B **GER** selection Sample subtyping **Gene Expression** Group3: 346 genes WNT: 880 genes Group4: 345 genes SHH: 710 genes 6.94 6.70 Gene Rank **Group4 GER matrix** WNT GER matrix Group3 GER matrix SHH GER matrix Comparison Comparison Comparison Comparison Comparison WNT/Group3/Group4 8.09 Reorganizing SHH Gene Rank WNT/Group3/Group4 SHH/WNT/Group4 SHH/WNT/Group3 SHH/Group3/Group4 0.30 **GER** matrix **GER** matrix **GER** matrix **GER** matrix SHH/Group3/Group4 Gene selection WNT Gene Rank Gene Rank 0.55 SHH/WNT/Group4 Reversal ratio analysis Gene Rank $P_{101,137}$ SHH/WNT/Group3 Gene Rank Score averaging WNT: 2381 GER Group3: 347 GER Group4: 456 GER **SHH: 904 GER** Rank change Comparison Comparison analysis Comparison **Comparison** 0.21 0.35 WNT WNT/Group3/Group4 SHH/WNT/ Group3 SHH/Group3/Group4 SHH/WNT/Group4 **GER** matrix **GER** matrix **GER** matrix ...0.58 **GER** matrix • • • 1.02 • • • 5.79 3.02 **Subtype prediction** 3.74 LASSO 2.93 1.79 **Predicted** 738 genes/1035 **GERs** Group3 WNT: 488GER Group3: 111 GER Group4: 105 GER

 $P_{637,737}$ 0.32 0.14 0.22 0.41