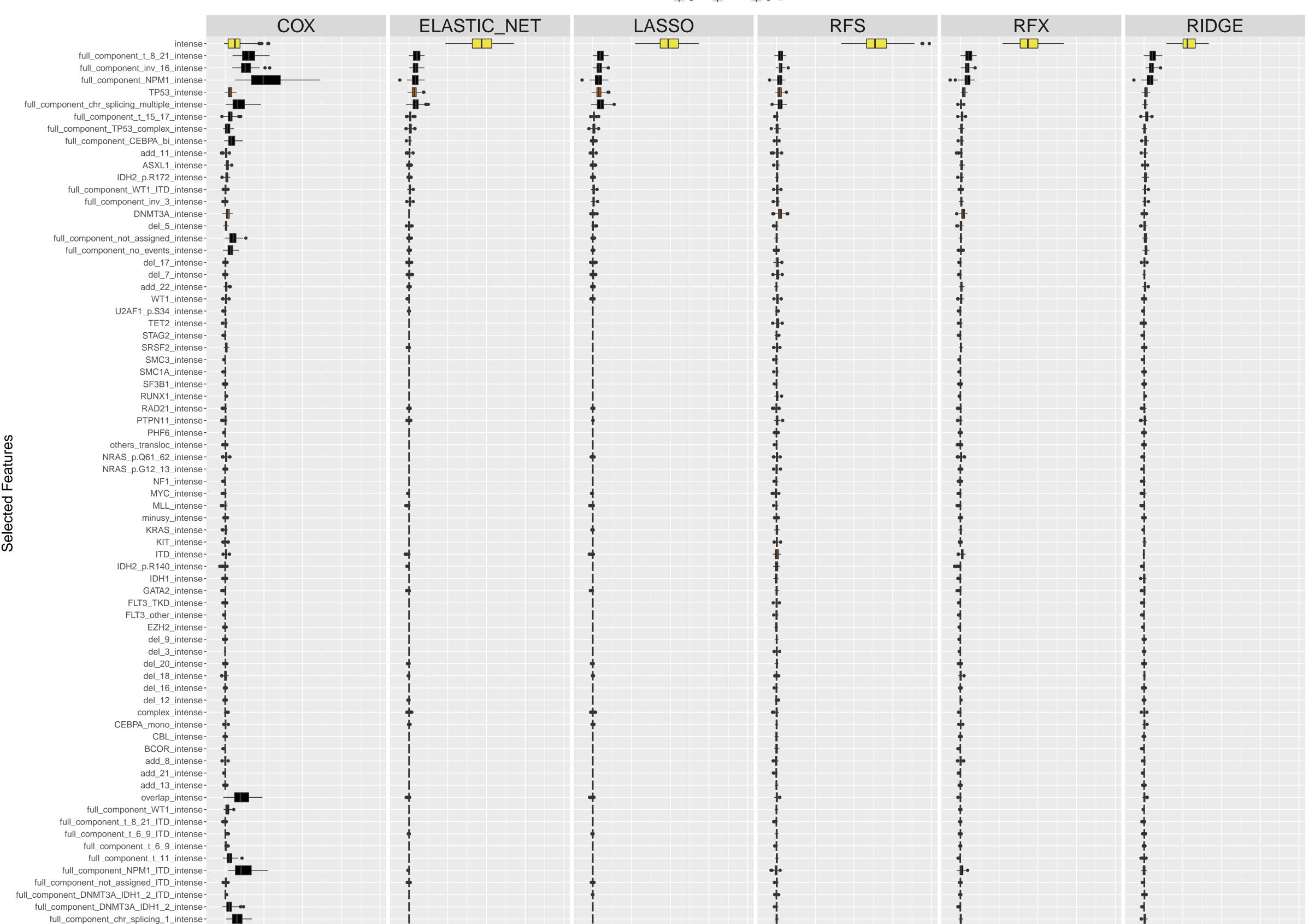


comp\_intense\_cyto\_intense Coefficients for Cox Penalized Models

category comp clin comp clin comp\_intense comp\_intense intense







full\_component\_CEBPA\_bi\_ITD\_intense-

full\_component\_additions\_intense-

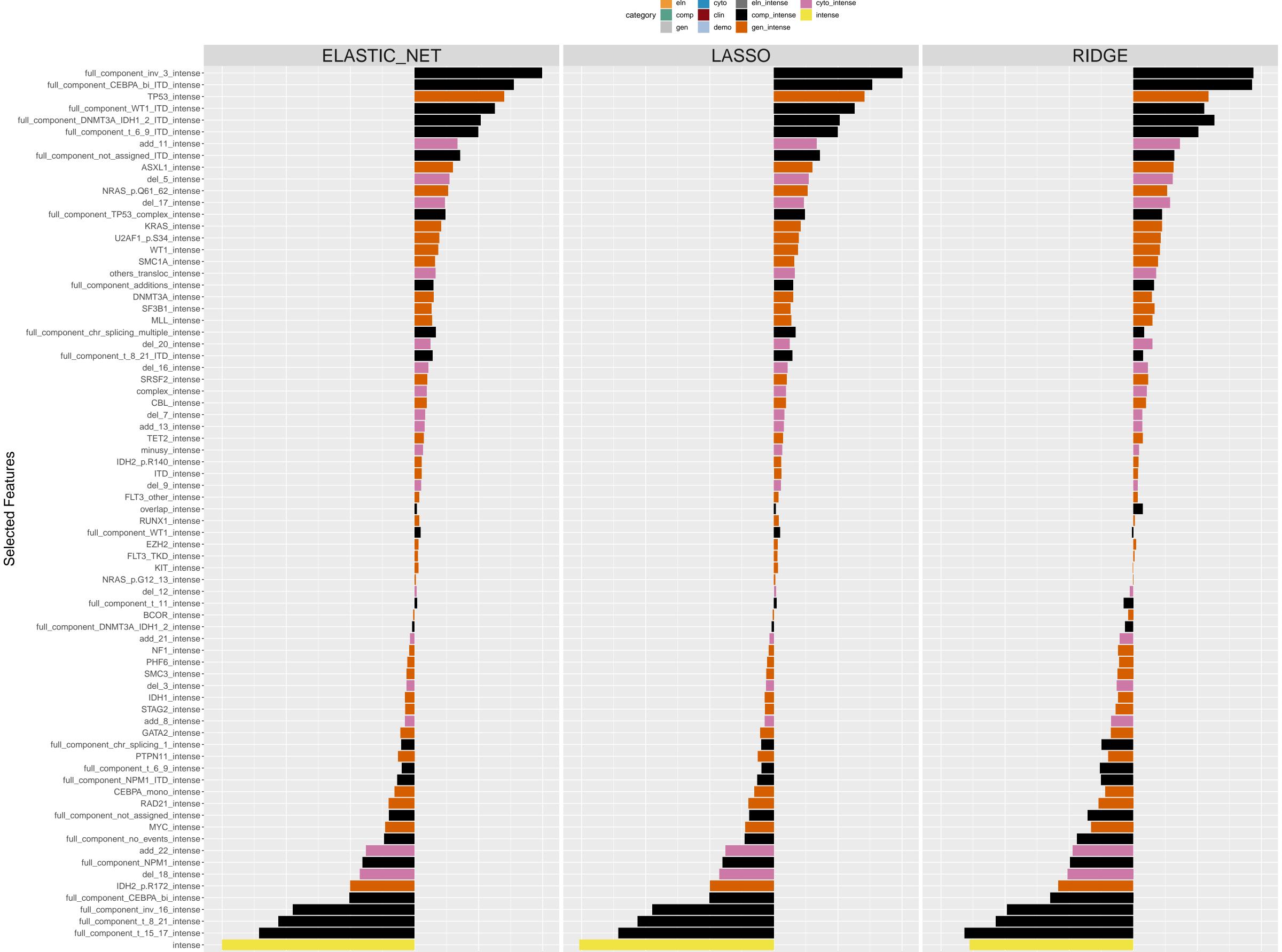
## comp\_intense\_gen\_intense\_cyto\_intense Model Feature importance Bootstrap for Algorithms

Ratio (ref\_Cl/Permuted\_Cl)



## comp\_intense\_gen\_intense\_cyto\_intense Coefficients for Cox Penalized Models

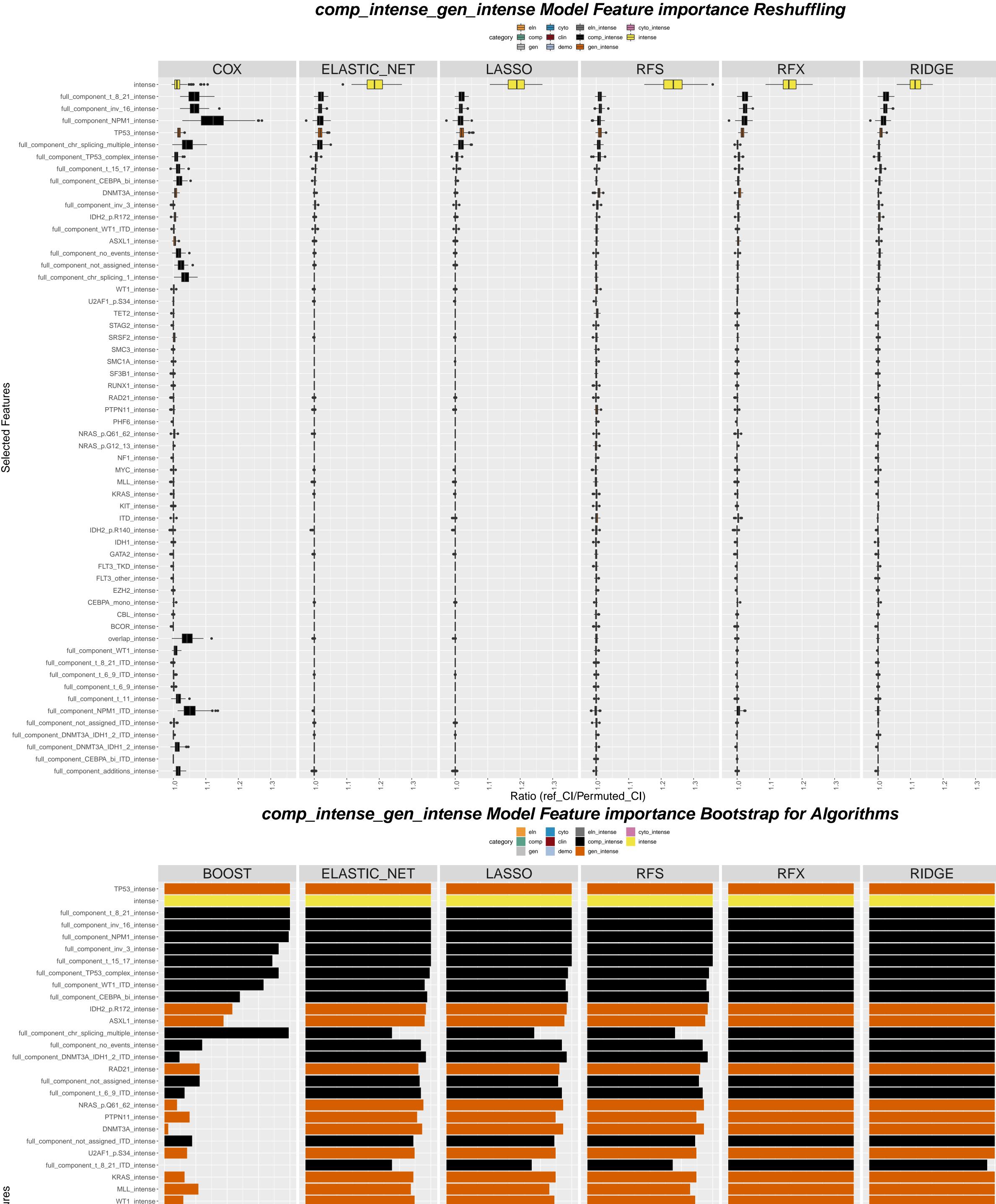
Proportion of selection count overall models and algorithms

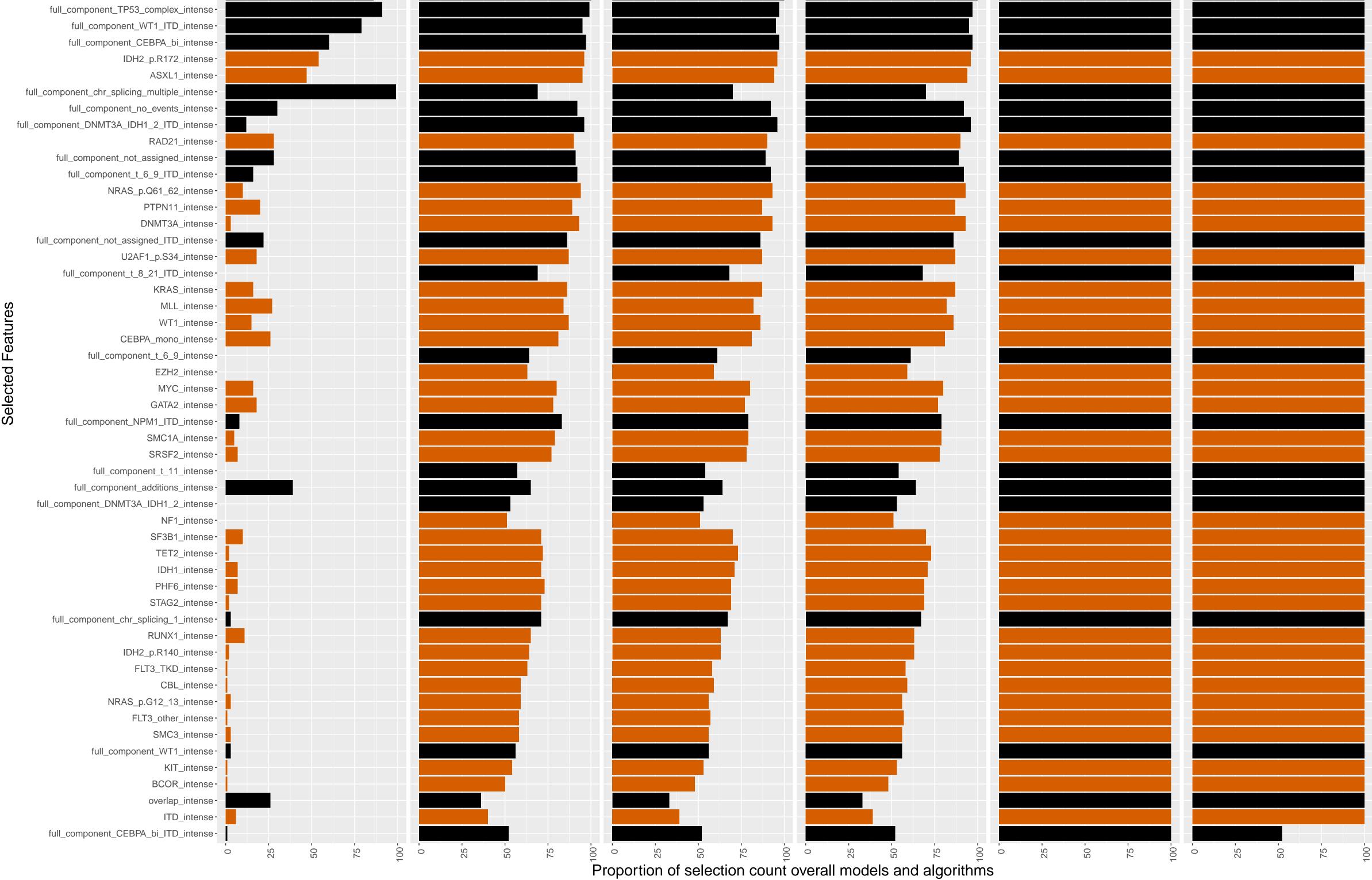


100

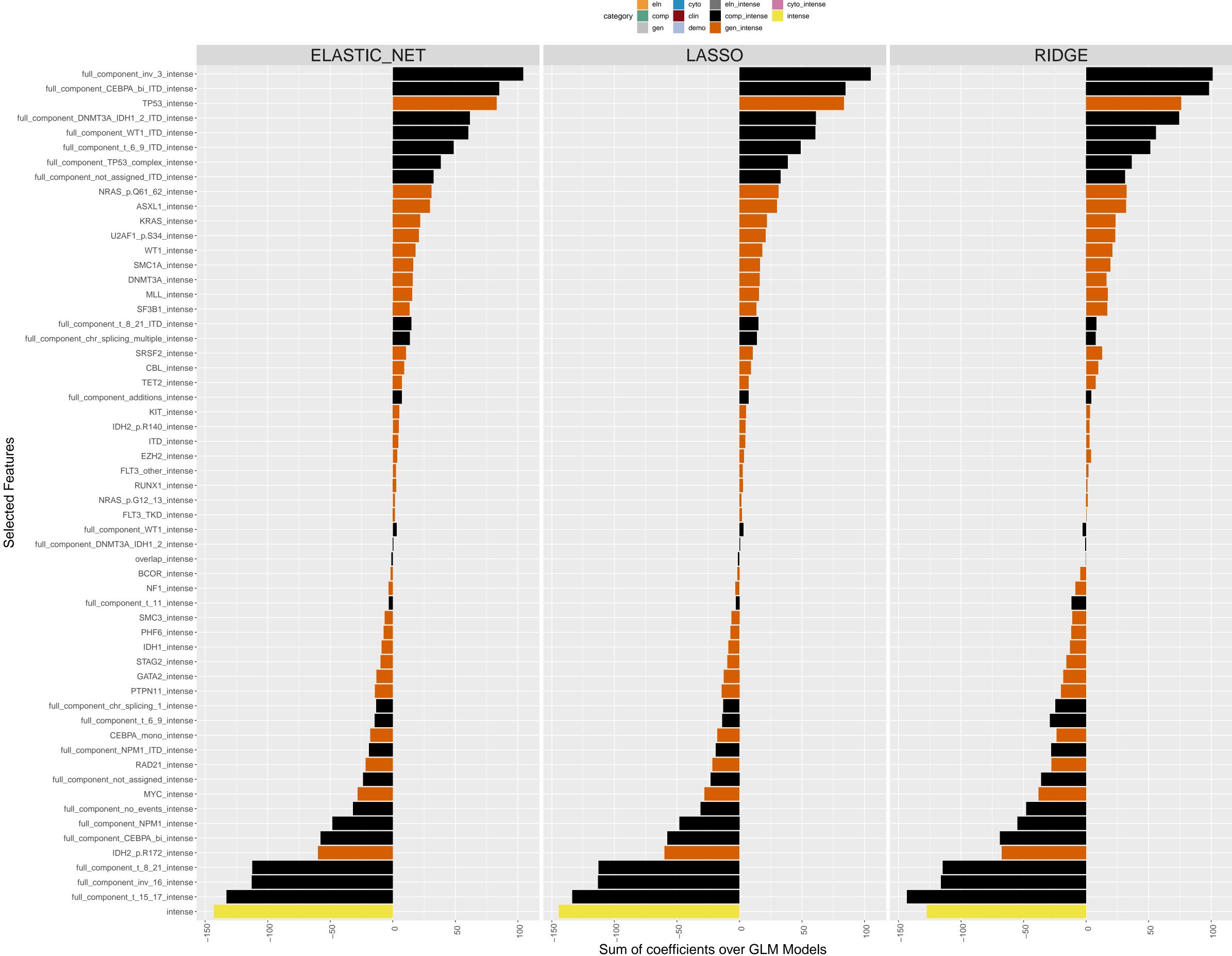
-150

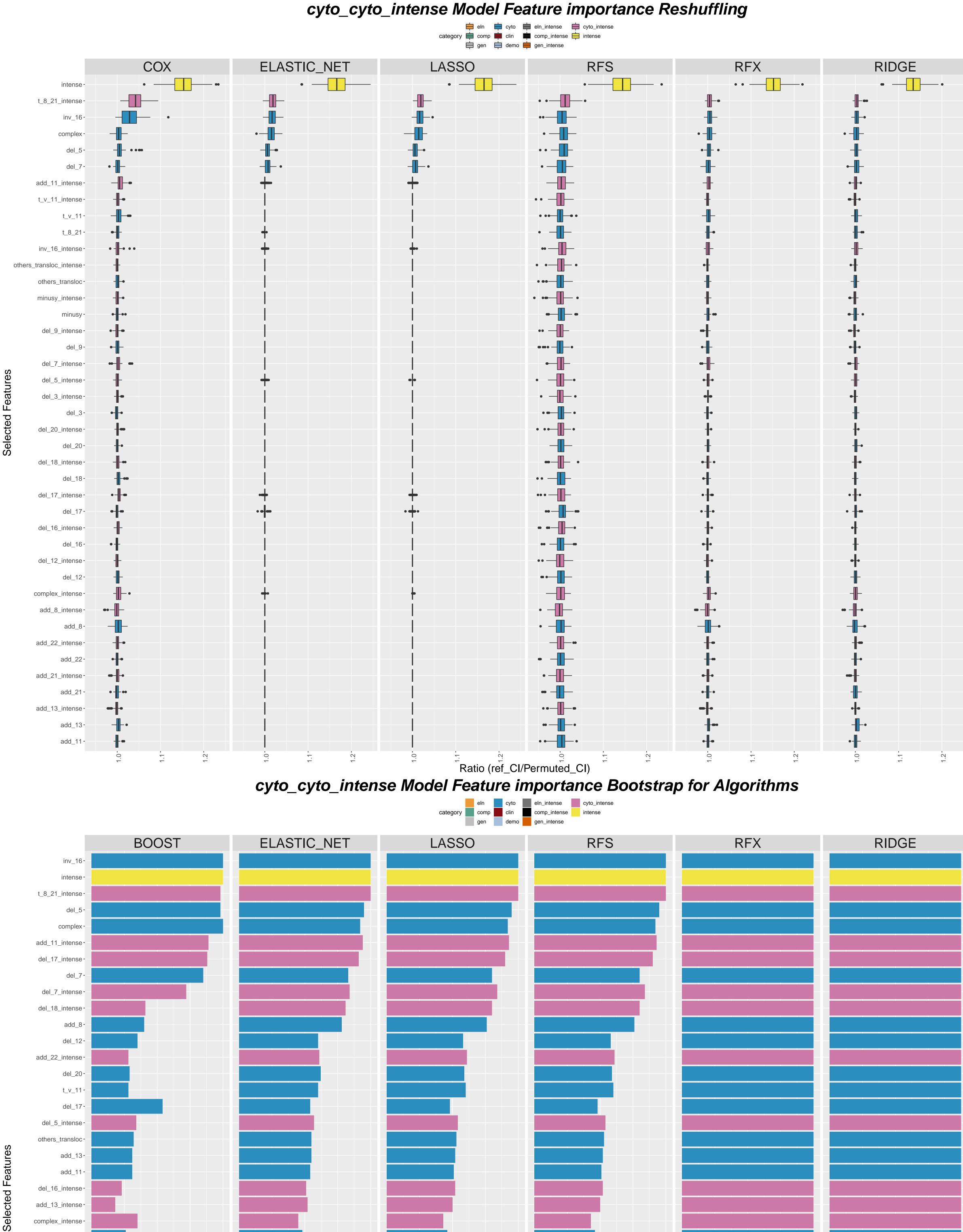
Sum of coefficients over GLM Models

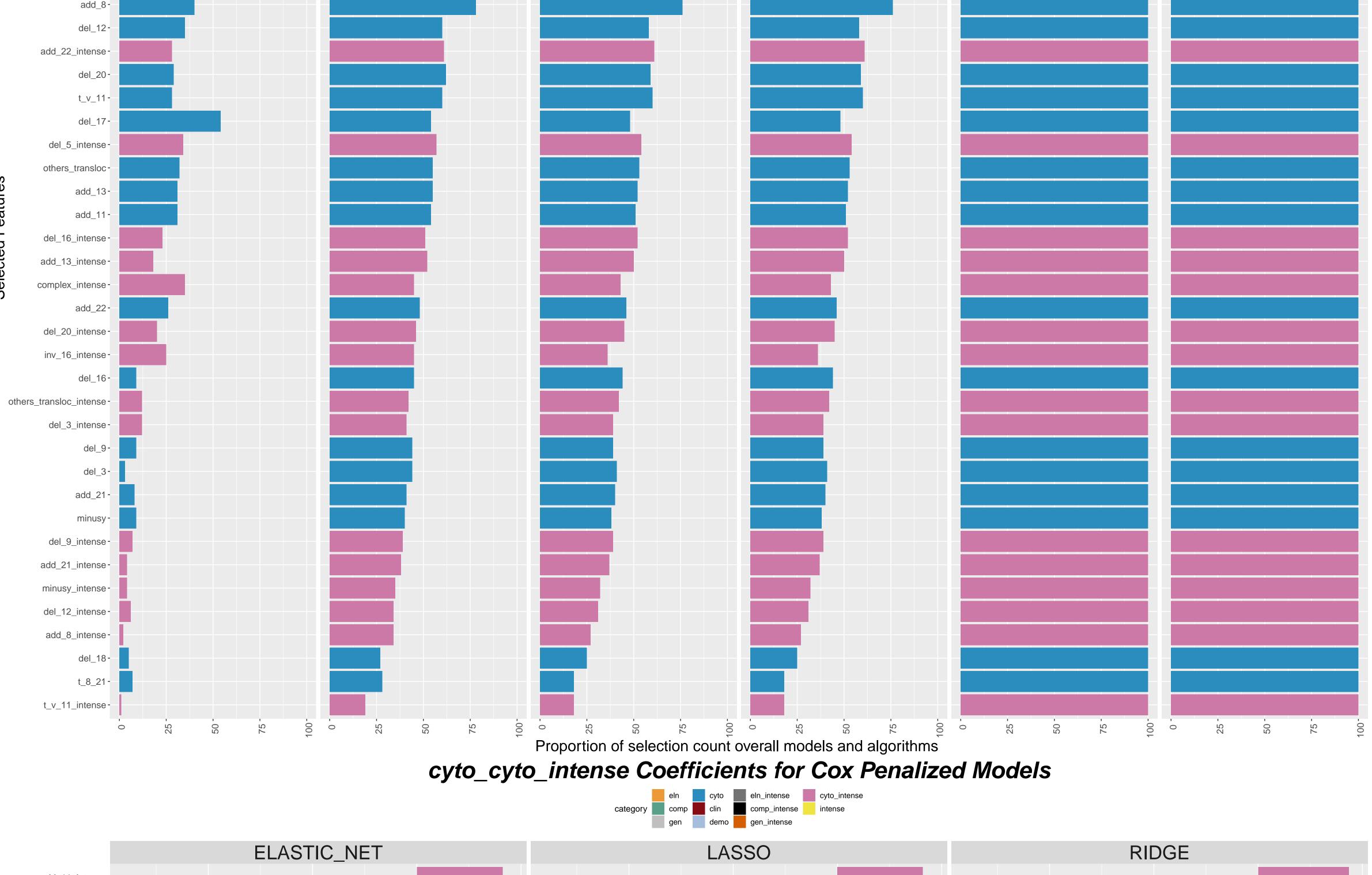


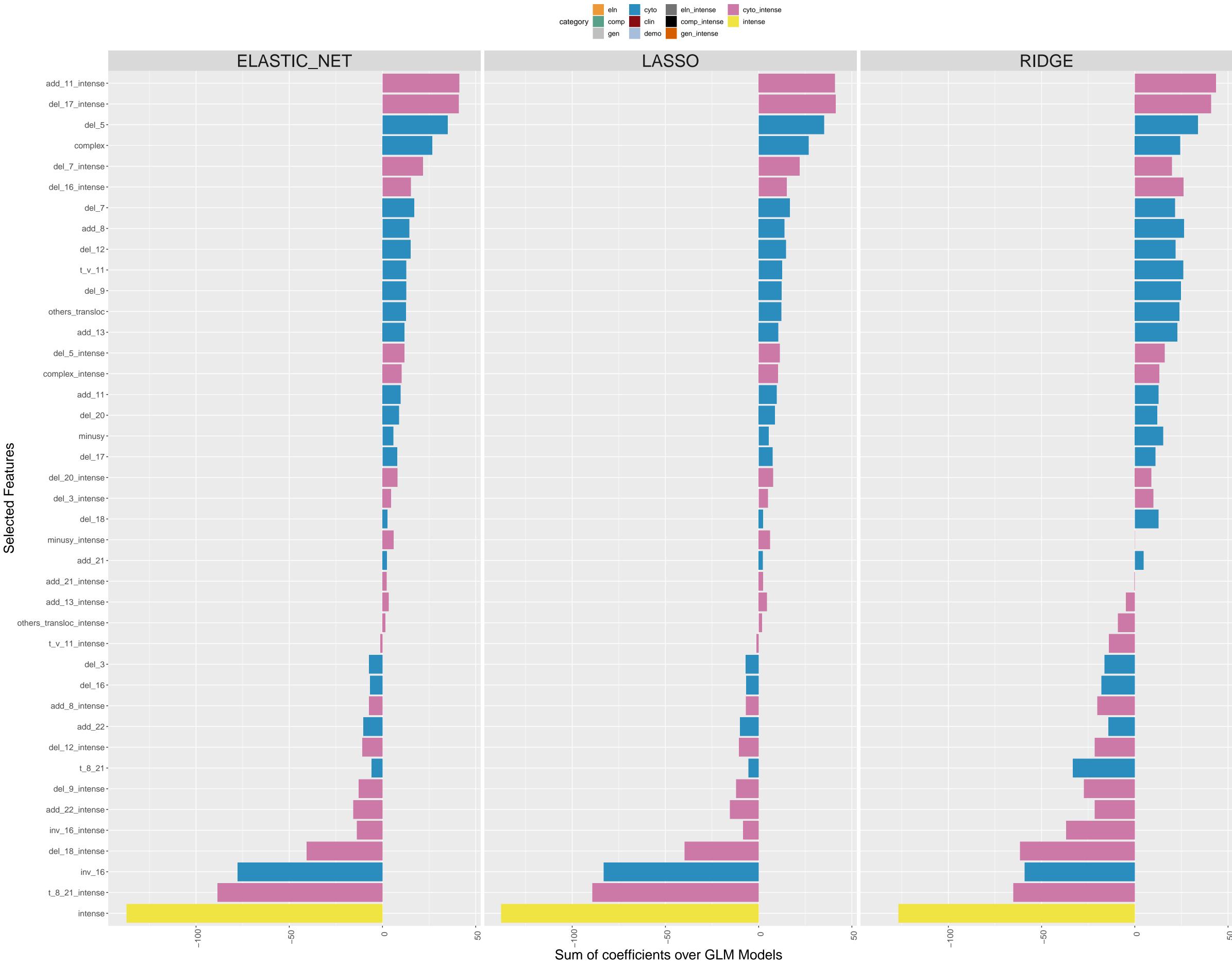


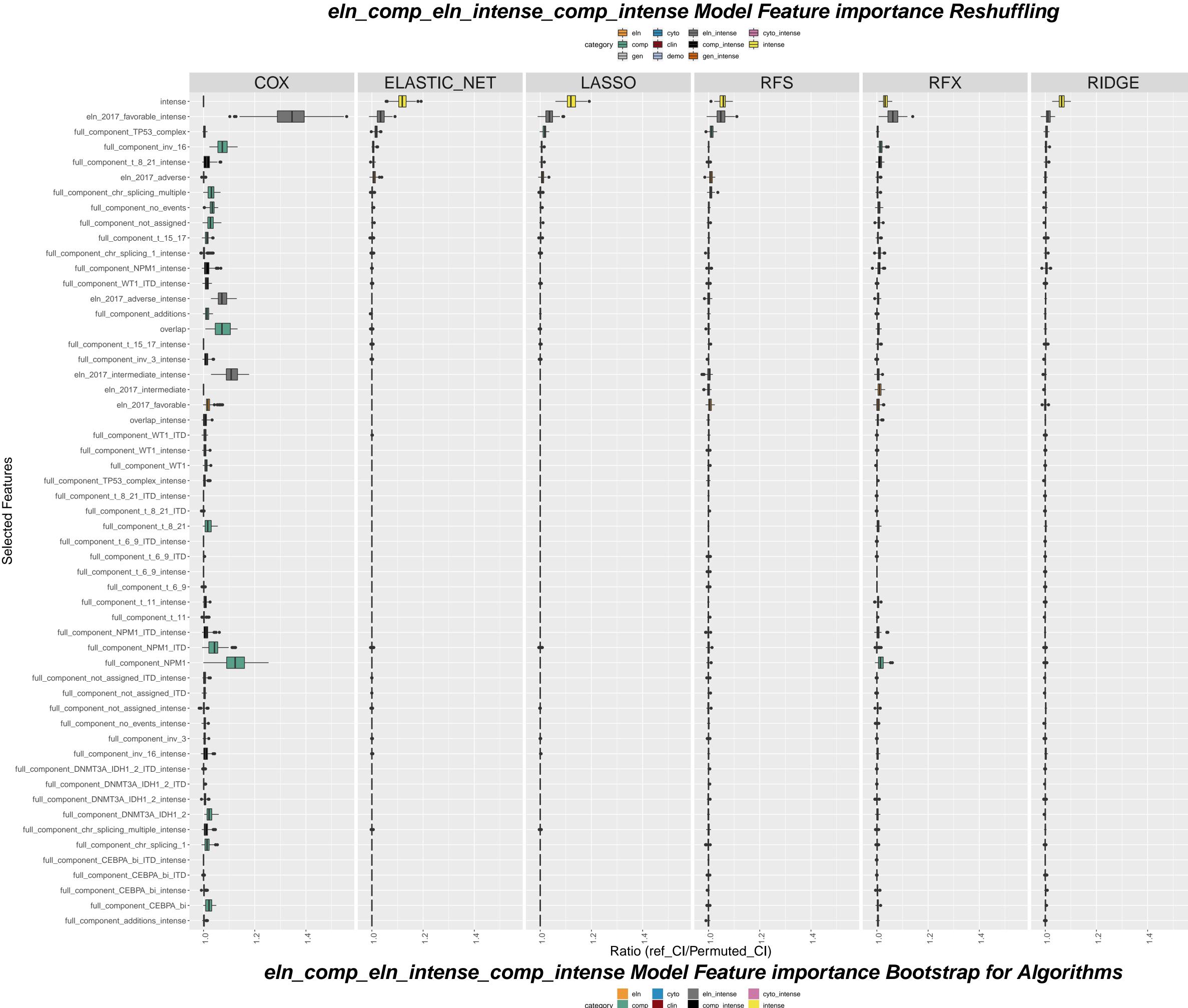


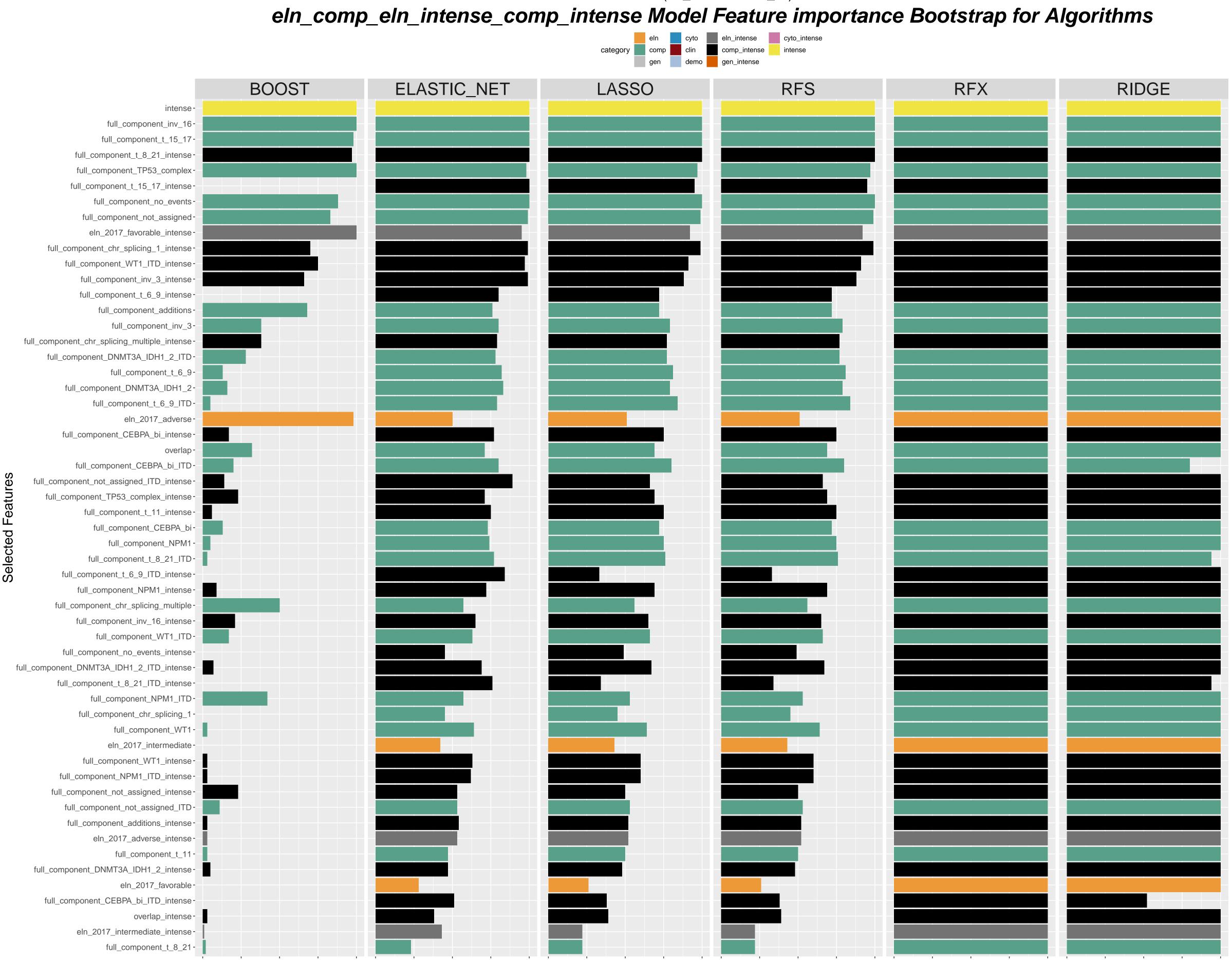






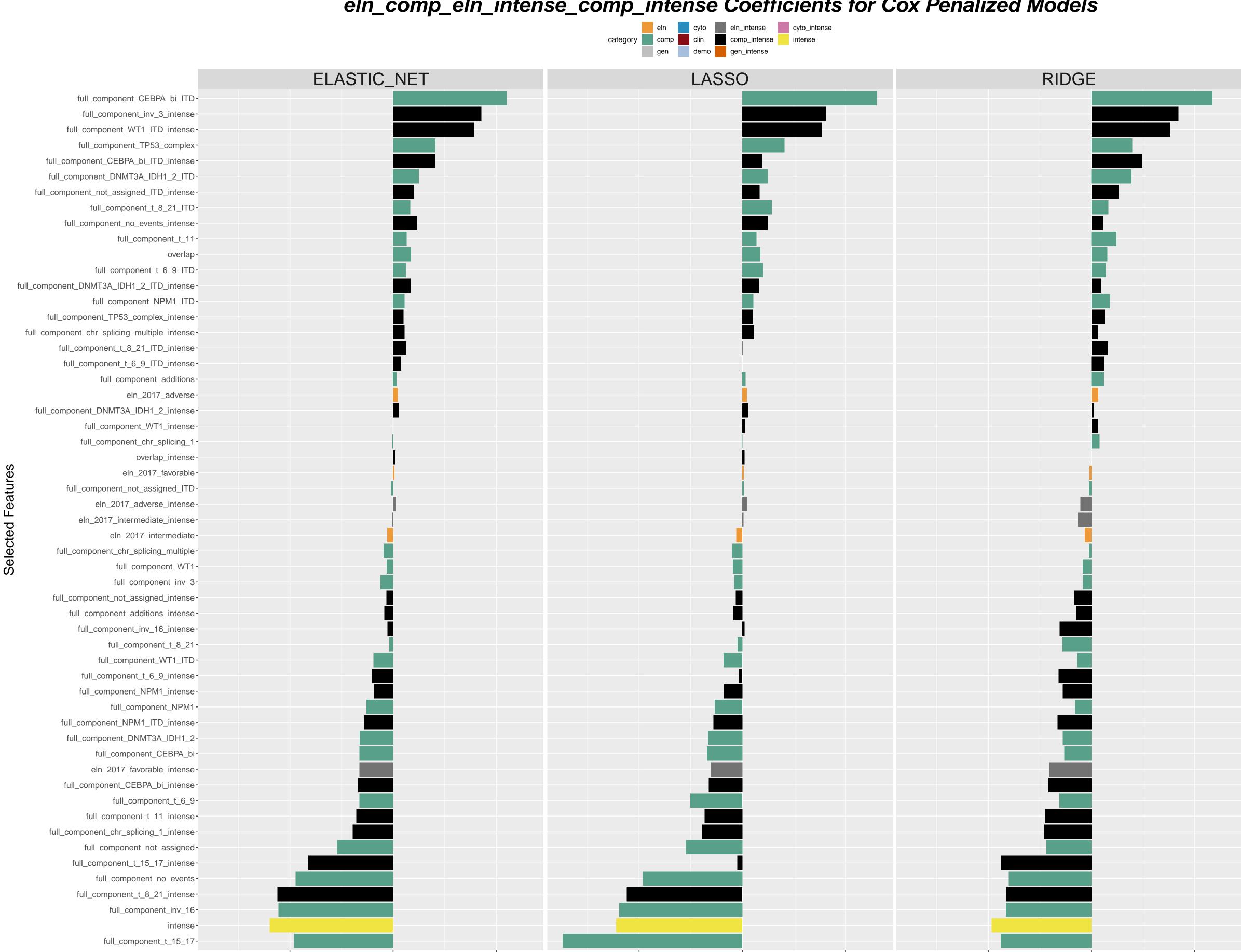






## eln\_comp\_eln\_intense\_comp\_intense Coefficients for Cox Penalized Models

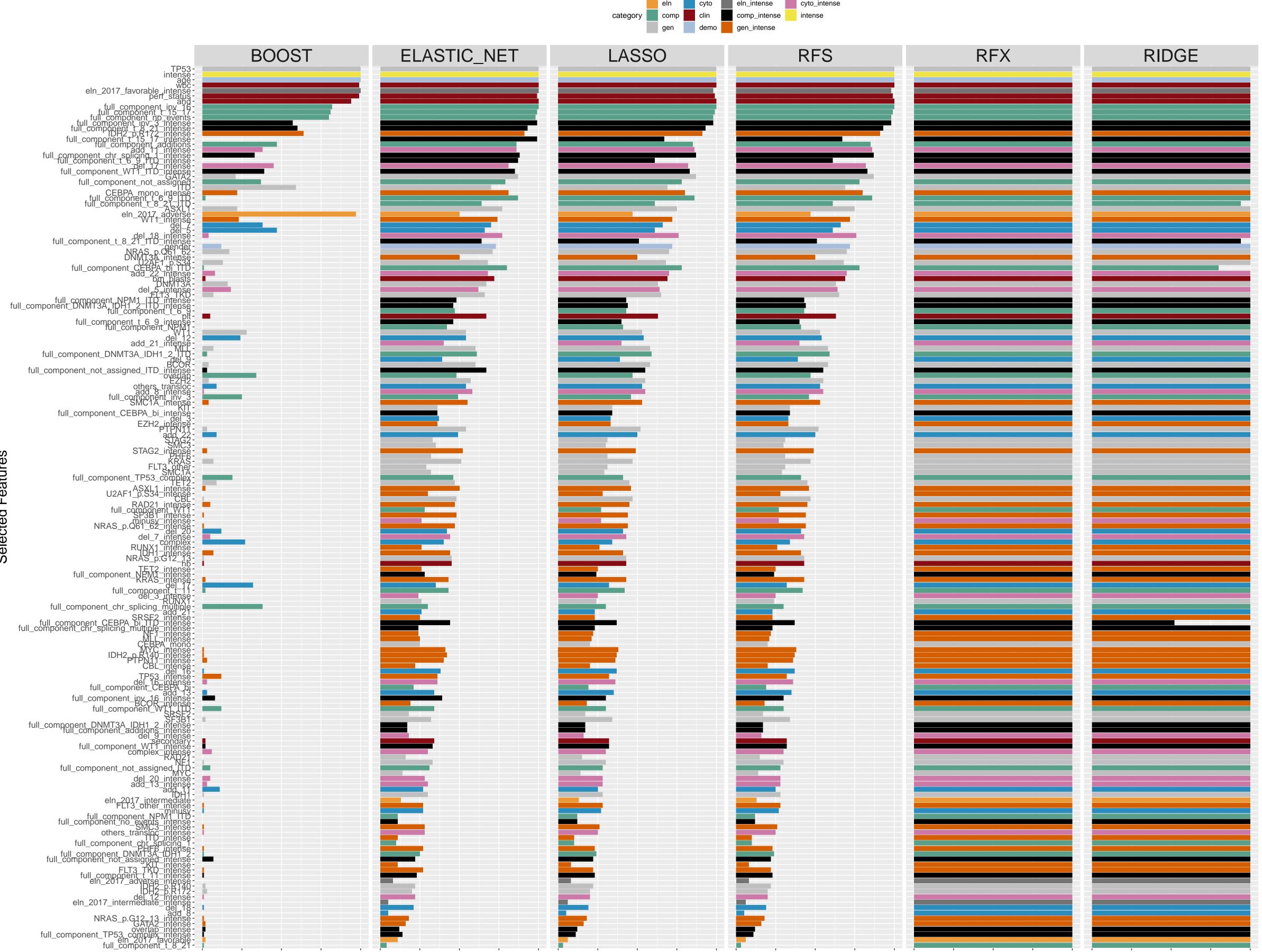
Proportion of selection count overall models and algorithms



Sum of coefficients over GLM Models

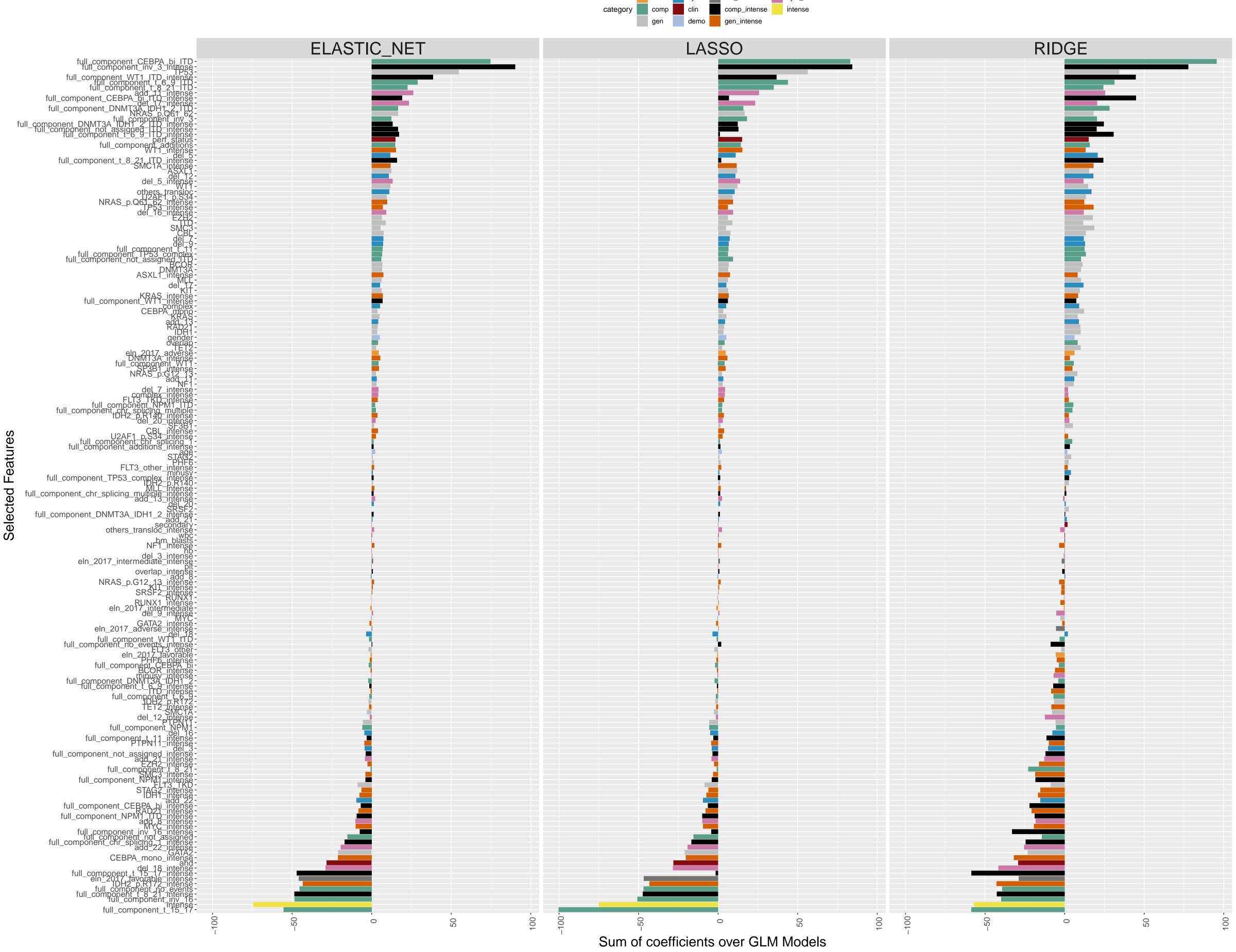
Ratio (ref\_Cl/Permuted\_Cl)

eln\_comp\_gen\_cyto\_clin\_demo\_eln\_intense\_comp\_intense\_gen\_intense\_cyto\_intense Model Feature importance Bootstra



Proportion of selection count overall models and algorithms

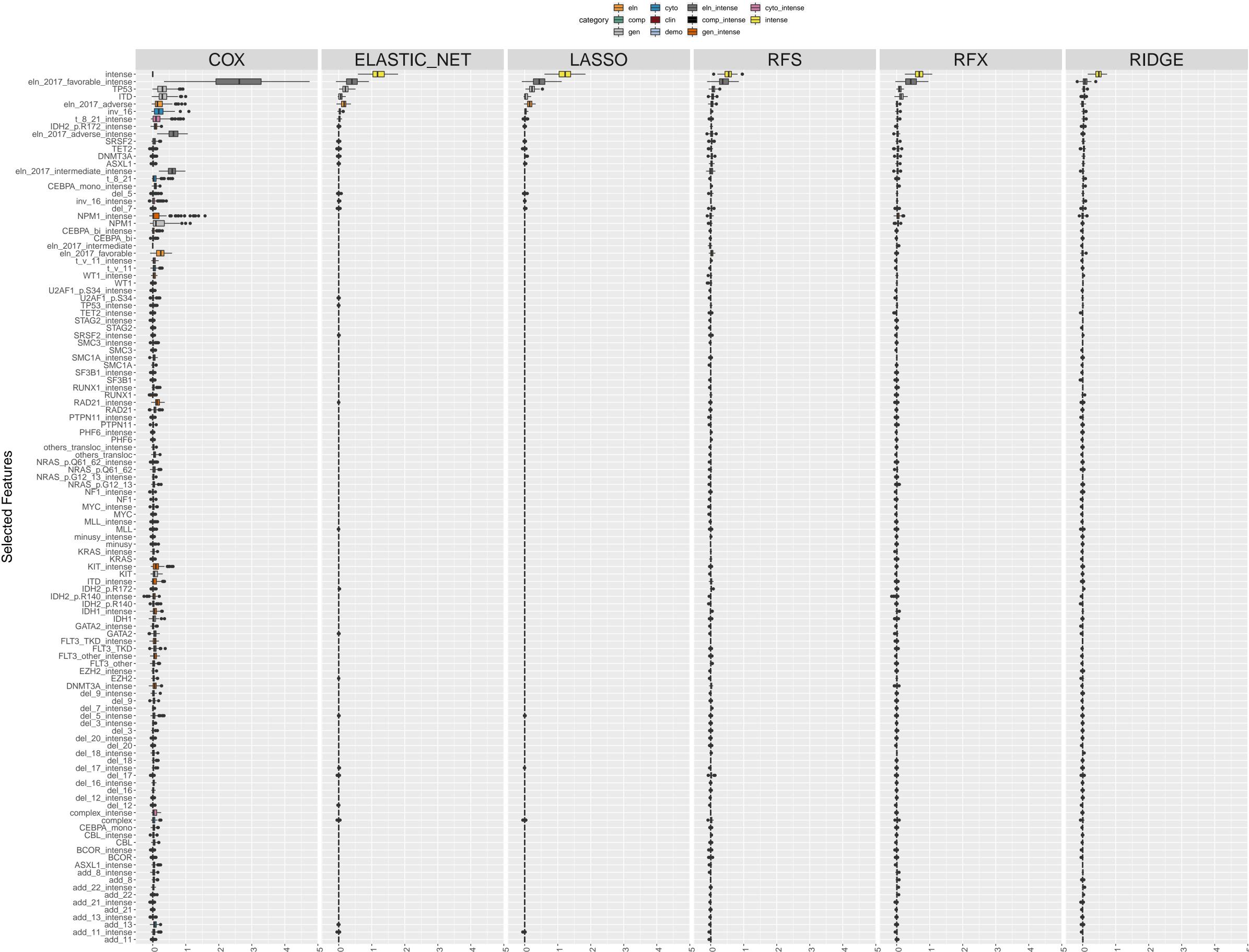
eln\_comp\_gen\_cyto\_clin\_demo\_eln\_intense\_comp\_intense\_gen\_intense\_cyto\_intense Coefficients for Cox Penalize



full\_component\_TP53\_comple Selected full\_component\_DNMT3A\_IDH1 full\_component\_DNN 100 Sum of coefficients over GLM Models

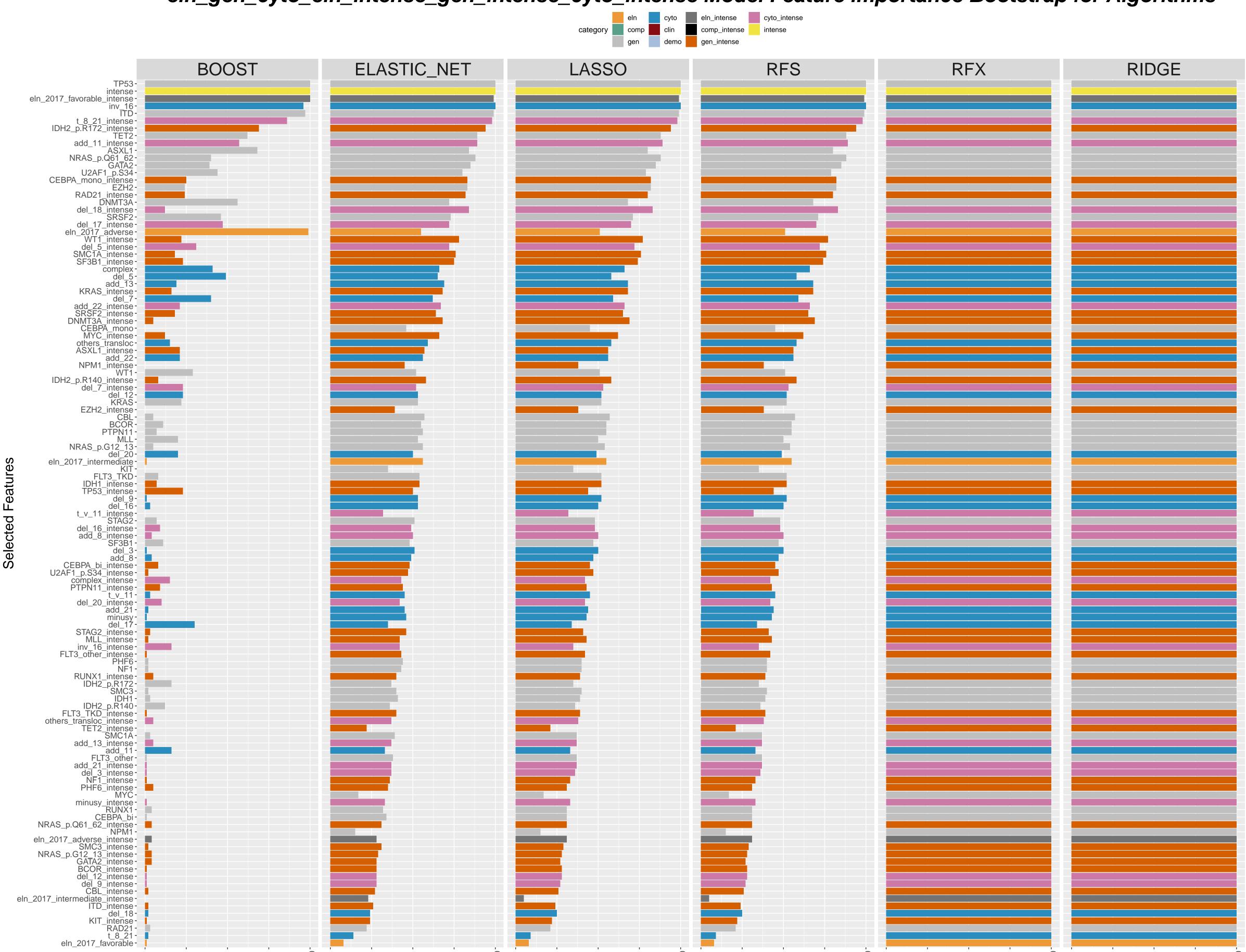
eln\_eln\_intense Model Feature importance Reshuffling demo pen\_intense ELASTIC\_NET COX RIDGE LASSO RFS RFX intenseeln\_2017\_favorable\_intenseeln\_2017\_adverseeln\_2017\_intermediate\_intenseeln\_2017\_intermediate eln\_2017\_favorable eln\_2017\_adverse\_intense-Ratio (ref\_Cl/Permuted\_Cl) eln\_eln\_intense Model Feature importance Bootstrap for Algorithms ELASTIC\_NET BOOST RIDGE LASSO RFS RFX eln\_2017\_favorable\_intense intenseeln\_2017\_adverse-Selected Features eln\_2017\_adverse\_intenseeln\_2017\_intermediate eln\_2017\_intermediate\_intenseeln\_2017\_favorable-Proportion of selection count overall models and algorithms eln\_eln\_intense Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE eln\_2017\_adverseeln\_2017\_adverse\_intenseeln\_2017\_favorable eln\_2017\_intermediate\_intenseeln\_2017\_intermediate eln\_2017\_favorable\_intenseintense--120 -120--80 0 0 Sum of coefficients over GLM Models

eln\_gen\_cyto\_eln\_intense\_gen\_intense\_cyto\_intense Model Feature importance Reshuffling



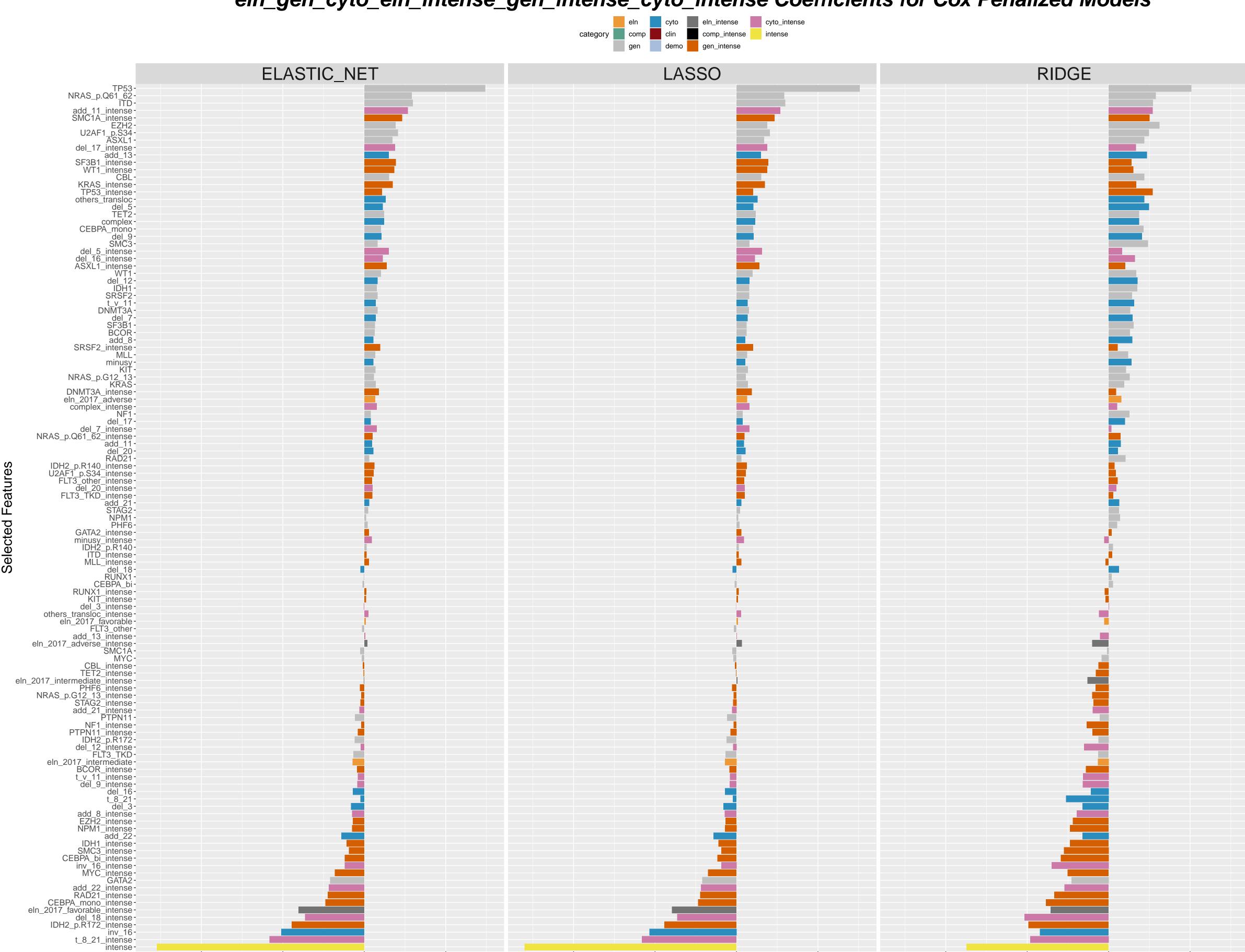
eln\_gen\_cyto\_eln\_intense\_gen\_intense\_cyto\_intense Model Feature importance Bootstrap for Algorithms

Ratio (ref\_CI/Permuted\_CI)



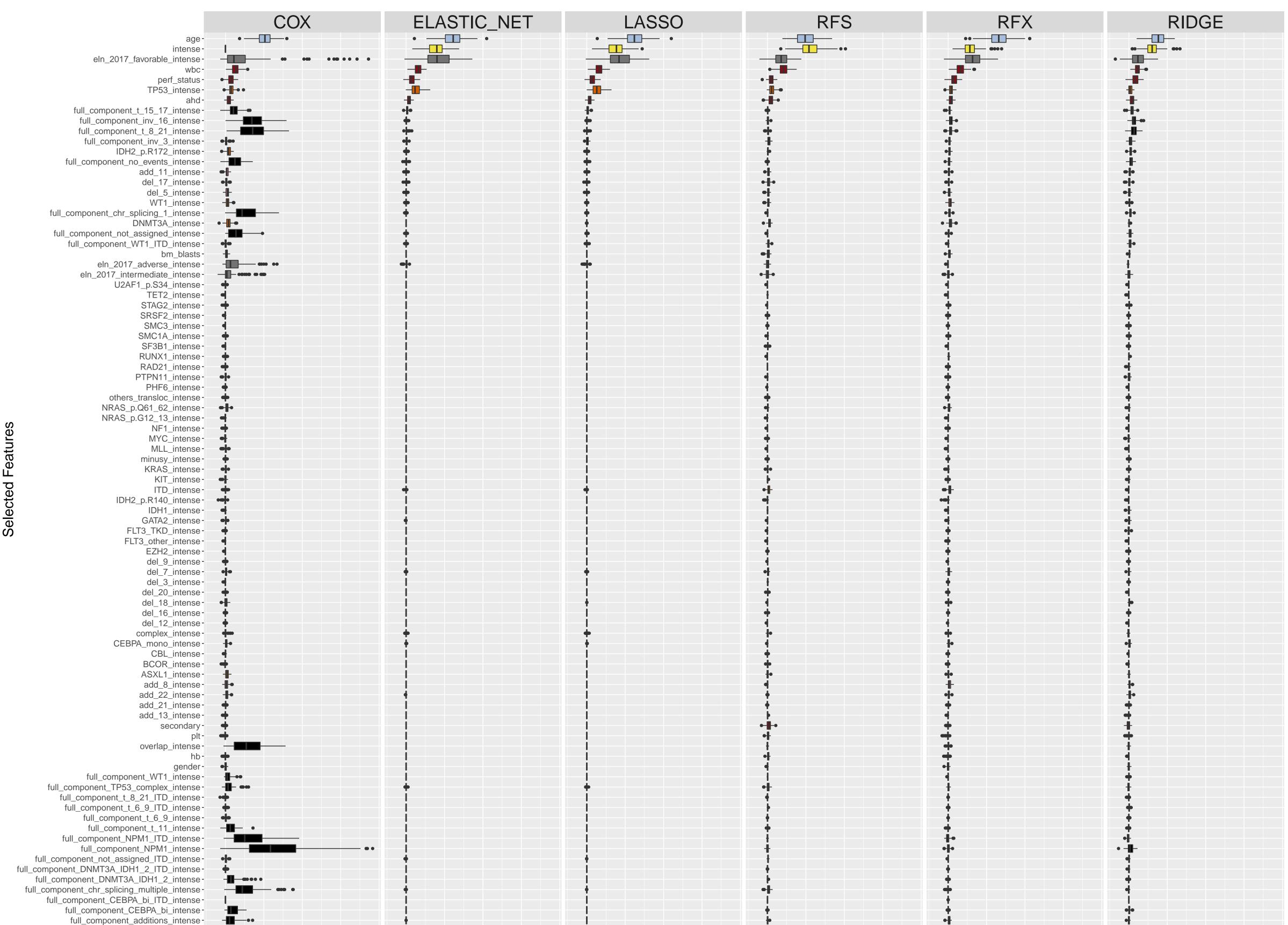
eln\_gen\_cyto\_eln\_intense\_gen\_intense\_cyto\_intense Coefficients for Cox Penalized Models

Proportion of selection count overall models and algorithms

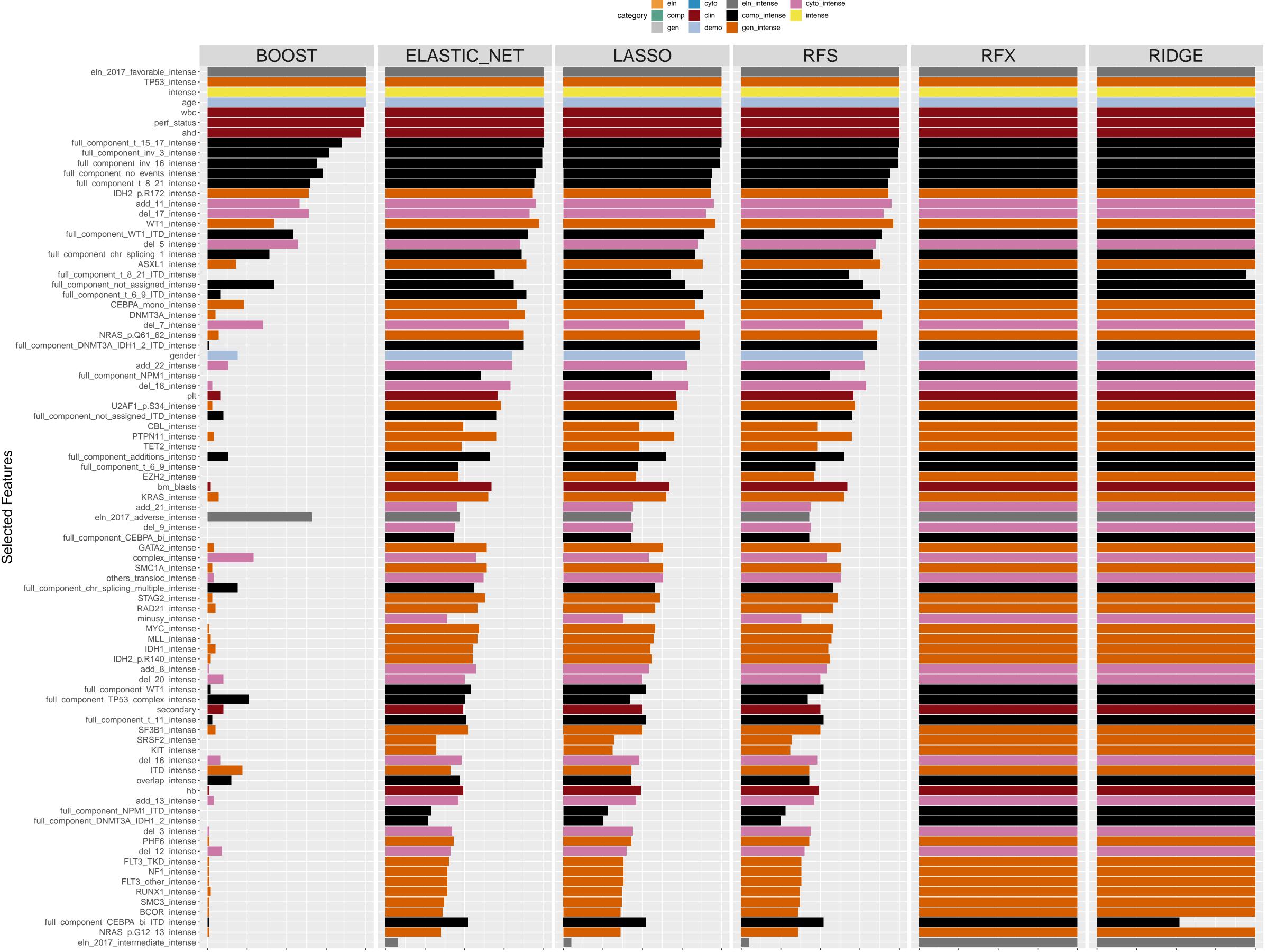


9

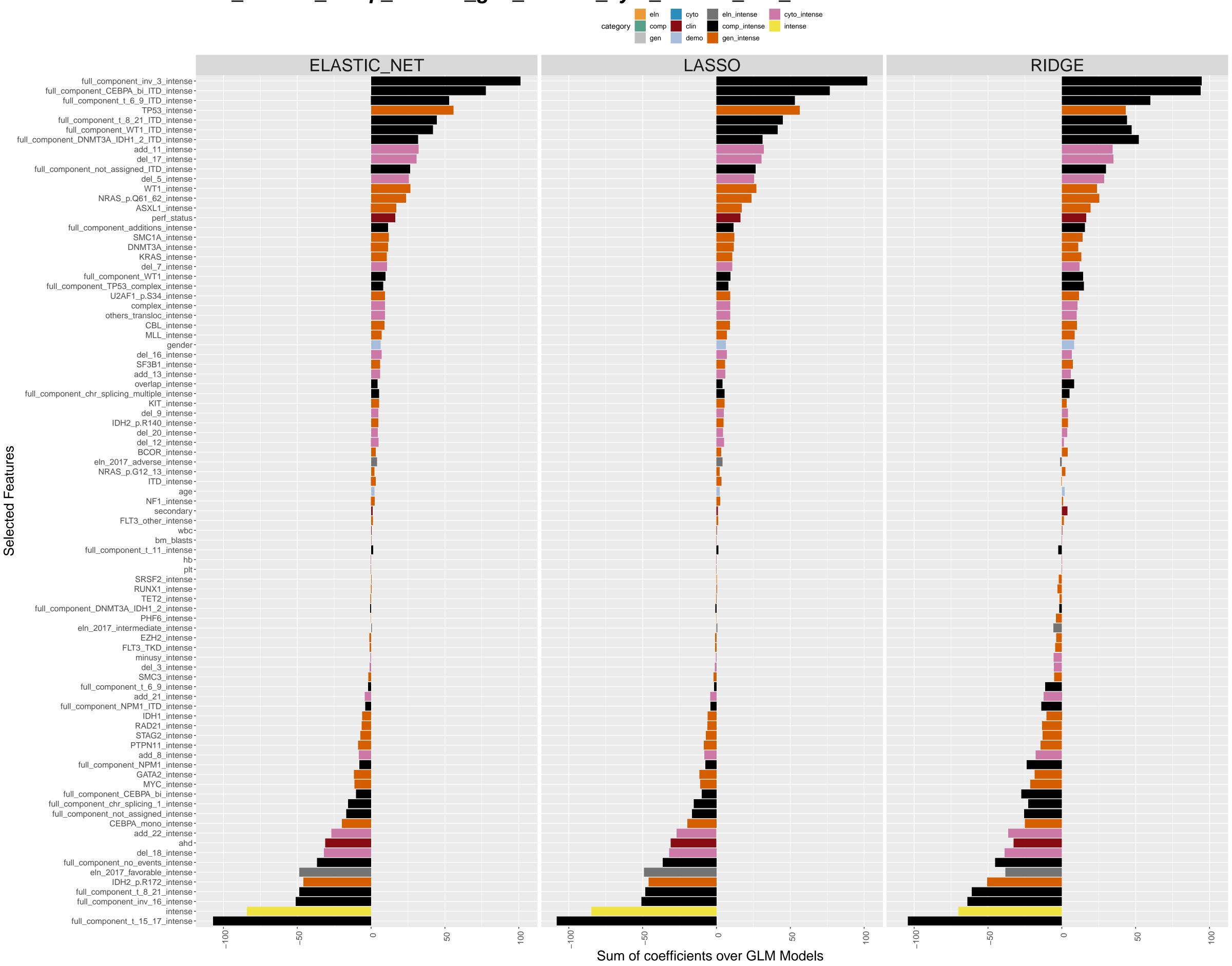
-20



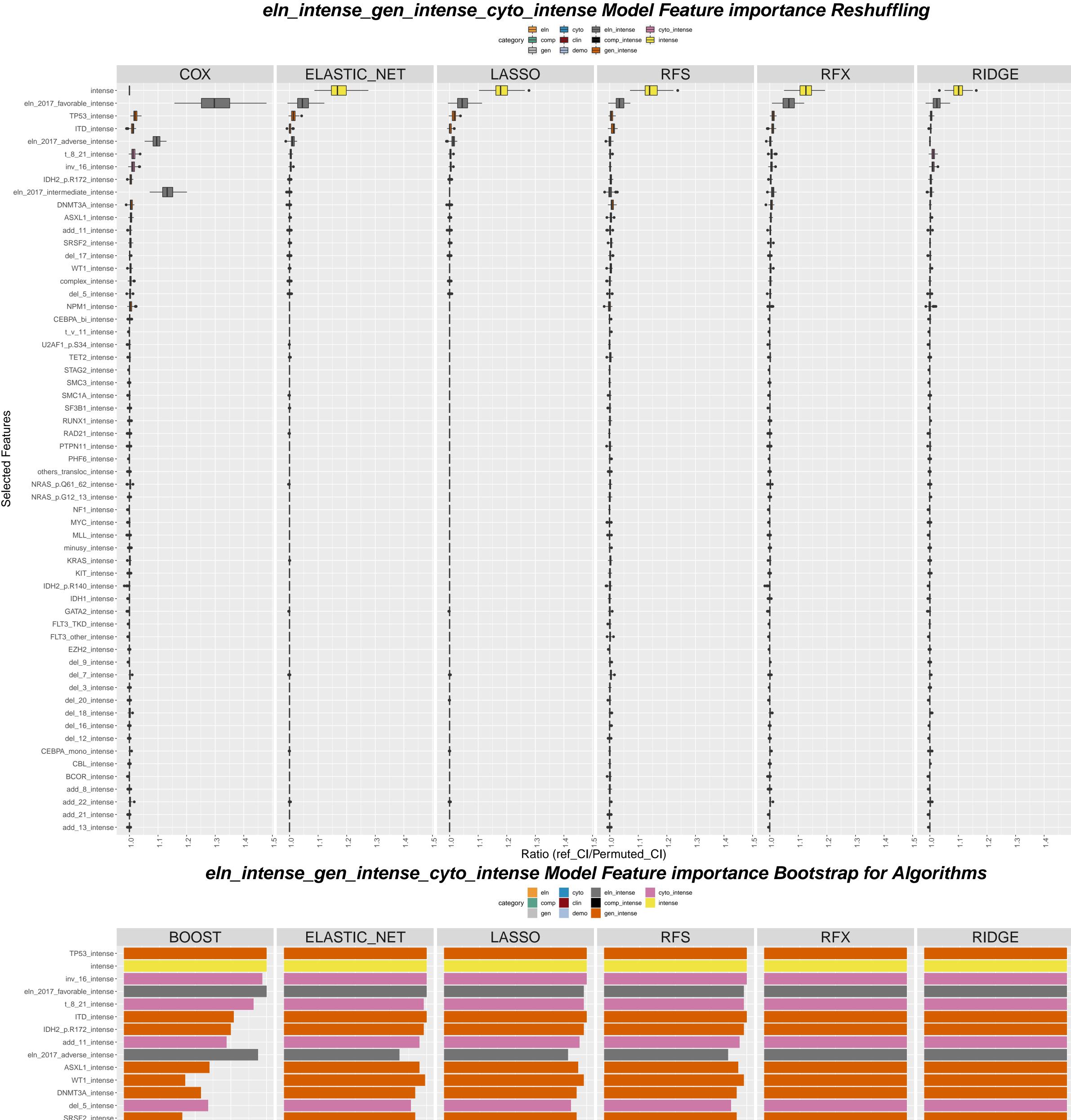
Ratio (ref\_CI/Permuted\_CI) eln\_intense\_comp\_intense\_gen\_intense\_cyto\_intense\_clin\_demo Model Feature importance Bootstrap for Algor

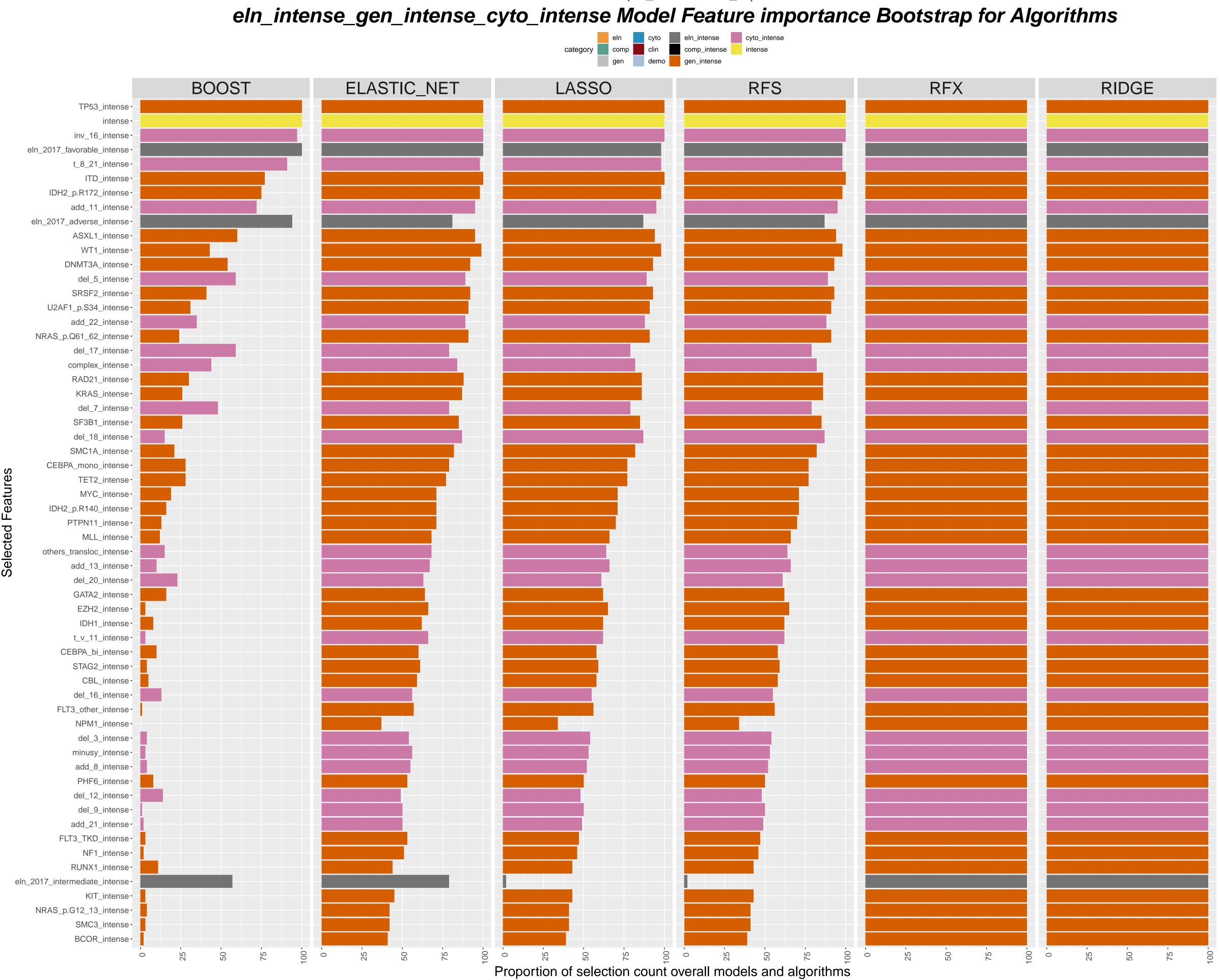


Proportion of selection count overall models and algorithms eln\_intense\_comp\_intense\_gen\_intense\_cyto\_intense\_clin\_demo Coefficients for Cox Penalized Models

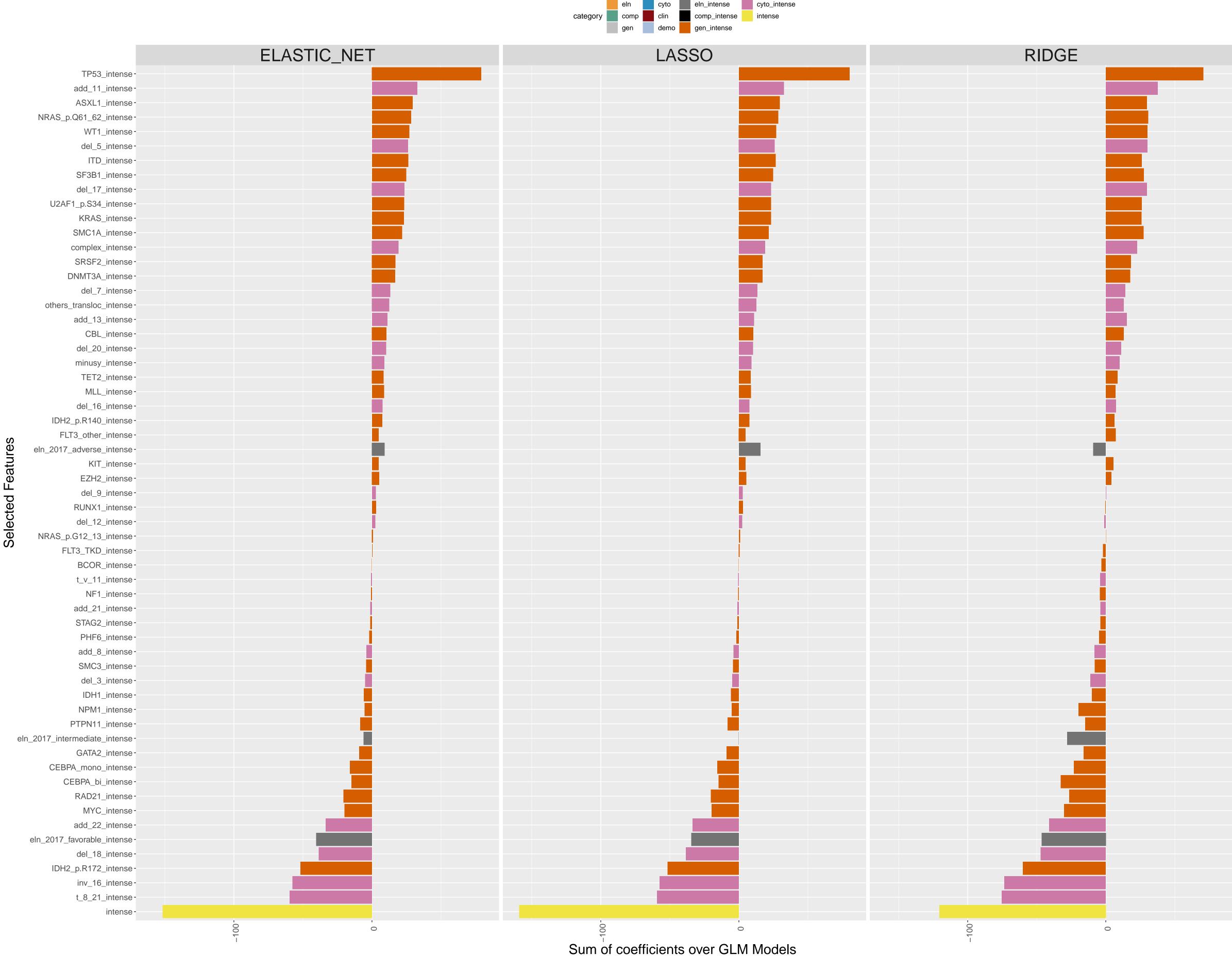


eln\_intense\_cyto\_intense Model Feature importance Reshuffling ELASTIC\_NET COX RFS RFX RIDGE LASSO intense eln\_2017\_favorable\_intenset\_8\_21\_intenseinv\_16\_intenseeln\_2017\_adverse\_intenseeln\_2017\_intermediate\_intensecomplex\_intense del\_5\_intensedel\_17\_intenseadd\_11\_intenset\_v\_11\_intenseothers\_transloc\_intenseminusy\_intensedel\_9\_intensedel\_7\_intensedel\_3\_intensedel\_20\_intensedel\_18\_intensedel\_16\_intensedel\_12\_intense add\_8\_intenseadd\_22\_intenseadd\_21\_intenseadd\_13\_intense-Ratio (ref\_Cl/Permuted\_Cl) eln\_intense\_cyto\_intense Model Feature importance Bootstrap for Algorithms ELASTIC\_NET BOOST LASSO RFS RFX RIDGE eln\_2017\_favorable\_intenset\_8\_21\_intenseinv\_16\_intenseintenseeln\_2017\_adverse\_intensedel\_17\_intense add\_11\_intensedel\_5\_intense eln\_2017\_intermediate\_intensecomplex\_intensedel\_7\_intense-Selected Features add\_22\_intensedel\_18\_intenseothers\_transloc\_intensedel\_20\_intenseadd\_13\_intensedel\_16\_intenset\_v\_11\_intensedel\_9\_intensedel\_3\_intense del\_12\_intenseadd\_21\_intenseadd\_8\_intenseminusy\_intense-100-- 09 75 -100 Proportion of selection count overall models and algorithms - 9/ eln\_intense\_cyto\_intense Coefficients for Cox Penalized Models ELASTIC\_NET LASSO RIDGE del\_17\_intense add\_11\_intensedel\_5\_intense complex\_intense eln\_2017\_adverse\_intensedel\_7\_intense del\_20\_intense del\_16\_intense minusy\_intenseothers\_transloc\_intenseadd\_13\_intense-Selected Feat del\_3\_intenset\_v\_11\_intenseadd\_21\_intensedel\_12\_intense add\_8\_intensedel\_9\_intense-

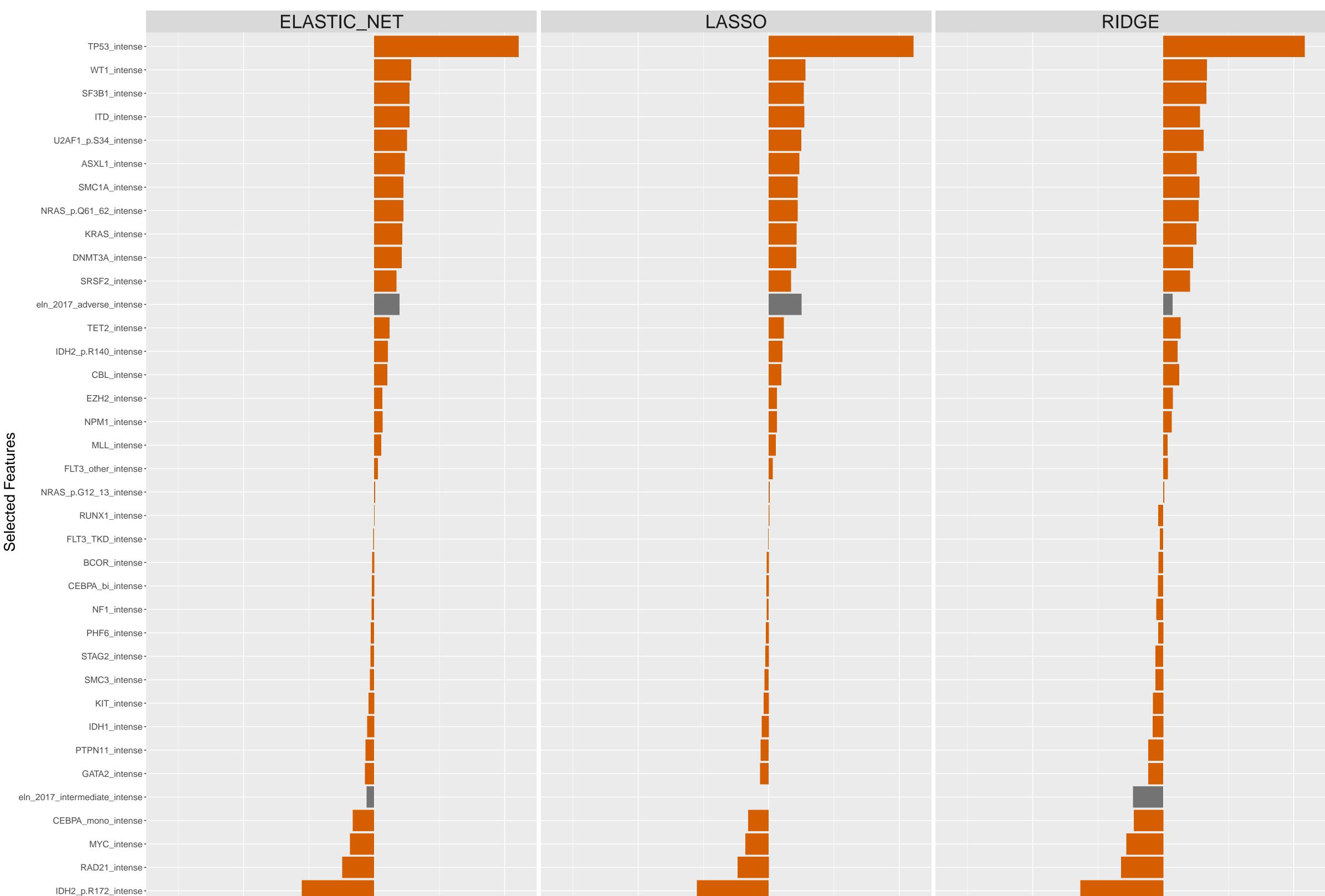








eln\_intense\_gen\_intense Model Feature importance Reshuffling ELASTIC\_NET COX LASSO RFS RFX RIDGE intenseeln\_2017\_favorable\_intense-TP53\_intense-ITD\_intense eln\_2017\_adverse\_intense-DNMT3A\_intense - •eln\_2017\_intermediate\_intense-IDH2\_p.R172\_intense-ASXL1\_intense-SRSF2\_intense-WT1\_intense-TET2\_intense -NPM1\_intense-CEBPA\_bi\_intense-U2AF1\_p.S34\_intense-STAG2\_intense-SMC3\_intense-SMC1A\_intense-SF3B1\_intense-RUNX1\_intense-RAD21\_intense-PTPN11\_intense -PHF6\_intense -NRAS\_p.Q61\_62\_intense-NRAS\_p.G12\_13\_intense-NF1\_intense -MYC\_intense-MLL\_intense -KRAS\_intense-KIT\_intense -IDH2\_p.R140\_intense-IDH1\_intense-GATA2\_intense-FLT3\_TKD\_intense -FLT3\_other\_intense-EZH2\_intense-CEBPA\_mono\_intense -CBL\_intense -BCOR\_intense-Ratio (ref\_CI/Permuted\_CI) eln\_intense\_gen\_intense Model Feature importance Bootstrap for Algorithms BOOST **ELASTIC\_NET** LASSO RFS RFX RIDGE eln\_2017\_favorable\_intense-TP53\_intenseintenseeln\_2017\_adverse\_intense-ITD\_intense -IDH2\_p.R172\_intense-DNMT3A\_intense-WT1\_intense-ASXL1\_intense -SRSF2\_intense-U2AF1\_p.S34\_intense-RAD21\_intense-SF3B1\_intense-TET2\_intense -KRAS\_intense-NRAS\_p.Q61\_62\_intense-SMC1A\_intense-CEBPA\_mono\_intenseDDH2\_p.R140\_intenseMYC\_intenseeln\_2017\_intermediate\_intenseIDH1\_intense-PTPN11\_intense -MLL\_intense-STAG2\_intense-GATA2\_intense-CBL\_intense-EZH2\_intense-KIT\_intense-NF1\_intense-FLT3\_other\_intense-PHF6\_intense-FLT3\_TKD\_intense -CEBPA\_bi\_intense-NRAS\_p.G12\_13\_intense-BCOR\_intense-SMC3\_intense-RUNX1\_intense-NPM1\_intense-Proportion of selection count overall models and algorithms eln\_intense\_gen\_intense Coefficients for Cox Penalized Models **ELASTIC\_NET** LASSO RIDGE TP53\_intense-WT1\_intense-SF3B1\_intense-ITD\_intense -U2AF1\_p.S34\_intense-ASXL1\_intense -SMC1A\_intense-NRAS\_p.Q61\_62\_intense-KRAS\_intense-DNMT3A\_intense-SRSF2\_intenseeln\_2017\_adverse\_intense-



Sum of coefficients over GLM Models

100

-100-

eln\_2017\_favorable\_intense-

intense-

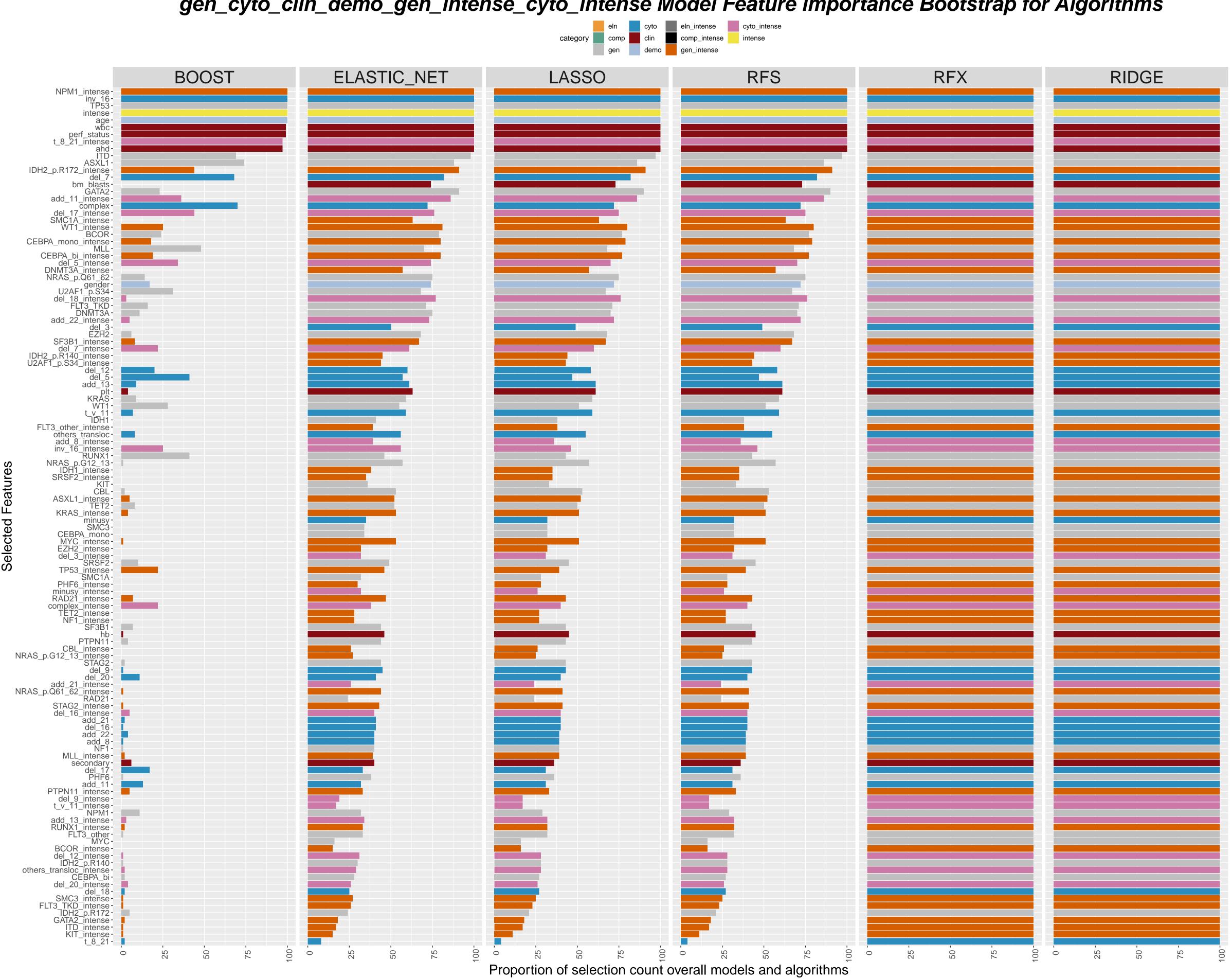
-100-

gen\_cyto\_clin\_demo\_gen\_intense\_cyto\_intense Model Feature importance Reshuffling

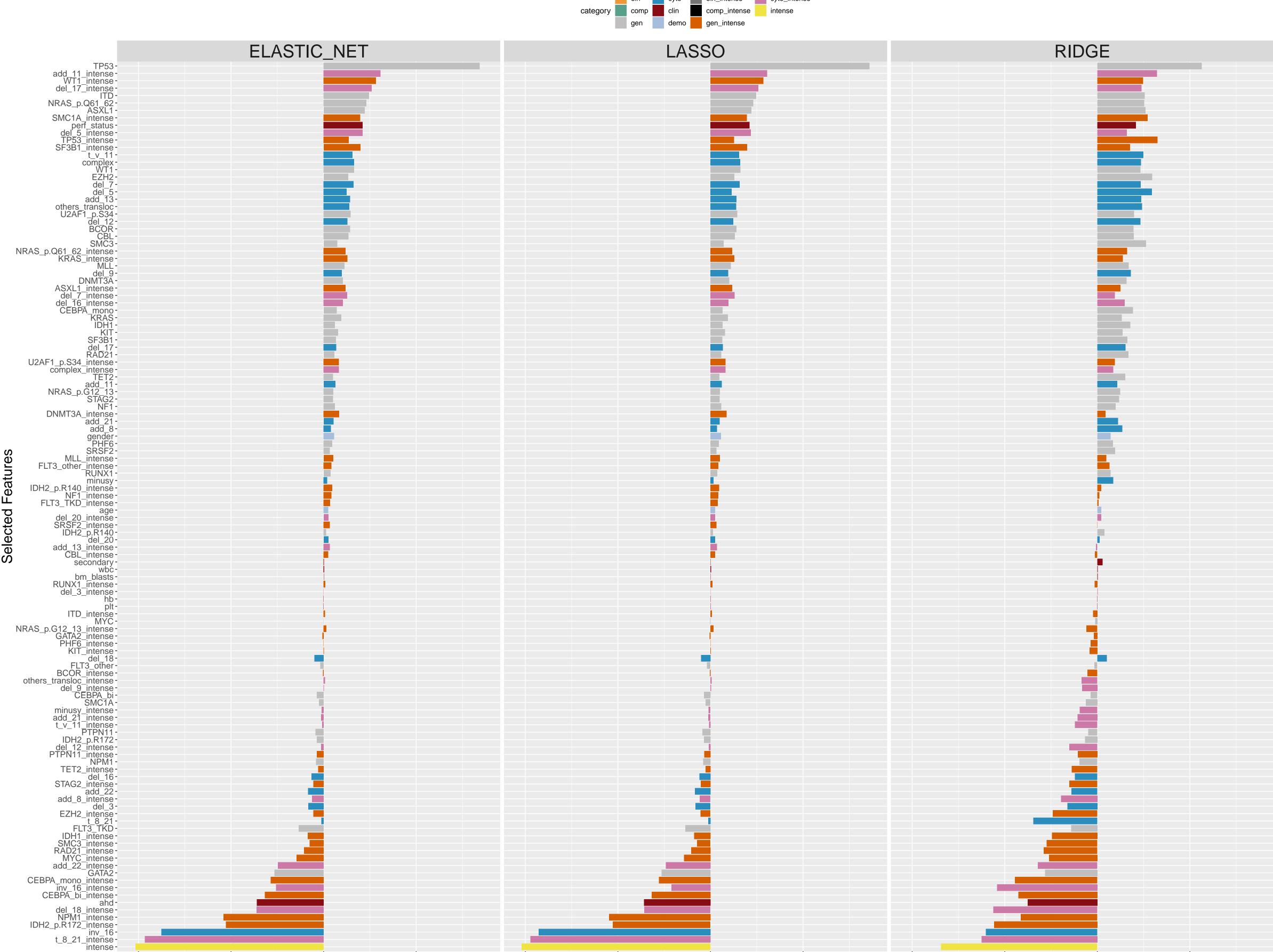


gen\_cyto\_clin\_demo\_gen\_intense\_cyto\_intense Model Feature importance Bootstrap for Algorithms

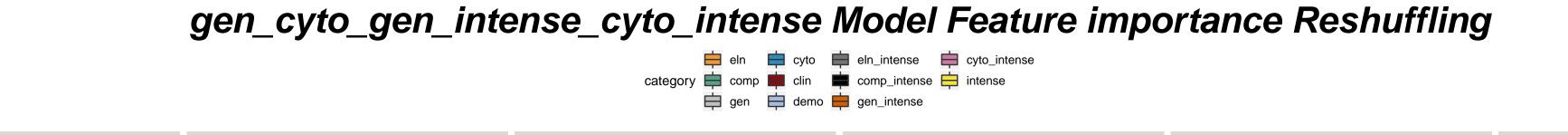
Ratio (ref\_CI/Permuted\_CI)

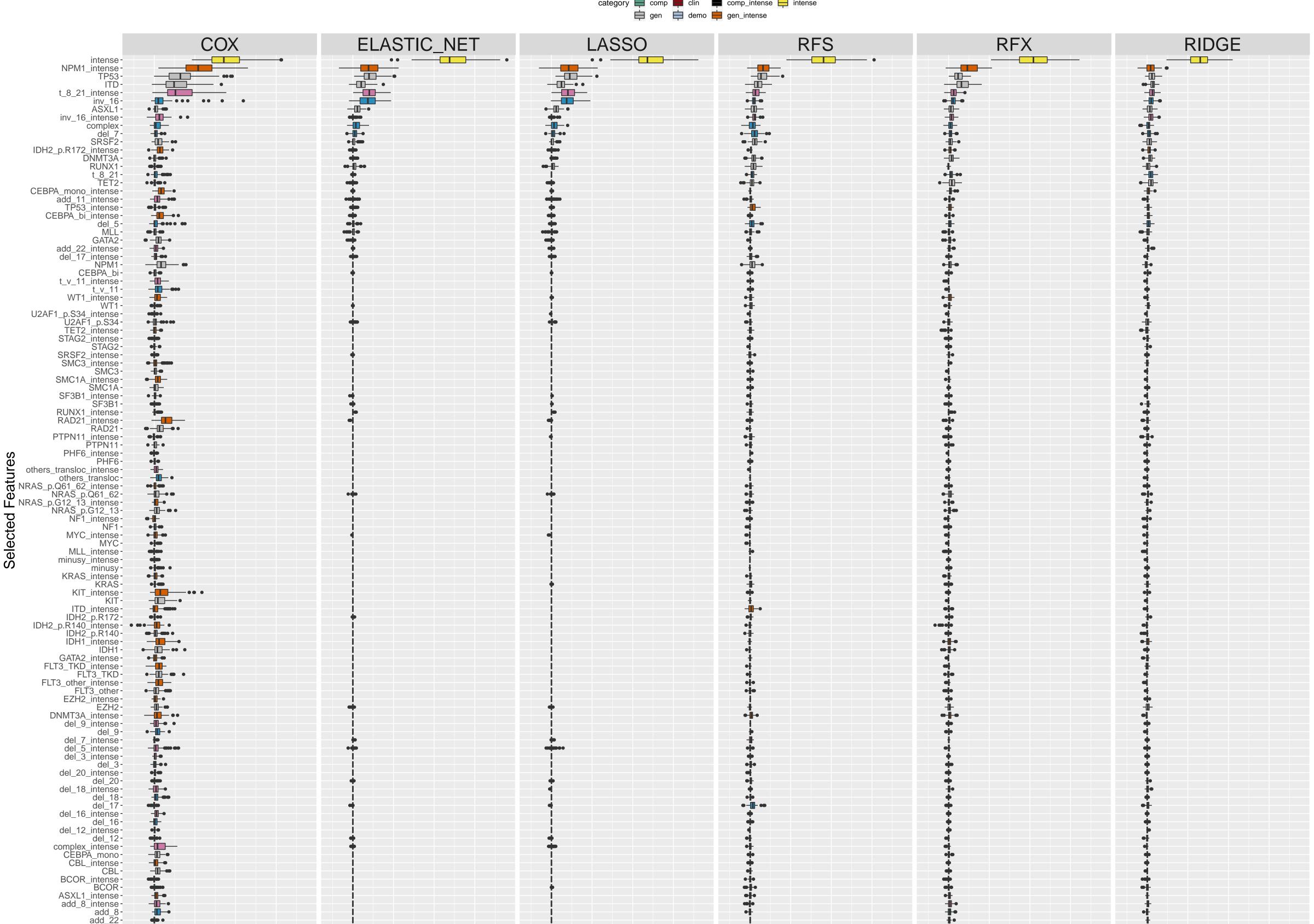


gen\_cyto\_clin\_demo\_gen\_intense\_cyto\_intense Coefficients for Cox Penalized Models eln cyto eln\_intense cyto\_intense category comp clin comp\_intense intense



Sum of coefficients over GLM Models





gen\_cyto\_gen\_intense\_cyto\_intense Model Feature importance Bootstrap for Algorithms

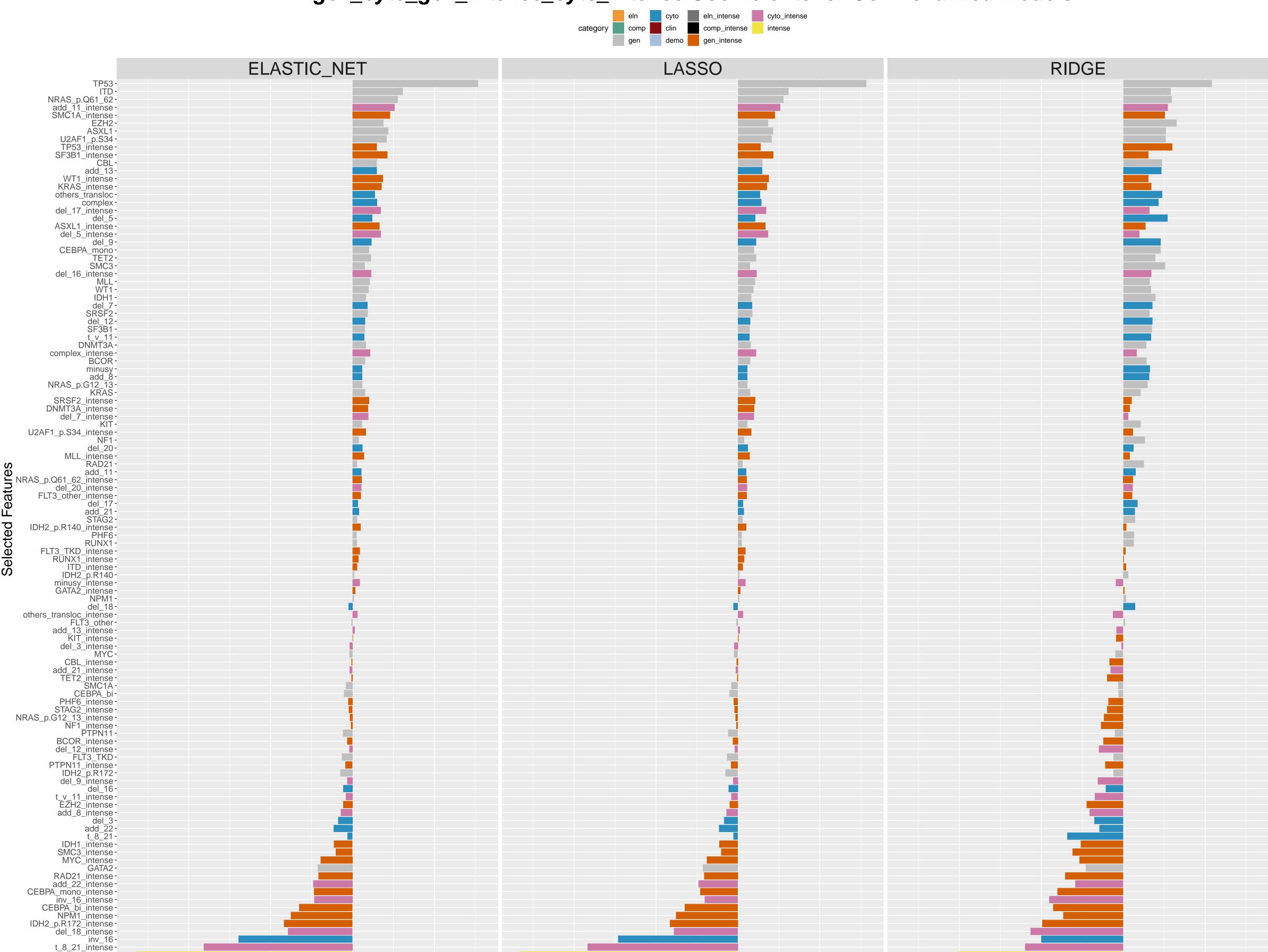
Ratio (ref\_CI/Permuted\_CI)



Selected Features

gen\_cyto\_gen\_intense\_cyto\_intense Coefficients for Cox Penalized Models

Proportion of selection count overall models and algorithms



Sum of coefficients over GLM Models

gen\_gen\_intense Model Feature importance Reshuffling eln cyto eln\_intense cyto\_intense clin comp\_intense intense demo pen\_intense COX **ELASTIC\_NET** LASSO RFS RFX RIDGE intense------TP53------ITD-NPM1\_intense-•—— ASXL1--RUNX1-----SRSF2-TP53\_intense-DNMT3A-KIT\_intense -MLL-TET2-U2AF1\_p.S34-SF3B1\_intense-IDH2\_p.R172\_intense-CEBPA\_mono\_intense-RAD21\_intense-CEBPA\_bi\_intense-NPM1-CEBPA\_bi-WT1\_intense-WT1 -U2AF1\_p.S34\_intense-TET2\_intense-STAG2\_intense-STAG2-SRSF2\_intense-SMC3\_intense-SMC3-SMC1A\_intense -SMC1A-SF3B1-RUNX1\_intense-RAD21 -PTPN11\_intense -PTPN11PHF6\_intensePHF6NRAS\_p.Q61\_62\_intenseNRAS\_p.Q61\_62-PTPN11-NRAS\_p.G12\_13\_intense-NRAS\_p.G12\_13-NF1\_intense -MYC\_intense MLL\_intense -KRAS\_intense-KRAS-KIT-ITD\_intense -IDH2\_p.R172-IDH2\_p.R140\_intense-IDH2\_p.R140-IDH1\_intense GATA2\_intense GATA2-FLT3\_TKD\_intense FLT3\_TKD FLT3\_other\_intense FLT3\_other-EZH2\_intense EZH2 DNMT3A\_intense CEBPA\_mono-CBL\_intense CBL BCOR\_intense-BCOR-ASXL1\_intense Ratio (ref\_Cl/Permuted\_Cl) gen\_gen\_intense Model Feature importance Bootstrap for Algorithms ELASTIC\_NET BOOST LASSO RFS RFX RIDGE TP53intense NPM1\_intense ITD-ASXL1 TP53\_intense-TET2-IDH2\_p.R172\_intense SRSF2-KIT\_intense-U2AF1\_p.S34-EZH2-RAD21\_intense SF3B1\_intense-MLL-CEBPA\_bi\_intense-WT1\_intense-DNMT3A -GATA2 -SRSF2\_intense-BCOR-CEBPA\_mono\_intense-DNMT3A\_intense-RUNX1-MLL\_intense -RUNX1\_intense-NRAS\_p.Q61\_62-FLT3\_TKD-KRAS\_intense-ASXL1\_intense -SMC1A\_intense -Selected Features U2AF1\_p.S34\_intense-IDH2\_p.R140\_intense-SF3B1-MYC\_intense -KRAS-CBL-CEBPA\_mono-NRAS\_p.G12\_13-PTPN11-IDH1\_intense-WT1 -STAG2-SMC3-IDH1 -STAG2\_intense-EZH2\_intense-SMC3\_intense-PTPN11\_intense-SMC1A-PHF6-IDH2\_p.R172-CEBPA\_bi-IDH2\_p.R140-FLT3\_other-FLT3\_other\_intense -NF1 FLT3\_TKD\_intense-PHF6\_intense-GATA2\_intense-MYC-NF1\_intense-NRAS\_p.G12\_13\_intense-ITD intense-TET2\_intense -CBL\_intense -BCOR\_intense -NPM1 NRAS\_p.Q61\_62\_intense RAD21 KIT-- 5/ - 9/ Proportion of selection count overall models and algorithms gen\_gen\_intense Coefficients for Cox Penalized Models comp\_intense intense ELASTIC\_NET LASSO RIDGE TP53-TP53\_intense-ITD-SF3B1\_intense-EZH2-U2AF1\_p.S34-ASXL1-WT1\_intense -SMC1A\_intense-NRAS\_p.Q61\_62-CEBPA\_mono-CBL-IDH1-TET2-KRAS\_intense -ASXL1\_intense -SRSF2-DNMT3A\_intense-MLL-MLL\_intense -U2AF1\_p.S34\_intense-SMC3-SRSF2\_intense-WT1-DNMT3A -BCOR-SF3B1 NRAS\_p.G12\_13-NF1-KRAS-IDH2\_p.R140\_intense-RAD21-RUNX1\_intense -GATA2\_intense-Selected Feat PHF6-RUNX1-ITD\_intense -STAG2-NPM1-FLT3\_other\_intense -FLT3\_TKD\_intense-IDH2\_p.R140-KIT-

100

90

-100

100

-150

TET2\_intense - CEBPA\_bi -

FLT3\_other-

PTPN11-

SMC1A-

GATA2-

SMC3\_intense - KIT\_intense -

RAD21\_intense - CEBPA\_bi\_intense -

NPM1\_intense -

intense-

CEBPA\_mono\_intense -

IDH2\_p.R172\_intense-

CBL\_intense NF1\_intense FLT3\_TKD EZH2\_intense IDH1\_intense MYC\_intense -

BCOR\_intense - PTPN11\_intense - IDH2\_p.R172 -

STAG2\_intense-PHF6\_intense-

NRAS\_p.Q61\_62\_intense-

NRAS\_p.G12\_13\_intense-

MYC-