CORA Cork Open Research Archive
Cartlann Taighde Oscailte Chorcaí

Title	Potential of mRNA variables in prediction of poor prognosis prostate cancer
Authors	O'Donnell, Autumn;Moghaddam, Shirin;Cronin, Michael;Wolsztynski, Eric
Publication date	2022-07-05
Original Citation	O'Donnell, A., Moghaddam, S., Cronin, M. and Wolsztynski, E. (2022) 'Potential of mRNA Variables in Prediction of Poor Prognosis Prostate Cancer', European Association for Cancer Research Cancer Genomics, Research Meeting Oxford, UK, 05-07 July.
Type of publication	Conference item
Rights	https://creativecommons.org/licenses/by/4.0/
Download date	2026-11-07 01:13:22
Item downloaded from	https://hdl.handle.net/10468/14069



UCC
University College Cork, Ireland
Coláiste na hOllscoile Corcaigh

Potential of mRNA variables in prediction of poor prognosis Prostate Cancer

This work is concerned with the prediction of biochemical recurrence (BCR) in prostate cancer patients following radical prostatectomy (RP). Determining factors that influence time-to-BCR is vital for patient treatment decision-making. Genetic attributes such as mRNA data may be useful in such predictions and thus are being researched heavily. A common approach consists in determining a single genetic variable with strong predictive ability in determining BCR-free survival. The aim of this study is to investigate the potential benefit of mRNA variables deemed to be predictors of poor prognosis of prostate cancer in a multivariate context.

The dataset used for this analysis contained 198 patients with BCR-free time information, 140 of which also had mRNA data. Twenty mRNA variables were selected for investigation for potential associations and their predictive performance having been found to be predictive of prognosis prostate cancer in other research. Exploration using multidimensional analysis including clustering and principal component analysis was performed along with multivariate modelling Initial testing using both univariate and multivariate logistic regression was performed. Associations between some of these variables were characterised in various ways in the multidimensional information space. In terms of predictive modelling, prognostic potential of some of these variables became evident in cross validated multivariate models. When tested for association with 2-year post-operative BCR with adjust p-value for multiple comparison none were found to be significant. Further cross validated multivariate models showed statistical significance of four variables in a model only containing mRNA variables as well as is a model also containing clinical variables.

The results from this dataset suggested that including mRNA information can further improve prediction of BCR however their usefulness is highly depended on whether they are investigated in a univariate of multivariate approach.