In biomedical research and practice, quantitative biomarkers are often used for diagnostic or prognostic purposes, with a threshold established on the measurement to aid binary classification. When prognosis is on survival time, single threshold may not be informative. It is also challenging to select threshold when the survival time is subject to random censoring. Using survival time dependent sensitivity and specificity, we extend classification accuracy based objective function to allow for survival dependent threshold. To estimate optimal threshold for a range of survival rate we adopt a non-parametric procedure, which produces satisfactory result in a simulation study. The method will be illustrated with a real example. This talk is based on joint work with Dr. Liu Xinhua at Columbia University.