

- b. ER Group Score = $((0.8 \times \text{ER}) + (1.2 \times \text{PGR}) + \text{Bcl2} + \text{SCUBE2})/4$
- c. Proliferation Group Score = $(\text{SURV} + \text{KI-67} + \text{MYBL2} + \text{Cyclin B1} + \text{STK15})/5$; if Proliferation Group Score < 6.5 then Proliferation Group Score = 6.5
- d. Invasion Group Score = $(\text{Cathepsin L2} + \text{Stromelysin 3})/2$

3. The Recurrence Score unscaled (RS_U) is calculated using coefficients that were pre-defined based on regression analysis of gene expression and recurrence in the three training studies (Providence, Rush, and NSABP B-20) (12). A plus sign indicates increased expression is associated with increased recurrence risk. A minus sign indicates that increased expression is associated with decreased recurrence risk.

$$\begin{aligned}
 RS_U = & + 0.47 \times \text{HER2 Group Thresholded Score} \\
 & - 0.34 \times \text{ER Group Score} \\
 & + 1.04 \times \text{Proliferation Group Thresholded Score} \\
 & + 0.10 \times \text{Invasion Group Score} \\
 & + 0.05 \times \text{CD68} \\
 & - 0.08 \times \text{GSTM1} \\
 & - 0.07 \times \text{BAG1}
 \end{aligned}$$

4. The Recurrence Score is then rescaled from the Recurrence Score unscaled:

$$RS = \begin{cases} 0 & \text{if } RS_U < 0 \\ 20 \times (RS_U - 6.7) & \text{if } 0 \leq RS_U \leq 100 \\ 100 & \text{if } RS_U > 100 \end{cases}$$